APPENDIX 6

Biological Resources (compiled)

OBMPU BIOLOGICAL RESOURCES REPORT

Program Biological Resources Report
Optimum Basin Management Program Update

March 15, 2020

Chino Basin Watermaster and Inland Empire Utilities Agency

Jacobs

Program Biological Resources Report

March 2020

STATE OF CALIFORNIA
Chino Basin Watermaster and Inland Empire Utilities Agency

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Contents

List of Abbreviated Terms

amsl	average mean sea level
APE	Area of Potential Effect
BAA	Biological Analysis Area
BNSF	BNSF Railway Company
BSA	Biological Study Area
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CRLF	California red-legged frogs
CWA	Clean Water Act
DCH	Designated Critical Habitats
DOR	Division of Rail
Eagle Act	The Bald and Golden Eagle Protection Act
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Orders
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FE	Federally Endangered
FESA	Federal Endangered Species Act
FMPs	Fishery Management Plans
FT	Federally Threatened
ITC	Intermodal Transit Center
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
MP	Milepost
mph	miles per hour
MSHCP	Multiple Species Habitat Conservation Plan

List of Abbreviated Terms

NCCP	Natural Community Conservation Plans
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOP	Notice of Preparation
NPPA	Native Plant Protect Act
PEIR	Program Environmental Impact Report
PNES	Program Natural Environmental Study
ROW	Right-of-Way
RTC	Rail Traffic Controller
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SCRRA	Southern California Regional Rail Authority
SJVR	San Joaquin Valley Rail
SR	State Route
ST	State Threatened
SWRCB	State Water Resources Control Board
TDA	Tom Dodson & Associates
TOD	Transit Oriented Development
UPRR	Union Pacific Railroad (or UP)
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Services
USGS	U.S. Geological Survey
VFR	Valley foothill riparian
VOW	Valley oak woodland

Chapter 1. Project Description

1.1 Introduction

The Optimum Basin Management Program Update (OBMPU) is being prepared to provide an update to the Optimum Basin Management Plan Program Environmental Impact Report that was completed in 1999. The focus of this OBMPU document is to update the projects remaining to be implemented as well as identify new or additional elements, activities, and facilities proposed by the Chino Basin Watermaster (CBWM). The project descriptions focus on the relationship between OBMPU Program elements, activities, and facilities that *may* be implemented by the CBWM or any of its member agencies/stakeholders in the Chino Groundwater Basin (Chino Basin) through the planning period, 2020 through 2050.

One of the goals of this Biological Resources Report (BRR) for this program is to generally identify the biological resources within the plan area, and to identify the general areas where they occur or may occur. Another goal of this BRR is to broadly identify project "Types" with characteristics and activities that *may* cause physical changes to biological resources, or have the potential to impact sensitive biological resources. The final goal of the BRR is to identify mitigation measures identified in the OBMP EIR and either carry them forward, carry them forward with modifications, or identify additional or new measures based on new technology or science.

The description of the OBMPU's scope in this document is of necessity expansive as it covers nine (9) Program Elements (PEs) and attempts to address all of the possible program activities and projects at a programmatic level over the next 30 years, with some site-specific detail where near-term future locations of facilities are known. The CBWM and stakeholders have been meeting to review Program Elements and define potential project activities and facilities for about the past two years. Since the Inland Empire Utilities Agency (IEUA) has jurisdiction throughout most of the Chino Basin, it has agreed to serve as the Lead Agency for purposes of complying with the California Environmental Quality Act (CEQA). The CBWM and stakeholders of the OBMPU Peace Agreement and regulatory agencies that will function as CEQA Responsible Agencies will have the option of relying upon a certified Final OBMPU Program Environmental Impact Report (PEIR) for any future actions they take in support of the proposed program or an individual project described in this PEIR.

The 2000 OBMP contains a set of management programs (the PEs) that improve the reliability and long-term sustainability of the Chino Basin and the water supply reliability of the Judgment Parties. The framework for developing the OBMPU—including the goals of the Parties, the hydrologic understanding of the basin, the institutional and regulatory environment, an assessment of the impediments to achieving the Parties' goals, and the actions required to remove the impediments and achieve the goals—were all based on 1998-1999 conditions and valid planning assumptions at that time. Below is a summary of the PE's

1.2 Summary of Findings for Project Types Being Covered by this Program Document

Since there is a wide range of potential projects and programs associated with this plan, project have been broken in to "Types" of projects and the associated potential impacts to biological resources that a given "Type" may have is identified.

1.2.1 Project Category 1: Well Development and Monitoring Devices (PEs 1-9)

This Project Category includes the development of ASR, injection, pumping, groundwater level monitoring, and groundwater quality wells, associated well housing, as well as monitoring devices such as flow meters and extensometers. The proposed wells and monitoring devices will be installed throughout the Chino Basin.

Since the proposed project is at the programmatic level, specific locations for the proposed wells have not been have yet to be determined. As such, impacts to specific species or sensitive habitat resources are speculative, and greatly depend on the previous uses of the proposed monitoring sites. Previously unknown and unrecorded biological resources may be present on or within close proximity to an individual project. Therefore, mitigation will be implemented that would require site-specific studies to identify potentially suitable habitat for sensitive species, nesting sites, or critical habitat. The project biologist will work with the project design team to minimize impacts to sensitive resources by avoiding or minimizing direct impacts where feasible. If impacts are unavoidable and permitting is required; the project proponent will obtain required permitting and conduct required mitigation measures.

Due to the probability for these PEs to involve federal funding or work within biologically sensitive areas; it is anticipated that many future projects will require species specific studies, regulatory permitting, and follow-on mitigation monitoring.

1.2.1.1 Proposed Mitigation and Minimization Measures for Pes 1-9:

- ***Where future project-related impacts will affect undeveloped land, site surveys shall be conducted by a qualified biologist/ecologist. If sensitive species are identified as a result of the survey for which mitigation/compensation must be provided in accordance with regulatory requirements, the following subsequent mitigation actions will be taken:***
  - ***The project proponent shall provide compensation for sensitive habitat acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of not less than 1:1 for habitat lost. The property acquisition shall include the presence of at least one animal or plant per animal or plant lost at the development site to compensate for the loss of individual sensitive species.***
  - ***b. The final mitigation may differ from the above values based on negotiations between the project proponent and USFWS and CDFW for any incidental take permits for listed species. The project proponent shall retain a copy of the incidental take permit as verification that the mitigation of significant biological resource impacts at a project site with sensitive biological resources has been accomplished.***
  - ***c.Preconstruction botanical surveys for special-status plant communities and special-status plant species will be conducted. in areas that were not previously surveyed because of access or timing issues or project design changes, pre-construction surveys for special-status plant communities and special-status plant species will be conducted before the start of ground-disturbing activities during the appropriate blooming period(s) for the species.***

- ***Biological Resources Management Plan: During final design, a BRMP will be prepared to assemble the biological resources mitigation measures for each specific infrastructure improvement in the future. The BRMP will include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP will also discuss habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. The parameters of the BRMP will be formed with the mitigation measures from the project-level EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB/RWQCB, and CDFW.***

- ***To reduce or prevent activities that may adversely affect rivers, streambeds or wetlands, the following mitigation measures will be incorporated into any specific projects and/or contractor specifications for future project-related impacts to protect sensitive resources and habitat.***
    - ***Prior to discharge of fill or streambed alteration of jurisdictional areas, the project proponent shall obtain regulatory permits from the U.S. Army Corps of Engineers, local Regional Water Quality Control Board and the California Department of Fish and Wildlife. Any future project that must discharge fill into a channel or otherwise alter a streambed shall be minimized to the extent feasible, and any discharge of fill not avoidable shall be mitigated through compensatory mitigation. Mitigation can be provided by restoration of temporary impacts, enhancement of existing resources, or purchasing into any authorized mitigation bank or in-lieu fee program; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or by acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence of sensitive or listed plants or animals in the affected area. A Habitat Mitigation and Monitoring Proposal shall be prepared and reviewed and approved by the appropriate regulatory agencies. The project proponent will also obtain permits from the regulatory agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, CDFW and any other applicable regulatory agency with jurisdiction over the proposed facility improvement) if any impacts to jurisdictional areas will occur. These agencies can impose greater mitigation requirements in their permits, but Caltrans will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.***
    - ***Jurisdictional Water Preconstruction Surveys: A jurisdictional water preconstruction survey will be conducted at least six months before the start of ground-disturbing activities to identify and map all jurisdictional waters in the project footprint and if possible within a 250-foot buffer. The purpose of this survey is to confirm the extent of jurisdictional waters in areas where permission to enter was not previously granted and where aerial photograph interpretation was used to estimate the extent of these features. If possible, surveys would be performed during the spring, when plant species are in bloom and hydrological indicators are most readily identifiable. These results would then be used to calculate impact acreages and determine the amount of compensatory mitigation required to offset the loss of wetland functions and values.***

- ***Regarding active bird nests, the following mitigation measure will be applied to this program.***
    - ***It is illegal to "take" active bird nests of native birds, and if such nests are present at a project site, no take is allowed. To avoid an illegal take of active bird nests, any grubbing, brushing or tree removal will be conducted outside of the State identified nesting season (nesting season is approximately from February 15 through September 1 of a given calendar year). Alternatively, coordination with the CDFW to conduct nesting bird surveys will be completed, and methodology of surveys will be agreed upon. All nesting bird surveys will be conducted by a qualified biologist prior to initiation of ground disturbance to demonstrate that no bird nests will be disturbed by project construction activities.***

- ***The following mitigation can reduce the impact to burrowing owl to a less than significant level.***
    - ***Prior to commencement of construction activity in locations that are not fully developed, protocol burrowing owl survey will be conducted using the 2012 survey protocol methodology identified in the "Staff Report on Burrowing Owl Mitigation, State of California, Natural Resources Agency, Department of Fish and Game, March 7, 2012", or the most***

recent CDFW survey protocol available. Protocol surveys shall be conducted by a qualified biologist to determine if any burrowing owl burrows are located within the potential area of impact. If occupied burrows may be impacted, an impact minimization plan shall be developed and approved by CDFW that will protect the burrow in place or provide for passive relocation to an alternate burrow within the vicinity but outside of the project footprint in accordance with current CDFW guidelines. Active nests must be avoided with a 250-foot buffer until all nestlings have fledged.

- *The following mitigation can ensure consistency with any HCP or MSHCP.*
    - *Prior to commencement of construction activity on a project facility within a MSHCP/HCP plan area, consistency with that plan, or take authorization through that plan, shall be obtained. Through avoidance, compensation or a comparable mitigation alternative, each project shall be shown to be consistent with a MSHCP/HCP.*

- *Implementation of the above measures is protective of the environment. Should the regulatory agencies determine an alternative, equivalent mitigation program during acquisition of regulatory permits, such measure shall be deemed equivalent to the above measures and no additional environmental documentation shall be required to implement a measure different than outlined above. Note that if impacts cannot be mitigated or avoided in the manner outlined in the measures above, then subsequent environmental documentation would have to be prepared in accordance with procedures outlined in Section 15162 of the State CEQA Guidelines. Implementation of the following mitigation measures will ensure that project design and site selection reduce impacts to sensitive biological resources to the extent feasible.*
    - *Place primary emphasis on the preservation of large, unbroken blocks of natural open space and wildlife habitat area, and protect the integrity of habitat linkages. As part of this emphasis, incorporate programs for purchase of lands, clustering of development to increase the amount of preserved open space, and assurances that the construction of facilities or infrastructure improvements meet standards identical to the environmental protection policies applicable to the specific facilities improvement.*
    - *Require facility designs and maintenance activities to be planned to protect habitat values and to preserve significant, viable habitat areas and habitat connection in their natural conditions.*
        - *Within designated habitat areas of rare, threatened or endangered species, prohibit disturbance of protected biotic resources.*
        - *Within riparian areas and wetlands subject to state or federal regulations, riparian woodlands, oak and walnut woodland, and habitat linkages, require that the vegetative resources which contribute to habitat carrying capacity (vegetative diversity, faunal resting sites, foraging areas, and food sources) are preserved in place or replaced so as not to result in an measurable reduction in the reproductive capacity of sensitive biotic resources.*
        - *Within habitats of plants listed by the CNDDB or CNPS as "special" or "of concern," require that new facilities not result in a reduction in the number of these plants, if they are present.*
    - *Maximize the preservation of individual oak, sycamore and walnut trees within proposed development sites.*
    - *Require the establishment of buffer zones adjacent to areas of preserved biological resources. Such buffer zones shall be of adequate width to protect biological resources from grading and construction activities, as well as from the long-term use of adjacent lands. Permitted land modification activities with preservation and buffer areas are to be limited to those that are consistent with the maintenance of the reproductive capacity of the identified resources. The land uses and design of project facilities adjacent to a vegetative preservation area, as well as activities within the designated buffer area are not to be permitted to disturb natural drainage patterns to the point that vegetative resources receive*

too much or too little water to permit their ongoing health. In addition, landscape adjacent to areas of preserved biological resources shall be designed so as to avoid invasive species which could negatively impact the value of the preserved resource.

- *Implementation of the following mitigation measures will ensure that project construction impacts to sensitive biological resources, including the potential effects of invasive species, are reduced to the extent feasible.*
  - *4.2-12 Following construction activities within or adjacent to any natural area, the disturbed areas shall be revegetated using a plant mix of native plant species that are suitable for long term vegetation management at the specific site, which shall be implemented in cooperation with regulatory agencies and with oversight from a qualified biologist. The seeds mix shall be verified to contain the minimum amount of invasive plant species seeds reasonably available for the project area.*
  - *4.2-13 Clean Construction Equipment. During construction, equipment will be washed before entering the project footprint to reduce potential indirect impacts from inadvertent introduction of nonnative invasive plant species. Mud and plant materials will be removed from construction equipment when working in native plant communities, near special-status plant communities, or in areas where special-status plant species have been identified.*
  - *Contractor Education and Environmental Training.*
    - *Personnel who work onsite will attend a Contractor Education and Environmental Training session. The environmental training is likely to be required by the regulatory agencies and will cover general and specific biological information on the special-status plant species, including the distribution of the resources, the recovery efforts, the legal status of the resources, and the penalties for violation of project permits and laws.*
    - *The Contractor Education and Environmental Training sessions will be given before the initiation of construction activities and repeated, as needed, when new personnel begin work within the project limits. Daily updates and synopsis of the training will be performed during the daily safety ("tailgate") meeting. All personnel who attend the training will be required to sign an attendance list stating that they have received the Contractor Education and Environmental Training.*
  - *Biological Monitor to Be Present during Construction Activities in areas where impacts to Riparian, Riverine, Wetland, Endangered Species or Endangered Species Critical habitat occurs. A biological monitor (or monitors) will be present onsite during construction activities that could result in direct or indirect impacts on sensitive biological resources (including listed species) and to oversee permit compliance and monitoring efforts for all special-status resources.*
    - *A biological monitor (qualified biologist) is any person who has a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field and/or has demonstrated field experience in and knowledge about the identification and life history of the special-status species or jurisdictional waters that could be affected by project activities. The biological monitor(s) will be responsible for monitoring the Contractor to ensure compliance with the Section 404 Individual Permit, Section 401 Water Quality Certification and the Lake and Streambed Alteration Agreement. Activities to ensure compliance would include performing construction-monitoring activities, including monitoring environmental fencing, identifying areas where special-status plant species are or may be present, and advising the Contractor of methods that may minimize or avoid impacts on these resources. Biological monitor(s) will be required to be present in all areas during ground disturbance activities and for all construction activities conducted within or adjacent to identified Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones.*
  - *Food and Trash: All food-related trash items (e.g., wrappers, cans, bottles, food scraps) will be disposed of in closed containers and removed at least once a week from the construction site.*
  - *Rodenticides and Herbicides: Use of rodenticides and herbicides in the project footprint will be restricted. This measure is necessary to prevent poisoning of special-status species and the potential reduction or depletion of the prey populations of special–status wildlife species.*

- *Wildlife Exclusion Fencing: Exclusion barriers (e.g., silt fences) will be installed at the edge of the construction footprint and along the outer perimeter of Environmentally Sensitive Areas and Environmentally Restricted Areas to restrict special-status species from entering the construction area. The design specifications of the exclusion fencing will be determined through consultation with the USFWS and/or CDFW. Clearance surveys will be conducted for special-status species after the exclusion fence is installed. If necessary, clearance surveys will be conducted daily.*
- *Equipment Staging Areas: Staging areas for construction equipment will be located outside sensitive biological resources areas, including habitat for special-status species, jurisdictional waters, and wildlife movement corridors, to the maximum extent possible.*
- *Plastic mono-filament netting (erosion-control matting) or similar material will not be used in erosion control materials to prevent potential harm to wildlife. Materials such as coconut coir matting or tackified hydroseeding compounds will be used as substitutes.*
- *Vehicle Traffic: During ground-disturbing activities, project-related vehicle traffic will be restricted within the construction area to established roads, construction areas, and other designated areas to prevent avoidable impacts. Access routes will be clearly flagged and off-road traffic will be prohibited.*
- *Entrapment Prevention: All excavated, steep-sided holes or trenches more than 8 inches deep will be covered at the close of each working day with plywood or similar materials, or a minimum of one escape ramp constructed of earth fill for every 10 feet of trenching will be provided to prevent the entrapment of wildlife. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.*
    - *All culverts or similar enclosed structures with a diameter of 4 inches or greater will be covered, screened, or stored more than 1 foot off the ground to prevent use by wildlife. Stored material will be cleared for common and special-status wildlife species before the pipe is subsequently used or moved.*
- *Weed Control Plan: A Weed Control Plan will be prepared and implemented to minimize or avoid the spread of weeds during ground-disturbing activities. In the Weed Control Plan, the following topics will be addressed:*
    - *Schedule for noxious weed surveys.*
    - *Weed control treatments, including permitted herbicides, and manual and mechanical methods for application; herbicide application will be restricted in Environmentally Sensitive Areas.*
    - *Timing of the weed control treatment for each plant species.*
    - *Fire prevention measures.*
- *Dewatering/Water Diversion: Open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., USACE, SWRCB/RWQCB, and CDFW), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen impacts on jurisdictional waters during construction:*
    - *The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the project.*
    - *The timing of work within all channelized waters is to be coordinated with the regulatory agencies.*
    - *The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the Contractor's work area, where possible, and outlet through a sandbag dam at the downstream end.*
    - *Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and sediment-laden water from entering the main stream flow. Accumulated sediments will be periodically removed from the catch basins.*

1.2.2 Project Category 2: Conveyance Facilities and Ancillary Facilities (PEs 2, 4-9)

This category includes the construction of 550,000 LF of new pipelines, booster pump stations, reservoirs and minor appurtenances whose number. The proposed conveyance facilities and ancillary facilities would be implemented throughout the entire Chino Basin.

Potential Impacts, follow-on biological studies, and potential permitting requirements would be the same as Project Category 1.

1.2.3 Project Category 3: Storage Basins, Recharge Facilities, and Storage Bands (PEs 2, 4-5, 8/9)

This Project Category includes the construction of 310 acres of new storage basins—several locations for which are within existing facilities, improvements to existing storage basin(s), 200 acres of flood MAR facilities, new MS4-compliance facilities, and expansion of the maximum storage space (safe storage capacity) to be used within the Chino Basin from 600,000 af (through June 30, 2021) to between 700,000 af and 1,000,000 af going forward with various impacts that may result for each 100,000 af between this range of storage. The specific locations of the storage basins are described in the Project Description above; however, the locations of the flood MAR facilities and MS4 compliant projects are presently unknown.

Potential Impacts, follow-on biological studies, and potential permitting requirements would be the same as Project Category 1.

1.2.4 Project Category 4: Desalters and Water Treatment Facilities (PEs 2, 4-9)

The projects proposed under this category are: upgrades at IEUA's existing Treatment Plants (discussed in IEUA's 2017 FMP PEIR), a new advanced water treatment plant (discussed in IEUA's 2017 FMP PEIR), improvements to the WFA Agua de Lejos Treatment Plant, upgrades to the Chino Desalters, new groundwater treatment facilities at or near well sites and at regionally located sites, and improvements to existing groundwater treatment facilities. Cultural Resource impacts related to the facilities thoroughly analyzed as part of the IEUA's 2017 FMP PEIR will not be analyzed further as part of this Initial Study.

Potential Impacts, follow-on biological studies, and potential permitting requirements would be the same as Project Category 1.

1.2.5 Operational Scenarios

As part of this summary of all facilities, possible operational scenarios are provided as part of the discussion of each type of facility. The future modes of operation (activities) are provided to enable evaluation of the physical impacts that would result from OBMPU implementation. These are representative scenarios that describe a range of plausible future operations and activities. They are not intended to be exhaustive but they represent future operations based on the past activities carried out in the Chino Basin to implement the original OBMP Program Elements.

In the event that a given facility will require periodic or routine operation maintenance, the maintenance will need to be identified, permitted if needed, and best management measures should be identified to minimize impacts to biological resources. Best Management Practices include but are not limited to 1) timing of maintenance out side nesting, flouring, breeding, or other biologically sensitive period 2) minimizing impacts to native habitats, 3) minimize impacts to special aquatic sites including wetlands 3) trash control, 4) spread of invasive species.

1.2.6 Construction Scenarios

Secondarily, as part of this summary of all facilities, possible construction scenarios are provided as part of the discussion of each type of facility. The purpose of the following general construction scenarios is to assist the reviewer to understand how the proposed facilities will be installed and the amount of time required for their construction. This information also provides essential data for making the program air quality impact forecasts using the most current CalEEMod emission forecast model.

In general, the types, configuration and exact location of future specific projects that will be constructed in support of the OBMPU have not been determined. However, there are a few specific Projects that have been identified at a sufficient level of detail that a location has been pinpointed in which a specific project will be developed. For instance, the CIM Storage Basin Project is proposed to be located at the CIM; however, the Project specifications at that site have not yet been identified. For the remaining projects listed below, it is possible to foresee some of the infrastructure that is likely to be constructed and to project the maximum expected impacts that would result from construction and operation of the infrastructure. Impacts associated with specific future projects would be evaluated in second-tier CEQA evaluations to determine if the actual impacts fall within the impacts forecast by this analysis, or require subsequent CEQA evaluations and determinations. These evaluations would be conducted under Section 15162 of the State CEQA Guidelines.

1.2.7 PBHSP Biological Monitoring (PE1)

The objective of PE 1 under the OBMPU includes continuing the ongoing monitoring and reporting program and developing and updating an OBMPU Monitoring and Reporting Work Plan. Watermaster's biological monitoring program is conducted pursuant to the adaptive monitoring program (AMP) for the Prado Basin Habitat Sustainability Program (PBHSP). The objective of the PBHSP is to ensure that the groundwater-dependent ecosystem in Prado Basin will not incur unforeseeable significant adverse impacts due to implementation of the Peace II Agreement. The monitoring program produces time series data and information on the extent and quality of the riparian habitat in the Prado Basin over a historical period that includes both pre- and post-Peace II implementation. Two types of monitoring and assessment are performed: regional and site-specific. Regional monitoring and assessment of the riparian habitat is performed by mapping the extent and quality of riparian habitat over time using multi-spectral remote-sensing data and air photos. Site-specific monitoring performed in the Prado Basin includes field vegetation surveys and seasonal ground-based photo monitoring. Under the OBMPU, Watermaster will continue these efforts.

1.3 Project Location

The Chino Basin is one of the largest groundwater basins in Southern California and has an unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. Exhibit 1 shows the location of the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. As shown in Exhibit 2, the Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra Hills and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Spadra, Pomona, and Claremont Basins.

The Optimum Basin Management Program (OBMP), which was based on the Peace I Agreement in the Chino Basin, focuses on management actions within the Chino Groundwater Basin (Chino Basin or the Basin) as shown on the inset on Exhibit 1. Exhibit 2 illustrates the boundary of the Chino Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District *vs.* the City of Chino *et al.* Exhibit 2 also shows the Regional Water Quality Control Board, Santa Ana Region (Regional Board) management zones as established in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

The principal drainage course for the Santa Ana River watershed is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the eastern San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Chino Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir, where it is eventually discharged through the outlet at Prado Dam and flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: San Antonio Creek, Chino Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Please refer to Exhibit 2 for the location of drainages.

These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, the passage of Pacific storm fronts that typically occur from November through April. IEUA discharges year-round flows to Chino Creek and to Cucamonga Channel from its Regional Plants. The actual volume of wastewater discharges varies seasonally and is expected to attenuated in the future by a combination of water conservation measures being implemented by water users and through diversion of flows for delivery as recycled water to future users that can utilize this source of water, including landscape irrigation, industrial operations, and recharge into the Chino Basin groundwater aquifer.

The Chino Basin is mapped within the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps. The center of the Basin is located near the intersection of Haven Avenue and Mission Boulevard at Longitude 34.038040N, and Latitude 117.575954W.

Chapter 2. Study Methods

This chapter presents the methods used to identify biological resources in the project region. In addition, this chapter provides an overview of the various regulatory requirements, definitions of terms used, background review conducted, field surveys, post-field data processing, personnel and survey dates, and coordination efforts with agency and professional contacts. It also summarizes the study limitations and how they may influence the results presented in this report.

Because this is a program level document with individual facilities improvements expected to occur over the next 22 years, only cursory level surveys were conducted throughout the project Study Area. Before conducting field surveys, existing background information was reviewed to identify the locations of jurisdictional waters, special-status plant and wildlife species, special-status plant communities, natural lands, and federally designated or proposed critical habitat units recorded or potentially occurring in the proposed infrastructure improvement areas. This section summarizes the background information that was reviewed.

2.1 Regulatory Requirements

2.1.1 Federal

Clean Water Act

The purpose of the Clean Water Act (CWA) (1977) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." *Section 404* of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the United States Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3 7b). *Section 401* of the CWA is required for Section 404 permit actions; in California this certification or waiver is issued by the RWQCB.

In addition to the Section 404 and 401 regulating discharge of dredge or fill into Waters of the United States; 33 USC 408 (Chapter 9.1), Navigation and Navigable Waters. *Section 408* states it is unlawful for any person(s) to build upon, alter, deface, destroy, move, injure, obstruct or… impair the usefulness of any levee or other work built by the U.S. That the Secretary may, on the recommendation of the Chief of Engineers, grant permission for the alteration or permanent occupation or use of any of the public works when in the judgment of the Secretary such occupation or use will not be injurious to the public interest and will not impair the usefulness of such work.

Rivers and Harbors Act 1899

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable waters of the U.S.

Endangered Species Act

The Federal Endangered Species Act (FESA) (1973) protects plants and wildlife that are listed by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as endangered or threatened. Section 9 of FESA (USA) prohibits the taking of endangered wildlife, where taking is defined as any effort to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 United States Code [USC] 1538). Under Section 7 of FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could

adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the action will not jeopardize the continued existence of the species. FESA specifies that the USFWS designate habitat for a species at the time of its listing in which are found the physical or biological features "essential to the conservation of the species," or which may require "special Management consideration or protection..." (16 USC § 1533[a][3].2; 16 USC § 1532[a]). This designated Critical Habitat is then afforded the same protection under the FESA as individuals of the species itself, requiring issuance of an Incidental Take Permit prior to any activity that results in "the destruction or adverse modification of habitat .... determined .... to be critical" (16 USC § 1536[a][2]).

Interagency Consultation and Biological Assessments

Section 7 of ESA provides a means for authorizing the "take" of threatened or endangered species by federal agencies, and applies to actions that are conducted, permitted, or funded by a federal agency. The statute requires federal agencies to consult with the USFWS or NMFS, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. If a proposed project "may affect" a listed species or destroy or modify critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the potential effect.

Habitat Conservation Plans

Section 10 of the federal ESA requires the acquisition of an Incidental Take Permit (ITP) from the USFWS by non-federal landowners for activities that might incidentally harm (or "take") endangered or threatened wildlife on their land. To obtain a permit, an applicant must develop a Habitat Conservation Plan that is designed to offset any harmful impacts the proposed activity might have on the species.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. Sections 661 to 667e et seq.) applies to any federal project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Section 1801 et seq.) requires all federal agencies to consult with the NMFS on all actions or proposed actions (permitted, funded, or undertaken by the agency) that may adversely affect fish habitats. It also requires cooperation among NMFS, the councils, fishing participants, and federal and state agencies to protect, conserve, and enhance essential fish habitat, which is defined as those waters and substrates needed by fish for spawning, breeding, feeding, and growth to maturity.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (The Eagle Act) (1940), amended in 1962, was originally implemented for the protection of bald eagles (Haliaeetus leucocephalus). In 1962, Congress amended the Eagle Act to cover golden eagles (Aquila chrysaetos), a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than that of the bald eagle.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (1918) implements international treaties between the United States and other nations created to protect migratory birds, any of their parts, eggs, and nests from activities, such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code (CFGC).

Executive Orders (EO)

Invasive Species—Executive Order 13112 (1999)

Issued on February 3, 1999, promotes the prevention and introduction of invasive species and provides for their control and minimizes the economic, ecological, and human health impacts that invasive species cause through the creation of the Invasive Species Council and Invasive Species Management Plan.

Protection of Wetlands—Executive Order 11990 (1977)

Issued on May 24, 1977, helps avoid the long-term and short-term adverse impacts associated with destroying or modifying wetlands and avoiding direct or indirect support of new construction in wetlands when there is a practicable alternative.

Migratory Bird—EO 13186 (2001)

Issued on January 10, 2001, promotes the conservation of migratory birds and their habitats and directs federal agencies to implement the Migratory Bird Treaty Act. Protection and Enhancement of Environmental Quality—EO 11514 (1970a), issued on March 5, 1970, supports the purpose and policies of the National Environmental Policy Act (NEPA) and directs federal agencies to take measures to meet national environmental goals.

Migratory Bird Treaty Reform Act

The Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447) amends the Migratory Bird Treaty Act (16 U.S.C. Sections 703 to 712) such that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the Act. It defines a native migratory bird as a species present in the United States and its territories as a result of natural biological or ecological processes. This list excluded two additional species commonly observed in the United States, the rock pigeon (Columba livia) and domestic goose (Anser domesticus).

2.1.2 State

Sections 1600 through 1606 of the California Fish and Game Code (CFGC)

This section requires that a Streambed Alteration Application be submitted to the CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the applicant is the Streambed Alteration Agreement. Often, projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

California Endangered Species Act

The California Endangered Species Act (CESA) (Sections 2050 to 2085) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats by protecting "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation." Animal species are listed by the CDFW as threatened or endangered, and plants are listed as rare, threatened, or endangered. However, only those plant species listed as threatened or endangered receive protection under the California ESA.

CESA mandates that state agencies do not approve a project that would jeopardize the continued existence of these species if reasonable and prudent alternatives are available that would avoid a jeopardy finding. There are no state agency consultation procedures under the California ESA. For projects that would affect a species that is federally and state listed, compliance with ESA satisfies the California ESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with the California ESA under Section 2080.1. For projects that would result in take of a species that is state listed only, the project sponsor must apply for a take permit, in accordance with Section 2081(b).

Fully Protected Species

Four sections of the California Fish and Game Code (CFGC) list 37 fully protected species (CFGC Sections 3511, 4700, 5050, and 5515). These sections prohibit take or possession "at any time" of the species listed, with few exceptions, and state that "no provision of this code or any other law will be construed to authorize the issuance of permits or licenses to 'take' the species," and that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession.

Bird Nesting Protections

Bird nesting protections (Sections 3503, 3503.5, 3511, and 3513) in the CFGC include the following:

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), or Strigiformes (owls).
- Section 3511 prohibits the take or possession of fully protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.

CA Migratory Bird Act -Assembly Bill 454

Existing federal law, the Migratory Bird Treaty Act, provides for the protection of migratory birds, as specified. The federal act also authorizes states and territories of the United States to make and enforce laws or regulations that give further protection to migratory birds, their nests, and eggs. Existing state law makes unlawful the taking or possession of any migratory nongame bird, or part of any migratory nongame bird, as designated in the federal act, except as provided by rules and regulations adopted by the United States Secretary of the Interior under provisions of the federal act……. (a) It is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act (16 U.S.C. Sec. 703 et seq.), or any part of a migratory nongame bird described in this section, except as provided by rules and regulations adopted by the United States Secretary of the Interior under that federal act.

Native Plant Protection Act

The Native Plant Protect Act (NPPA) (1977) (CFGC Sections 1900-1913) was created with the intent to "preserve, protect, and enhance rare and endangered plants in this State." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as endangered or rare and to protect endangered and rare plants from take. CESA (CFGC 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

Natural Communities Conservation Planning Act

This act was enacted to encourage broad-based planning to provide for effective protection and conservation of the state's wildlife resources while continuing to allow appropriate development and growth (CFGC Sections 2800 to 2835). Natural Community Conservation Plans (NCCP) may be implemented, which identify measures necessary to conserve and manage natural biological diversity within the planning area, while allowing compatible and appropriate economic development, growth, and other human uses.

Senate Concurrent Resolution No. 17 – Oak Woodlands

State Senate Concurrent Resolution No. 17 is legislation that requests state agencies having land use planning duties and responsibilities to assess and determine the effects of their decisions or actions within any oak woodlands containing Blue, Engleman, Valley, or Coast Live Oak. The measure requests those state agencies to preserve and protect native oak woodlands to the maximum extent feasible or provide replacement plantings where designated oak species are removed from oak woodlands. The mitigation measures, as described above, will ensure that impacts to oak woodlands are less than significant.

2.2 Studies Required

In order to develop this programmatic Biological Resource Report, available information was reviewed from resource management plans and other relevant documents to determine locations and types of biological resources that have the potential to exist within and adjacent to the Study Area. Field studies were conducted as part of OBMP in 2013. Focused field studies will be completed once specific project activities and a schedule for those activities is determined.

The California Natural Diversity Database (CDFW, January 2020), U.S. Fish and Wildlife Service County lists (USFWS, 2020), California Native Plant Society Electronic Inventory of Rare and Endangered Plants of California (January 2020), and National Wetlands Inventory (USFWR, January 2020) were queried for occurrence of special status species and habitats within the Chino Basin. CDFW BIOS database was also queried for general habitat types and potential features subject to environmental regulations (e.g., Clean Water Act [CWA], Porter-Cologne Water Quality Control Act [Porter-Cologne] and California Department of Fish and Wildlife's Fish and Game Code 1600 et seq. jurisdictional features) that may exist within or adjacent to the Study Area.

Additionally, studies conducted for previous facility improvements within Chino Basin were reviewed. These studies include the Draft San Bernardino County Countywide Plan Biological Resources Existing Conditions Report (Dudek, May 2019)

In addition to the aforementioned literature reviews, reconnaissance-based field surveys of the Study Area were performed in 2013 to assess general and dominant vegetation types, habitat types, and the potential for special status wildlife and plant species to occur within the project areas. Community types were based on observed dominant vegetation composition and density. Vegetation classifications of plant communities in the Study Area were derived from the criteria and definitions of Holland (1986).

2.2.1 Limitations That May Influence Results

Several limitations that may influence the results of the studies presented in this report were identified. These limitations are beyond IEUA and Chino Basin Watermaster's control and are associated with permission to enter private property and physical access limitation. Several areas will require future access via a high-rail vehicle. Once these future development areas are designed and a BSA can be established, focused surveys and high-rail access will be required.

Additionally, the programmatic nature of the project with facilities being proposed over the next 20 years does not warrant focused surveys for each of the proposed locations. Typically, biological surveys are valid for one year. Any focused biological surveys conducted would need to be redone once a specific facility is designed and the second-tier level environmental process is initiated.

Estimations and assumptions regarding the potential for jurisdictional waters and special-status species were based on assessments from previous projects, and existing resource information. In some instances, these assessments are based solely on aerial photography, which provides an adequate level of detail for a programmatic environmental document.

Chapter 3. Results: Environmental Setting

3.1 Descriptions of the Existing Biological and Physical Conditions of the Study Area

3.1.1 Study Area

The Chino Basin is one of the largest groundwater basins in Southern California and has an unused storage capacity of over 1,000,000 acre-feet. The Chino Basin covers approximately 235 square miles within the Upper Santa Ana River Watershed and lies within portions of San Bernardino, Riverside, and Los Angeles counties. The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. The Chino Basin is bounded:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills;
- on the south by the La Sierra Hills and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Spadra, Pomona, and Claremont Basins.

The principal drainage course for the Santa Ana River watershed is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the eastern San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Chino Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir, where it is eventually discharged through the outlet at Prado Dam and flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: San Antonio Creek, Chino Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Please refer to Exhibit 2 for the location of drainages.

These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, the passage of Pacific storm fronts that typically occur from November through April. IEUA discharges year-round flows to Chino Creek and to Cucamonga Channel from its Regional Plants. The actual volume of wastewater discharges varies seasonally and is expected to attenuated in the future by a combination of water conservation measures being implemented by water users and through diversion of flows for delivery as recycled water to future users that can utilize this source of water, including landscape irrigation, industrial operations, and recharge into the Chino Basin groundwater aquifer.

The Chino Basin is mapped within the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps. The center of the Basin is located near the intersection of Haven Avenue and Mission Boulevard at Longitude 34.038040N, and Latitude 117.575954W.

Data contained in these reports, where applicable, are summarized herein with editing to conform to the EIR format.

The proposed OBMPU would be require to comply with the following federal and state regulations and laws:

1. NEPA and CEQA guidelines that apply to sensitive biological resources
2. U.S. Army Corps of Engineers (COE) Clean Water Act Section 404 Permit and
3. U.S. Environmental Protection Agency (EPA) 404 (b)1 Alternatives Analysis
4. Section 7 and/or 10 of U.S. Endangered Species Act of 1973, as amended
5. U.S. Migratory Bird Treaty Act
6. U.S. Bald Eagle Act

7. California Endangered Species Act
8. California Department of Fish and Game (CDFG) Streambed Alteration Agreement
9. (Section 1600 of the Fish and Game Code)
10. State of California Native Plant Protection Act
11. Plant Protection and Management Ordinances (County Code Title 8, Div. 11)

Both the California and Federal endangered species acts provide legislation to protect the habitats of listed species as well as the species itself. If a state or federally listed endangered species was determined to be present, the proposed project may be constrained to avoid or minimize effects to the species. Species specific mitigation measures would thus need to be agreed upon and implemented to the satisfaction of all jurisdictional agencies. These jurisdictional agencies may be some or all of the following: U.S. Fish and Wildlife Service (USFWS), CDFG, and/or COE.

The project area is comprised of a primarily urban setting, as indicated on Figure 4.8-1. The vast majority of the approximately 225,000 acres that comprises the Chino Basin has been previously developed or disturbed by human activity. Relatively speaking, very few pristine areas of undisturbed natural habitat remain. The following is a discussion of areas within the Chino Basin that have the largest areas of extant habitat communities or have the most significant biological resources:

The Prado Reservoir area comprises 9,741 acres northwest of Corona and south of Chino. Approximately 4,000 acres of this area can be classified as riparian woodland vegetation, of which 2,000 to 2,500 acres is dense riparian habitat dominated by large stands of willow woodland. This is one of the largest remaining riparian woodland in southern California. This area supports a wide array of sensitive species, both floral and faunal. According to the Biological Resources section for the Chino Basin Groundwater storage Program Draft Environmental Impact Report for MWDSC, a total of 311 species of vascular plants, belonging to 65 families, were identified in the Basin area. Three major vegetational communities occur in this area. First is riparian habitat which occurs in low lying sections of the Basin and along the Santa Ana River and streams running into the Basin.

The riparian habitat is dominated by extensive stands of black willow, and smaller stands of arroyo willow. Several stands of tall cottonwoods and a single stand of sycamore have been identified. The second habitat type is upland habitat characteristic of coastal sage scrub, plus grasses and exotic weeds. This upland area has been heavily impacted by agriculture and grazing activities. The third major vegetational type is the aquatic and semi-aquatic communities occurring in permanent streams and artificial duck ponds, and intermittently filled reservoirs and streams within the Basin. The wildlife in the riparian area includes a variety of amphibians, mammals, and birds. For an additional discussion of the biological resources identified in the area, please refer to MWDSC Chino Basin Groundwater Storage EIR's biological resource section.

The Santa Ana River and its tributaries within the Chino Basin are also significant areas for biological resources as they provide refugia and breeding grounds for neotropical migrant species as well as provide habitat linkages and movement corridors connecting various large blocks of relatively undisturbed habitat areas. The MWDSC Chino Basin EIR also reports that many of these tributary streams will be fully lined as part of flood control activities in the future.

Another significant area for biological resources that lies adjacent to the Chino Basin is Chino Hills State Park has approximately 13,000 acres of wild land situated in the hills north of Santa Ana Canyon. Although Chino Hill State Park containing large blocks of non-native grasslands, it is also contains riparian habitat comprised of coast live oak and sycamore woodlands. Additionally, this park contains one of the largest remaining stands of Southern California black walnut. This park functions as an important area for connectivity to and movement between the park the boundary of the project area.

Based on the most recent field surveys of the area and desktop review for Peace II, the proposed action area traverses vacant, public land designated as flood control, water conservation and open space. Patches of agricultural, industrial and commercial land uses are evident north of the Prado Dam inundation area.

Prado Basin is dominated by flood plain riparian plant communities, with upland habitats primarily restricted to the perimeter of the Basin. The hydrological conditions in the project area promote the establishment of riparian vegetation. A freshwater marsh habitat component is also present in the project area because standing water is seasonally abundant in the Prado Basin upstream of the Prado Dam.

The present biological condition of Prado Basin was created by the construction of Prado Dam in 1941. Prado Dam was built where Chino Creek, Cucamonga Creek (also known as Mill Creek, south of Pine Avenue) and Temescal Wash have their confluence with the Santa Ana River. Due to a combination of the high groundwater table, storm flow accumulation held in the reservoir, sewage treatment plant effluent and irrigation runoff, a resultant perennial river flow exists that has created and sustains the extensive wetland habitat in the Basin. Presently, the riparian woodlands in the Basin comprise the largest single stand of this habitat in southern California. Prado Basin supports a myriad of habitat types, including but not exclusive to cottonwood/willow riparian forest, riparian scrubland, herbaceous riparian, freshwater ponds, freshwater marsh, riverine, sandy wash, fallow fields, agricultural land, ruderal, coastal sage scrub, and oak woodland.

The riparian habitat within the project area is in various seral stages and generally consists of tall, multilayered, open, canopy riparian forests. The dominant vegetative species within this riparian forest include: Eucalyptus, Freemont cottonwood (*Populus fremontii*), black cottonwood, (*P. tremuloides*) and several tree willows (*Salix spp*). Characteristic species, in addition to the eucalyptus and cottonwood, include black willow (*S. goodingii*) narrow-leved willow (*S. exigua*), arroyo willow (*S. lasiolepis*), red willow (*S. laevigata*), sandbar willow (*S. hindsiana*), mulefat (*Baccharis salicifolia*) Sycamore (*Platanus recemosa*) and elderberry (*Sambucus mexicana*).

In addition to the riparian community, there are also freshwater marsh, eucalyptus groves, coastal sage scrub, riverine, grassland, and ruderal communities found within the project area. Cattails and reeds are the dominant species within the freshwater marsh habitat.

Plant Communities

Additionally, a review of San Bernardino and Riverside County general plan documents listed the plant communities shown below as being present in the project area. The general characteristics of the plant communities described below were extracted from San Bernardino County's Biological Resources Report.

Chaparral

Several different chaparral subtypes occur in San Bernardino County. The most common subtypes in the valley region are southern mixed chaparral, chamise chaparral and scrub oak chaparral. These associations are located predominantly along the lower slopes of the mountains and in the interface zone between valley and mountain regions.

Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that grow to about 8-12 feet tall and form dense, often nearly impenetrable stands. The plants of this association are typically deep-rooted. There is usually little or no understory, except in openings; however, considerable leaf litter accumulates. This habitat occurs on dry, rocky often steep north-facing slopes with little soil. It may grade into Riversidean coastal sage scrub at lower elevations, but generally grown on moister and rockier sites. Characteristic shrub species include chamise, toyon and lemonadeberry.

Chamise chaparral is dominated by chamise, almost to the exclusion of all other plants. This habitat occurs on shallower, drier soils or at somewhat low er elevations than mixed chaparral. Chamise has adapted to the characteristic fire cycles of this habitat by stump sprouting. In mature stands, the shrubs are densely interwoven and there is very little herbaceous understory or leaf litter.

Scrub oak chaparral is a dense evergreen association that grown to twenty feet tall and is dominated by scrub oak. This habitat occurs on wetter sites than other chaparral associations, often at slightly higher elevations. These more favorable sites recover from fire more quickly than other chaparral subtypes and substantial leaf litter accumulates. Additional shrub species found in scrub oak chaparral include eastwood manzanita, toyon and mountain mahogany, poison oak and narrow leaf bedstraw.

Other chaparral associations may occur in the Valley region but are more predominant at higher elevations. Such associations include buck brush chaparral, bigpod ceanothus chaparral and interior live oak chaparral.

Chaparral habitats are suitable for burrows and soil nests of many mammal species. Another important feature of this habitat are rock outcrops, which are important for reptiles and as raptor perch sites. No sensitive species of San Bernardino county are directly dependent upon chaparral habitat. However, sensitive faunal species from adjacent coastal sage scrub habitat may utilize chaparral as a corridor or for foraging. These species may include Stephens' kangaroo rat, Los Angeles pocket mouse, and San Diego horned lizard.

According to the California Native Plant Society (CNPS) database,

Coastal sage scrub
Coastal sage scrub in the valley region is classified as Riversidean sage scrub, the most xeric expression of coastal sage scrub south of Point Concepcion (Holland 1986). This habitat grows on steep slopes with everely drained soil and dominant species are relatively shallow-rooted shrubs, seldom over four feet tall.

Riversidean Alluvial Sage Scrub is a variation of Riversidean sage scrub which also exists in the valley region. This vegetation type is the dominant habitat of the Upper Santa Ana River floodplain and also occurs in the Cajon and Lytle washes (CNDDB, 2020)...

Coastal sage scrub habitat in Southern California is decreasing rapidly as a result of urbanization. Evidence of its decline is the growing number of declining plants often associated with it. In the valley region of San Bernardino county, three state and/or federally listed endangered species are known to occur in association with the coastal sage scrub: slender-horned spineflower (Centrostegia lepoceras), Santa Ana River woolly star (Eriastrum densifolium spp. sanctorum), and Nevin's barberry (Berberis nevinii). Additionally, Pringles monardella is federally listed as a Category I species, while Payson's jewelflower and California bedstraw are category 2 species.

San Bernardino kangaroo rat, a federally listed endangered species; and Stephens' kangaroo rat, a state-listed threatened species and federally listed endangered species are also known to have its habitat associate with this community type in the Valley area. Los Angeles pocket mouse is federally listed as a category 2 species and a species of special concern by the state. The Los Angeles pocket mouse has been found in San Bernardino county near the Cajon Wash, north of Etiwanda and San Bernardino and in Reche Canyon...The Valley region of San Bernardino county represents the northern limit of the range of the whiptail and coastal California gnatcatcher, a federally listed threatened species. Currently the U.S. Fish and Wildlife Service has proposed critical habitat for this species.

Deciduous woodlands

California walnut woodland is a rather specialized woodland habitat restricted to the Chino Hills and tiwanda area within the Valley region. This woodland, which occurs among rocky outcrops integrating with scrub habitat or on more mesic sites integrating with canyon live oak woodland, is dominated by California walnut; associated species include canyon live oak, Engelman oak, sugar bush, and squaw bush. California walnut woodland is considered a sensitive habitat due to its small acreage and limited distribution in the county; no sensitive floral species are solely dependent on this woodland habitat for their life cycle, however. No federal or state sensitivity listing exists for the live oak walnut or for any other species associated with California walnut woodland. Animals associates with California walnut woodland are similar to the species that would utilize oak woodland. These include Anna's hummingbird, acorn woodpecker, Nuttall's woodpecker, deer mouse, California ground squirrel, striped skunk, and coyote. No sensitive animals as listed by the USFWS or CDFG are dependent on California walnut woodland within the valley region in San Bernardino County.

Grasslands

The disturbed grasslands of the valley region of San Bernardino county are a heterogeneous complex that may be associated with shrubs or trees on land that has been disturbed or altered by development or fire. Non-native weedy vegetation is common in this habitat and includes slender wild oats, foxtail fescue, ripgutgrass, short-podmustard, red-stem filaree, and pin-clover. On sensitive plant species may occur in the grassland areas of the northern Valley area of San Bernardino County, Orcutt's brodiaea. This species, which is seriously threatened by development, may be found in valley/foothill grasslands, cismontane woodlands and vernal pool habitats. Birds or prey utilize grassland areas for foraging. Locally breeding raptor species include black-shouldered kite, red-tailed hawk, red-shouldered hawk, great horned owl, and barn owl, Other faunal associates include house mouse, southern grasshopper mouse, and gopher snake. No sensitive animal species are expected to utilize the grassland areas of the valley region of San Bernardino County.

Wetlands

Wetland communities are areas of land which are either permanently or seasonally wet and support vegetation that is specifically adapted for saturated soil conditions. These areas include riparian areas and marshes, where moisture is at or near the surface, and often include intermittent drainages. In southern California, wetland habitats are declining and are considered sensitive. Wetlands are further subject to state and federal regulations that include the federal Clean water Act (Section 404) and the CDFG Streambed Alteration Agreement (Section 1600 of the Fish and Game Code). A number of stream channels flow through the valley region of San Bernardino County including Cucamonga Creek, Cajon and Lytle creek washes, and Santa Ana River. Where water is present near the surface in stream channels, a riparian woodland community can be maintained. In stream channels with intermittent surface or groundwater availability, a riparian scrub community may also develop. Both of these communities exist in the valley region. Dominant woodland tree species include Fremont cottonwood, arroyo willow and black willow with western sycamore on the upper terraces. Common shrubs include mulefat, California mugwort, poison oak and the coyote bush. A well-developed stand of riparian woodland occurs in the Prado Basin of San Bernardino County and extends into Riverside county. Remnant riparian woodlands also occur in less frequently flooded areas such as the Santa Ana Wash area.

A freshwater marsh is located north of Etiwanda in the Day Canyon wash area. Freshwater marsh also occurs in the Prado Basin and may occur in the other drainages of the valley region, wherever moisture is at or near the surface for a long duration during the growing season. This habitat is usually dominated by perennial emergent species 4 to 7 feet tall. Stands of bulrushes or cattails often characterize this habitat. Also, large stands of the non-native pest plant giant reed grass (Arundo) occur along much of

the basin's riparian areas. This giant reed grass not only takes over native riparian communities, but it also uses a tremendous amount of water.

These Riparian resources serve as important habitat, as water sources, and as movement corridors for wildlife. This habitat type also supports numerous sensitive animal species including least Bell's vireo, a state and federally listed endangered species; southwestern willow flycatcher, a state and federally listed endangered species; bald eagle, a state and federally endangered species; western yellow-billed cuckoo, a state listed threatened species; long eared own, a species of special concern and the California black rail, a state listed threatened species. The cuckoo and vireo occur in the dense riparian habitat of the Prado Basin in Riverside county but apparently have been extirpated from the valley region of San Bernardino County. The black rail, dependent on marshes, was recorded long ago at Chino but is not known to occur currently in San Bernardino County. (San Bernardino County Plan Biological Background Report, 1987)

3.1.2 Physical Conditions

The local climate is characterized by hot summers, mild winters and rainfall, which occurs almost entirely in the winter and early spring months. The average annual rainfall is about 19 inches. The climate is somewhat affected by the moderating effects of the Pacific Ocean. Average temperatures range from a minimum of 39 degrees Fahrenheit in January to an average of 91 degrees Fahrenheit in July. Winds occur from all directions, and onshore winds from the west/southwest occur during the day. At night, wind patterns reverse with an offshore flow generally coming from the east/northeast.

The five Management Zones are bordered by various waterways, such as the Santa Ana River along the southeast alignment of Management Zone 5, Chino Creek coursing northwest to southeast along the western border of Management Zone 1 and confluencing with the Santa Ana River in Prado Basin in the southern portions of MZ's 1-5, and St. Antonio Creek, which passes through MZ's 1 and 2.

Mt. Baldy to the north of the project area channels alluvial and perennial flows through several smaller waterways, which fill reservoirs (Puddingstone Reservoir in the northeast of MZ 1, Live Oak Reservoir north of MZ 1) and continue their flows into several of the creeks running north to south along the project alignment.

3.1.3 Topography and Soils

The majority of the program area is characterized by flat topography through the basin, bordered by hilly to mountainous terrain. The elevation ranges from approximately 500 feet above mean sea level (amsl) at the extreme southern portion of the Basin to 1,200 feet amsl along the foothills leading to the adjacent mountains. General soil maps (NRCS, Web Soil Survey, January 2020) identify numerous soil associations (distinctive patterns of soils in defined proportions) in the program area. An overview of topography and soil is presented in the following section. Once specific program elements are designed or proposed a more specific soil map would be prepared for those specific activities.

The following list summarizes the general soil types identified in the program area, which consists of disturbed urban land, alluvial, sedimentary sources, and distinct soil series along the more rocky terrain. Most of the soils in the inventory area formed from alluvial, sedimentary, and meta-sedimentary sources and have been formed in concert with the complex geologic history of the area. Many areas to the south of the program area have been urbanized and/or altered to produce crops.

Table 3.1
SOIL TYPES IN THE PROGRAM AREA

Management Zone	Map Unit Name	Map Unit Name
1	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Ramona-Hanford-Greenfield-Gorgonio (well- to excessively drained, low to medium runoff, moderately slow to rapid permeability, 0-30% slope)
	Soper-Fontana-Calleguas-Balcom-Anaheim (well-drained, low to high runoff, slow to moderate permeability, 5 to 75% slope)	
2	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Ramona-Hanford-Greenfield-Gorgonio (well- to excessively drained, low to medium runoff, moderately slow to rapid permeability, 0-30% slope)
	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)	
3	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Sesame-Rock outcrop-Cieneba (well to excessively drained, low to very rapid runoff, moderate to slow permeability, 0-85% slope)
	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)	
4	Sesame-Rock outcrop-Cieneba (well to excessively drained, low to very rapid runoff, moderate to slow permeability, 0-85% slope)	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)
5	Urban land-Monserate-Exeter-Arlington (moderately well to well drained, slow to rapid runoff, slow to moderate permeability, 0 to 9% slope)	Urban land-Tujunga-Soboba-Hanford (well to somewhat excessively drained, negligible to low runoff, moderate to rapid permeability, 0-15% slope)

3.1.4 Biological and Physical Conditions of the Study Areas

This section describes the existing biological and physical conditions of the Study Areas. The descriptions are general in nature, and specific resources are addressed in more detail in Chapter 4, Discussion of Impacts and Mitigation.

Areas with natural vegetation and wetlands are most prevalent in the lower 20 percent of the management zones, in particular Chino Creek to the southwest of and within MZ 1 and the Santa Ana River to the southeast and within MZ 1 and MZ 5. Native plants are uncommon in the program area and are generally limited to the wetland and streambed areas in the program area. Most of the land area in the five Management Zones is developed. The lack of native vegetation throughout the majority of the program area is a result of a history of industrial, commercial,

agricultural and residential housing development within the program area and associated maintenance and continued construction within the program area.

3.1.5 Regional Habitat and Land Use in the Assessment Areas

This section describes the general biological conditions in and around the assessment areas, with particular emphasis on the wildlife habitats. Most of the discussion focuses specifically on the habitats adjacent to and within the program area, which is synonymous with the area slated for future program activities. The rationale for this approach is habitat conditions are particularly relevant to wildlife presence and use.

The assessment areas are located in the Southwestern California subregion (SW) of the California Floristic Province (i.e., a geographic area, made of six regions, defined by the continuity of its vegetational, topographic, geologic, and climatic features) of this subregion (Hickman 1993). Like other Mediterranean-type ecosystems, the California Floristic Province is distinguished more by the endemism of its plants than its animals. Of nearly 3,500 species of vascular plants in the hotspot, more than 2,120 (61 percent) are found nowhere else in the world. Around 52 plant genera are also endemic. The high levels of plant species endemism are due to its varied topography, climate zones, geology and soils.

Overall, the Study Areas are highly disturbed and fragmented because of historic man-made changes to the landscape, including urban, agricultural, industrial, railroad, and highways/road development. In a few areas native vegetation and quality wildlife habitat remain relatively undisturbed. The majority of land in the Study Areas is an active urban area with mixed residential, commercial, and industrial use. Urban areas are the second greatest land use, including large cities such as Chino Hills, Chino, Montclair, Ontario, Upland, Rancho Cucamonga, Fontana, Rialto, Eastvale, Norco, and Jurupa Valley. In these areas native vegetation is absent or highly disturbed, and the more typical vegetation consists of a variety of planted landscape trees and other nonnative or ornamental vegetation.

3.1.6 General Wildlife Resources in the Project Area

The riparian forest in the Prado Basin is noted for its very high bird species diversity and abundance. Neotropical migrants depend on the deciduous trees and shrubs for foraging during migration. The mature trees provide numerous cavities for cavity-dependent wildlife and the tall trees are used by nesting raptors. The emergent vegetation rooted at the water's edge provides escape cover, shade and food for fish.

The wildlife resources in Prado Basin are important due, in part, to their high diversity and the large numbers of certain wetland species that occur there. The extensive and continuous riparian woodland, unique for southern California, supports several rare and declining species, particularly birds. A robust raptor population occurs within the project area. The raptors have a wealth of resources to draw on for foraging and nesting. They use the tall eucalyptus for nesting, roosting and perching. There are records of eleven raptor species breeding successfully in Prado Basin, including the white-tailed kite (*Elanus leucurus*), Cooper's hawk, golden eagle (Aquila chrysaetos), western screech-owl (*Otus asio*), and long-eared owl (*Asio otus*). A moderate number of raptor species from other regions winter in Prado Basin along with the resident raptors. Two of the rarer wintering raptor species include the peregrine falcon (*Falco peregrinus*) and merlin (*Falco columbarius*).

The double-crested cormorant (*Phalacrocorax auritus*), great blue heron (*Ardea herodias*), and blackcrowned night-heron (*Nycticorax nycticorax*) are conspicuous breeders among the larger water birds. The tree swallow (*Tachycinera bicolor*) is abundant locally, especially in the vicinity of dead trees with cavities where it nests. The red-winged blackbird (*Agelaius phoeniceus*) and marsh wren (*Cistothorus palustris*) are locally abundant nesters, as is piedbilled grebe (*Podilymbus podiceps*), ruddy duck (*Oxyura jamaicensis*), and American coot (*Fulica americana*). The mallard (*Anas platyrhynchos*) and cinnamon teal (*Anas cyanoptera*) are more widely scattered. Shorebirds known to nest in the Basin include: the killdeer (*Charadrius voci/erus*), American avocet (*Recurvirostra*

americana), black-necked stilt (*Himantopus mexicanus*), and spotted sandpiper (*Actitis macularia*). Marsh-nesting birds include: the American bittern (Botaurus lentiginosus), Virginia rail (*Rallus limicola*), common moorhen (*Gallinula chloropus*), common yellowthroat, song sparrow, and tricolored blackbird (*Agelaius tricolor*).

Species that nest in the eucalyptus groves include: the Anna's hummingbird (*Calypte anna*), northern flicker (*Colaples auratus*), Cassin's kingbird (*Tyrannus vociferans*), American crow, European starling, Bullock's oriole (*Icterus bullockii*), and house finch. Nests of the red-tailedhawk (*Buteo jamaicensis*) and red-shouldered hawk are regularly found in the eucalyptus trees as well, probably because they are often the tallest trees available. Oriole and kingbird nests are locally concentrated in eucalyptus trees. The commonly encountered winter visitors in the riparian forests are the ruby-crowned kinglet (*Regulus calendula*), white-crownedsparrow (*Zonotrichia leucophrys*), American pipit (*Anthus rubescens*) and savannah sparrow (*Passerculus sandwichensis*).

Winter concentrations of waterfowl in the Prado Basin are at least as large as those on any of the southern California coastal lagoons, and the Basin may hold the largest wintering populations of some species. The wintering waterfowl resources in the Basin are vast and are exploited by several waterfowl hunt club operators. Sixteen species of waterfowl have been found in the Basin, many numbering in the thousands. The most abundant are green-winged teal (*Anas clecca*), mallard, cinnamon teal, Northern shoveler (*Anas clypeata*), American wigeon (*Anas americana*), ring-necked duck (*Aythya collaris*), and ruddy duck. Twenty-three species of mammals including three non-native species have been observed in the Prado Basin. Six species of mammals found in the Basin are listed in the California Hunting Regulations with seasons and limits set by the State Fish and Game Commission.

The mule deer is a big game animal, the Audubon cottontail and black-tailed jackrabbit (*Lepus califomicus*) are resident small game animals, the gray fox (*Urocyon cinereoargenteus*) and raccoon are fur-bearing mammals, and the bobcat is a regulated non-game mammal.

There are seven amphibians species known to occur in the Prado Basin and surrounding areas (Glaser 1970, Robertson and Shipman 1974, and Zembal et al. 1985). The bullfrog (*Rana catesbeiana*), and African clawed frog (*Xenopus laevis*) are two invasive, non-native species commonly observed in the basin. There are 13 reptile species documented in the basin. The western fence lizard is the most frequently encountered reptile within the Basin. The side-blotched lizard is concentrated in upland areas. The western whiptail (*Cnemidophorus tigris*) is also found primarily in upland scrubland habitats around the perimeter of the Basin. The western skink (*Eumeces skiltonianus*) inhabits remnant scrublands. The gopher snake (*Piruophis melanoleucus*) is the snake most frequently observed in the Basin and is found in both uplands and in drier riparian habitats.

At least 15 species of fish have been found in the Prado Basin within the Santa Ana River. Most of these occur in the affected area, at least seasonally. Two, the SASU and arroyo chub, are native to southern California; the rest are non-native introductions. According to Cam Swift, the most abundant species in the Basin are the flathead minnow and mosquitofish. These two, along with the carp (*Cyprinus carpio*), comprise about 95 percent of all fish species in the Basin (Swift unpubl. data).

Common wildlife in the project area include coyote (*Canis latrans*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), rattlesnake (Crotalus sp), western fence lizard (*Sceloporus occidentalis*), desert wood rat (*Neotoma lepida*), and deer mouse (*Peromyscus maniculatus*).

3.2 Regional Special Status Species and Habitats of Concern

Special status species are plants or animals that are legally protected under the federal ESA, the California ESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species include the following:

- Species listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.12 [listed plants]); 50 CFR 17.11 (listed animals); and various notices in the *Federal Register* (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the federal ESA (76 Fed. Reg. 66370, October 26, 2011).
- Species listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations [C.C.R.] 670.5).
- Species that meet the definitions of "rare" or "endangered" under the California Environmental Quality Act (CEQA Guidelines Sections 15380 and 15125).
- Plants presumed by the California Native Plant Society (CNPS) to be “extinct in California” (Lists 1A, CNPS 2020).
- Plants considered by the CNPS to be “rare, threatened, or endangered in California” (Lists 1B and 2, CNPS 2020).
- Plants listed by CNPS as plants about which more information is needed to determine their status (List 3, CNPS 2020), and which may be included as special-status species on the basis of local significance or recent biological information.
- Plants listed by CNPS as plants of limited distribution or infrequent throughout a broader area in California (List 4, CNPS 2020); these plants are not “rare” from a statewide perspective but are uncommon enough that they are recommended for inclusion in environmental documents.
- Plant species listed as rare under the California Native Plant Protection Act (California Fish and Game Code 1900, et seq.).
- Animal species of special concern to the CDFW (CDFW 2019).
- Bird species of conservation concern as identified by USFWS in *Birds of Conservation Concern 2008* (USFWS 2008).
- Animals that are fully protected in California (California Fish and Game Code Sections 3511 [birds], 4,700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]) (CDFW 2011).

The following table identifies the habitat types and land uses identified within the Study Areas of the proposed project.

Table 3.2
PROJECT AREA WILDLIFE HABITAT TYPES, LAND USES, AND TYPICAL VEGETATION

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
Tree-Dominated Habitats	
Montane Hardwood (MHW)	Jeffrey pine, ponderosa pine, sugar pine, incense-cedar, California white fir, bigcone Douglas-fir, California black oak, and Coulter pine. At lower elevations, associates are white alder, coast live oak, bigleaf maple, Californialaurel, bigcone Douglas-fir, and occasionally valley oak, foothill pine, and blue oak (Cheatham and Haller 1975, McDonald and Littrell 1976).
Desert Riparian (DR)	Tamarisk, velvet ash, mesquite, screwbean mesquite, Fremont cottonwood, and willows such as Gooding, Hinds, and arroyo

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
	(Bradley and Deacon 1967, Cheatham and Haller 1975, Küchler 1977, Paysen et al. 1980, Parker and Matyas 1981). The subcanopy includes smaller individuals of the canopy species as well as quailbush, Mojave seablight, desert lavender, seep willow, and arrowweed (Bradley and Deacon 1967, Küchler 1977. Paysen et al. 1980, Parker and Matyas 1981).
Valley Foothill Riparian (VRI)	Cottonwood, California sycamore and valley oak. Subcanopy trees are white alder, boxelder and Oregon ash. Typical understory shrub layer plants include wild grape, wild rose, California blackberry, blue elderberry, poison oak, buttonbrush, and willows. The herbaceous layer consists of sedges, rushes, grasses, miner's lettuce, Douglas sagewort, poison-hemlock, and hoary nettle. (CDFW, 2020)
Shrub/Herbaceous-Dominated Habitats	
Riversidean Alluvial Fan Sage Scrub	Predominantly of drought-deciduous soft-leaved shrubs, but with significant cover of larger perennial species typically found in chaparral (Kirkpatrick and Hutchinson, 1977). Scalebroom (*Lepidospartum squamatum*) generally is regarded as an indicator of Riversidean alluvial scrub (Smith, 1980; Hanes, et al., 1989). In addition to scalebroom, alluvial scrub typically is composed of white sage (*Salvia apiana*), redberry (*Rhamnus crocea*), California buckwheat, Spanish bayonet, California croton (*Croton californicus*), cholla (*Opuntia spp.*), tarragon (*Artemisia dracunculus*), yerba santa (*Eriodictyon spp.*), mule fat, and mountain-mahogany (Hanes, et al., 1989; Smith, 1980). Annual species composition has not been studied but is probably similar to that found in understories of neighboring shrubland vegetation. Two sensitive annual species are endemic to alluvial scrub vegetation in the proposed Plan Area: slender-horned spineflower (*Dodecahema leptocerus*) and Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*). (Western Riverside County MSHCP, Chapter 3)
Mixed Chaparral (MCh)	Scrub oak, chaparral oak, and several species of ceanothus and manzanita. Individual sites may support pure stands of these shrubs or diverse mixtures of several species. Commonly associated shrubs include chamise, birchleaf mountain mahogany, silk-tassel, toyon, yerba-santa, California buckeye, poison-oak, sumac, California buckthorn, hollyleaf cherry, Montana chaparral-pea, and California fremontia. Some of these species may be locally dominant. Leather oak and interior silktassel are widely distributed on cismontane serpentine soils, and chamise and toyon may be abundant on these soils. Shrubs such as Jepson, coyote, and dwarf ceanothus and serpentine manzanita are local serpentine endemics (Cheatham and Haller 1975, Thorne 1976, Hanes 1977).

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
Aquatic Habitats	
Coastal and Valley Freshwater Marsh	Located in Day Canyon wash area and Prado Basin; cattail and bulrush dominated wetlands. Also present is non-native invasive giant reed grass (Arundo), which also occur along the riparian habitat outside of marshland.
Riverine and riparian	Santa Ana River, Cucamonga Creek, Cajon Creek, Lytle Creek that are tributary to the Chino and Prado Basins; this riparian habitat is dominated by Fremont cottonwood, arroyo willow, black willow and western sycamore. Common shrubs include mulefat, California mugwort, poison oak and coyote bush.
Disturbed Habitats	
RS, RM, SD-RES	Residential
IC, IR	Community industrial and regional industrial
SD-COM, COM	Special development and commercial
FW	Floodway resource management zone
RL	Rural living
OS	Open Space
KC/SP	Kaiser Commerce Center Specific Plan
Non-vegetated Habitats	
Barren (BAR)	Unvegetated, rock, gravel, soil
Utilities ROW for water distribution	Cement-lined and herbaceous vegetation channels, pipes, culverts, pump stations, reservoirs.
HCP/Preserve Lands	
Western Riverside County Multiple-Species Habitat Conservation Plan (MSHCP) June 22, 2004	The MSHCP encompasses 1.26 million acres of land in unincorporated Riverside County west of the San Jacinto Mountains and creates conservation land for 153,000 acres of land. Focal species covered include least Bells vireo, southwestern willow flycatcher, wester yellow-billed cuckoo, Quino checkerspot butterfly, and fairy shrimp. Riparian, riverine, sage scrub and other upland vegetative communities are protected.
Designated Critical Habitat within Proximity to Proposed Project	
Spreading navarretia	19 miles southeast of the Study Area
Arroyo toad	6 miles northeast of Study Area and 9 miles south of the Study Area
Yellow-billed cuckoo	Directly overlapping with all MZ's in the south of the Study Area
Southern mountain yellow-legged frog	3 miles north of the Study Area
Thread-leaved brodiaea	7 miles northwest and 19 miles southeast of the Study Area
San Bernardino Merriam's kangaroo rat	Directly overlapping with MZ-2 in the north and within 1 mile northeast to 20 miles southeast of the Study Area
Least Bell's vireo	Directly overlapping all MZ's in the southern portion of the Study Area
Coastal California gnatcatcher	Directly overlapping the eastern portion of MZ-3 and within 1 mile of all MZ's within the Study Area
Southwestern willow flycatcher	Directly overlapping pockets in the southern portions of MZ-1, 2, 3, and 5 and within 1 mile of all MZ's in the Study Area

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
Santa Ana sucker	Directly overlapping the full southern extent of MZ-5 and within 2 miles of remaining MZ's
Braunton's milk-vetch	3 miles southwest of the 5 MZ's

Wildlife Habitat Type/ Land Use Type	Typical Vegetation
Conservation Banks	
Cajon Creek Habitat Conservation Management Area Contact: Sheri Ortega Property Manager Vulcan Materials Company, Western Division 500 N. Brand Blvd. Suite 500 Glendale, CA 91203 (Division Office) 16013 Foothill Blvd., Irwindale, CA 91702 (626) 633-4236 (Office) (323) 637-2569 (Mobile) ortegas@vmcmail.com	24 T&E species and their associated habitats are covered, including: Riversidian alluvial fan sage scrub; San Bernardino kangaroo rat; Santa Ana woolly star; Slender-horned spineflower. Credits: Riversidian aleuvial fan sage scrub
Soquel Canyon Mitigation Bank Contact: Mitigation Bank Manager (877) 445-8699 bankmanager@landveritas.com	Ephemeral; Intermittent and Permanent stream/riparian; Coastal sage scrub; Chaparral; Native grassland; Walnut woodland; Oak woodland; Mulefat scrub
Chiquita Canyon Conservation Bank **Contact:** Foothill / Eastern Transportation Corridor Agency 201 E. Sandpointe, Ste 200 P.O. Box 28870 Santa Ana, CA 92799-8870 Attn: William Woollett, Jr. Chief Executive Officer	Coastal sage scrub; Riversidian sage scrub; California gnatcatcher
Black Mountain Conservation Bank Contact: WildDesert EM Holdings, LLC 3301 Industrial Avenue Rocklin, CA 95765 (916) 435-3555 Fax: (916) 435-3556	Desert tortoise; Mohave ground squirrel; American badger; Desert kit fox; Loggerhead shrike; LeConte's thrasher; stream

3.2.1 Special Status Plant and Animal Species Potentially Occurring Along or Within the Project Assessment Areas

3.2.1.1 Special Status Plant Species with Potential for Occurrence in the Project Area

Santa Ana River woollystar

Santa Ana River woollystar is a low shrubby perennial which can grow to one meter (3.3 feet) tall, with gray-green stems and leaves. This species blooms from June to August and produces bright blue flowers that are up to 1.4 inches long that occur in flower heads with about 20 blossoms each. There are three primary pollinators: long-tongued digger bee, giant flower-loving fly and hummingbirds. This species is associated with early- to moderate-successional alluvial scrub, and thus requires periodic flooding and silting for the creation of new habitats and colonization. The Santa Ana River woollystar is found only within open washes and early-successional alluvial fan scrub on open slopes above main watercourses on fluvial deposits where flooding and scouring occur at a frequency that allows the persistence of open shrublands. Suitable habitat is comprised of a patchy distribution of gravelly soils, sandy soils, rock mounds and boulder fields (Zembal and Kramer 1984; Zembal and Kramer 1985; U.S. Fish and Wildlife Service 1986). The Santa Ana River woolly-star occurs along the Santa Ana River and Lytle and Cajon Creek flood plains from the base of the San Bernardino Mountains in San Bernardino County southwest along the Santa Ana River through Riverside County into the Santa Ana Canyon of northeastern Orange County from about 150 to 580 meters (Munz 1974; Patterson 1993; Roberts 1998; Zembal and Kramer 1985; Patterson and Tanowitz 1989).

White rabbit-tobacco (Pseudognaphalium leucocephalum)

White rabbit-tobacco is a biennial or short-lived perennial, 30–60 cm; taprooted. Stems are densely and persistently white-tomentose, usually with stipitate-glandular hairs protruding through tomentum. Leaf blades (crowded, internodes mostly 1–3, sometimes to 10 mm) are linear-lanceolate, 3–7 cm × 1–5(–6) mm, bases subclasping, not decurrent, margins strongly revolute, faces bicolor, abaxial densely white-tomentose, adaxial green, densely stipitate-glandular. Heads grow in corymbiform arrays and involucres broadly campanulate, 5–6 mm. Phyllaries are in 5–7 series, are bright white (opaque, dull) and oblong to oblong-ovate, glabrous. Pistillate are in florets of 66–85 and bisexual florets are (6–14, California) are 29–44. Cypselae are ridged and smooth, 2n = 28. Flowering season is Jul–Aug and Nov–Dec. White rabbit-tobacco are grow on/near sandy or gravelly slopes, stream bottoms, arroyos, areas of oak-sycamore, oak-pine, to pine woodlands, commonly in riparian vegetation; 50–2100 m; Ariz., Calif., N.Mex.; Mexico (Baja California, Baja California Sur, Chihuahua, Durango, Sinaloa, Sonora).

3.2.1.2 Special-Status Wildlife Species with Potential for Occurrence in the Project Area

Southwestern pond turtle

These turtles are 3.5 - 8.5 inches in shell length (Stebbins 2003). It is a small to medium-sized drab dark brown, olive-brown, or blackish turtle with a low unkeeled carapace and usually with a pattern of lines or spots radiating from the centers of the scutes. The plastron lacks hinges, and has 6 pairs of shelds which can be cream or yellowish in color with large dark brown markings, or unmarked. The legs have black speckling and may show cream to yellowish coloring. The head usually has a black network or spots may show cream to yellowish coloring. Males usually have a light throat with no markings, a low-domed carapace, and a concave plastron. Females usually have a throat with dark markings, a high-domed carapace, and a flat or convex plastron which tends to be more heavily patterned than the male's. They are diurnal and thoroughly aquatic. This turtle is often seen basking above the water, but will quickly slide into the water when it feels threatened. Southwestern pond turtle is active from around February to November, hibernates underwater, often in the muddy bottom of a pool, and estivates during summer droughts by burying itself in soft bottom mud.

They eat aquatic plants, invertebrates, worms, frog and salamander eggs and larvae, crayfish, carrion, and occasionally frogs and fish. Pond turtles mate in April and May. They are found from the San Francisco Bay south, along the coast ranges into northern Baja California. Isolated populations occur along the Mojave River at Camp Cody and Afton Canyon from sea level to over 5,900 ft in elevation. This turtle is found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, it prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking.

Tricolored blackbird

The CDFG maintains a biodiversity database for tricolors. This database includes records for breeding and non-breeding tricolors during the breeding season and a winter distribution database. The recent breeding records were compiled by U.C. Davis and are included in annual reports to USFWS and CDFG. Since 1980, breeding has occurred in 46 California counties (Beedy and Hamilton 1999). With the exception of a few peripheral sites, the geographic distribution has not declined perceptively. Unlike most species when tricolors settle at high densities, as in flooded willows, territories may be vertically stacked. Arrival date on breeding grounds is mid-March through mid-July. Tricolored Blackbirds are at as high a risk as any of the narrowly endemic North American bird species and are at far greater risk than Swainson's Hawks, Burrowing Owls and other relatively widely distributed California species. But because they are a flocking species, and are in some places abundant, they do not command management attention.

Burrowing Owl

Burrowing owl is a small ground-dwelling Owl with a round head and no ear tufts. They have white eyebrows, yellow eyes, and long legs. The Owl is sandy colored on the head, back, and upperparts of the wings and white-to-cream with barring on the breast and belly and a prominent white chin stripe. They have a rounded head, and yellow eyes with white eyebrows. The young are brown on the head, back, and wings with a white belly and chest. They molt into an adult-like plumage during their first summer. Burrowing Owls are comparatively easy to see because they are often active in daylight and are surprisingly bold and approachable.

The burrowing owl occurs in shortgrass prairies, grasslands, lowland scrub, agricultural lands particularly rangelands), prairies, coastal dunes, desert floors, and some artificial, open areas as a year-long resident (Haug, et al. 1993). They require large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. As a critical habitat feature need, they require the use of rodent or other burrows for roosting and nesting cover. They may also dig their own burrow in soft, friable soil (as found in Florida) and may also use pipes, culverts, and nest boxes where burrows are scarce (Robertson 1929). The mammal burrows are modified and enlarged. One burrow is typically selected for use as the nest, however, satellite burrows are usually found within the immediate vicinity of the nest burrow within the defended territory of the owl.

Yellow-billed cuckoo

The yellow-billed cuckoo is dependent on the combination of a dense willow understory for nesting, a cottonwood overstory for foraging and large patches of habitat in excess of 20 ha. (Laymon and Halterman 1991). It is also not known to utilize non-native vegetation in the majority of its range (Hunter et al. 1984). It is a medium sized bird. Its profile is long and slim. Its legs are short and bluish-gray. Its long tail is gray-brown above and black below with three striking pairs of large white dots visible in flight. Its body is brown above with white under parts. The undersides of its pointed wings are rufous. Adult birds have a long curved bill which is blue-black above and yellow at the base of the mandibles. Juveniles have a completely blue-black bill. While they have been known to take beetles, cicadas, bugs, wasps, flies, katydids, dragonflies, damselflies, praying mantids, lacewings, mosquito hawks, cankerworms, fall webworms (Platyprepia virginalis), and even tree frogs (Beal 1898, Green 1978, Laymon 1980, Ryser 1985, Dillinger 1989), more than three fourths of the yellow-billed cuckoo diet is made up of grasshoppers and caterpillars (Beal 1898). The yellow-billed cuckoo is an "incipient brood parasite," its eggs have been found in

the nests of black-billed cuckoos, American robins, black-throated sparrows, mourning doves, house finches and red-winged blackbirds (Ryser 1985).

Black-billed cuckoos have also been known to occasionally parasitize yellow-billed cuckoos. Though they will occupy a variety of marginal habitats, particularly at the edges of their range, yellow-billed cuckoos in the West are overwhelmingly associated with relatively expansive stands of mature cottonwood willow forests. Canopy height ranged from 5-25 m, canopy cover from 20-90%, and nderstory cover from 30-90%. Willows and open water are required and the habitat will vary from dense willow-cottonwood forests to marshy bottomlands with scattered willow thickets. The cuckoo was once common in riparian habitat throughout the western United States. In California the yellow-billed cuckoo has declined from a "fairly common breeding species" throughout most of the state to a current population of less than 50 pairs (Gaines and Laymon 1984; Laymon and Halterman 1991). In 1971 it was listed by the California Department of Fish and Game as Rare. By 1977 it had become "one of the rarest birds" in the state. A 1977 survey of historical sites and suitable habitat at six widely scattered rivers turned up 54 birds in the Sacramento Valley (Tehama, Putte, Glenn, Colusa, and Sutter counties), 9 on the South Fork of the Kern River near Weldon, 3 along the Santa Ana River, Riverside County, 4 in Owens Valley, Inyo County, 6 on the Armargosa River south of Tecopa, Inyo and San Bernardino County, and 65 on both sides of the Colorado River from the Nevada state line to the Mexican border (Gaines 1977).

Arroyo Chub

The Arroyo chub is a cyprinid fish found only in the coastal streams of southern California, United States. The shape of the arroyo chub is somewhat chunky, with a deep body and thick caudal peduncle. The eyes are larger than average for cyprinids. Coloration ranges from silver to gray to olive green above, shading to white below, usually with a dull gray band along each side. This is a small fish, with most adults in the 7-10 cm length range, and a maximum of 12 cm. Omnivorous, their diet includes algae, insects, and crustaceans. Arroyo chub habitat is primarily the warm streams of the Los Angeles Plain, which are typically muddy torrents during the winter, and clear quiet brooks in the summer, possibly drying up in places. They are found both in slow-moving and fast-moving sections, but generally deeper than 40 cm. They are native to Los Angeles, Santa Margarita, San Gabriel, San Luis Rey, and Santa Ana Rivers, as well as to Malibu and San Juan Creeks. Many of the original populations have been extirpated, but it has recently been reestablished in the Arroyo Seco (Los Angeles County), a tributary of the Los Angeles River. The species also has been successfully introduced in a number of other rivers in the area, and can be found as far north as Chorro Creek in San Luis Obispo County, and as far east as the Mojave River. The Mojave and Cuyama River populations extend into the ranges of related fishes, and hybridize with Mojave chub and California roach, respectively.

Grasshopper sparrow

Grasshopper sparrow is a small, chunky grassland sparrow with clear buff breast and scaly-looking,dark rufous upperparts and a pale central stripe on crown; short, pointed tail. Apparently it can survive in areas where the introduced plants are combined with the native plants and the livestock grazing is not too intensive. It is found in open grassy and weedy meadows, pastures, and plains. This sparrow breeds from British Columbia, Manitoba, and New Hampshire south to Florida (rare), West Indies, and Mexico but winters north to California, Texas, and North Carolina. This elusive sparrow is named for its buzzy song. As soon as a weedy field becomes overgrown or trees have filled in an abandoned pasture, the Grasshopper Sparrow no longer uses the site for breeding. Less of a seed-eater than our other grass sparrows, it feeds largely on insects. When flushed, this sparrow flies a short distance and drops out of sight, into tall grass.

Western yellow bat

Western yellow bat can be distinguished from other bat species by the combination of yellow coloration, size (forearm = 42-50 mm), and short ears. Lasiurus xanthinus occurs in northern Mexico, western Arizona, southern California, southern Nevada, and southwestern New Mexico. Western yellow bats are associated with dry, thorny

vegetation on the Mexican Plateau, and are found in desert regions of the southwestern United States, where they show a particular association with palms and other desert riparian habitats. They are known to occur in a number of palm oases, but are also believed to be expanding their range with the increased usage of ornamental palms in landscaping. Yellow bats are suspected to be non-colonial. Individuals usually roost in trees, hanging from the underside of a leaf. They are commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non-native palm trees, and have also been documented roosting in cottonwood trees. At least some individuals or populations may be migratory, although some individuals appear to be present year-round, even in the northernmost portion of their range. Yellow bats are insectivorous. Probably one of the primary threats in the U.S., however, is the cosmetic trimming of palm fronds. The use of pesticides in date-palm and other orchards may also constitute a threat to both roosting bats and the insects upon which they forage.

Coastal California gnatcatcher (*Polioptila californica californica*)
The Coastal California gnatcatcher is a small blue-gray songbird. It has dark blue-gray feathers on its back and grayish-white feathers on its underside. The wings have a brownish wash to them. Its long tail is mostly black with white outer tail feathers. They have a thin, small bill. The males have a black cap during the summer which is absent during the winter. The gnatcatcher typically occurs in or near sage scrub habitat, which includes the following plant communities as classified by Holland (1986): Venturan coastal sage scrub, Diegan coastal sage scrub, maritime succulent scrub, Riversidean sage scrub, Riversidean alluvial fan sage scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub. Ninety-nine percent of all gnatcatcher locality records occur at or below an elevation of 984 feet (Atwood 1990). Gnatcatchers also use chaparral, grassland, and riparian habitats where they occur adjacent to sage scrub (Bontrager 1991). These non-sage scrub habitats are used for dispersal (Bowler 1995; Campbell et al. 1995). Gnatcatchers are persistent nest builders and often attempt multiple broods, which is suggestive of a high reproductive potential. Historically, gnatcatchers occurred from southern Ventura County southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties, and into Baja California, Mexico (Atwood 1990). The amount of coastal sage scrub available to gnatcatchers has continued to decrease during the period after the listing of the species. It is estimated that up to 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Barbour and Major 1977).

Yellow-breasted chat
The yellow-breasted chat Grinnell and Miller (1944) reported that chats bred over the entire length and breadth of the state exclusive of higher mountains and coastal islands, and were more numerous toward the interior. Breeders arrive from April to early May. Departure from breeding grounds occurs from August – September (after complete prebasic molt); some may leave in July, some stragglers into October. Spring migration: March - May. Fall migration: July - October. Poorly documented due to the species' secretive nature; it goes largely undetected once singing ceases in mid-July (Dunn and Garrett 1997). Delacour (1959) reported the capture of an adult chat in Los Angeles on 5 December 1958. Dunn and Garrett (1997) report that western birds appear to move south during fall migration on a broad front, although migrants are generally scarcer near the coast. In California, chats require dense riparian thickets of willows, vine tangles, and dense brush associated with streams, swampy ground and the borders of small ponds (Small 1994). Chat nests frequently host Brown-headed Cowbird (Molothrus ater) and rarely hosts the Bronzed Cowbird (Molothrus aeneus). Flood control and river channelization eliminates early successional riparian habitat (willow/alder shrub habitats with a dense understory) that chats (and many other riparian focal species) use for breeding. Hunter et al. (1988) found that chats will use the exotic saltcedar (Tamarix chinensis), and they suggest that chats may use the saltcedar preferentially to native habitat. The authors do not report the frequency of nest placement in saltcedar, but Brown and Trosset (1989) report that chats nest in tamarisk and native shrubs in proportion to the occurrence of the different types of vegetation.

Least Bell's vireo
The least Bell's vireo (LBVI) is a small, olive-gray migratory songbird that nests and forages almost exclusively in riparian woodland habitats. Bell's vireos as a group are highly territorial and are almost exclusively insectivorous.

Least Bell's vireo nesting habitat typically consists of well developed overstory, understory, and low densities of aquatic and herbaceous cover. The understory frequently contains dense sub-shrub or shrub thickets. These thickets are often dominated by plants such as narrow-leaf willow, mulefat, young individuals of other willow species such as arroyo willow or black willow, and one or more herbaceous species. LBVI generally begin to arrive from their wintering range in southern Baja California and establish breeding territories by mid-March to late-March. A large majority of breeding vireos apparently depart their breeding grounds by the third week of September and only a very few have been found wintering in the United States.

LBVI typically inhabit riparian forests with well-developed overstories and understories. The understory often contains dense subscrub or thickets above the ground. These thickets are usually dominated by sandbar willow, mulefat, blackberry (Rubus ursinus), and young trees of other willow species such as black willow and arroyo willow. The overstory usually contains black willow, cottonwood and Sycamore. Although LBVI use a variety of riparian plant species for nesting, it appears that the structure of the vegetation is more important than other factors such as species composition or the age of the stand. Vireos forage in riparian and adjacent chaparral habitats up to 984 feet from the nest, and use both high and low scrub layers as foraging substrate.

Table 3.3
FLORA AND FAUNA WITH POTENTIAL TO OCCUR IN THE PROGRAM AREA
(*Source: CNDDB, January 2020*, Occurrence Potential Assessed)

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Amphibians	1	arroyo toad /Anaxyrus californicus	Endangered / SSC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	Medium potential to occur in the Study Area, dependent on shallow pools persisting due to higher flow conditions. Last known occurrence in the Study Area was in 1999 southeast of Frankish Peak in a catch basin along Cucamonga Creek.
Amphibians	1	Coast Range newt /Taricha torosa	None / SSC	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats & will migrate over 1 km to breed in ponds, reservoirs & slow moving streams.	Low potential to occur in the STUDY AREA, dependent on ponds, reservoirs, and slow moving streams. Last known occurrence in the Study Area was in the 1990's in Cobal Canyon (Claremont Hills Wilderness Park).
Amphibians	1	foothill yellow-legged frog /Rana boylii	None / Candidate Threatened	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Likely extirpated. Low occurrence potential due to disturbance level on future project sites.
Amphibians	1, 2, 3	San Gabriel slender salamander /Batrachoseps gabrieli	None / None	Known only from the San Gabriel Mtns. Found under rocks, wood, and fern fronds, and on soil at the base of talus slopes. Most active on the surface in winter and early spring.	Several individuals have been observed between 1998 and 2016, but outside the OBMPU area near Lytle Creek. Low occurrence potential.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Amphibians	1, 2, 3	southern mountain yellow-legged frog /Rana muscosa	Endangered / Endangered	Federal listing refers to populations in the San Gabriel, San Jacinto and San Bernardino mountains (southern DPS). Northern DPS was determined to warrant listing as endangered, Apr 2014, effective Jun 30, 2014. Always encountered within a few feet of water. Tadpoles may require 2 - 4 yrs to complete their aquatic development.	Several individuals last observed in 1994, but outside the OBMPU area near Lytle Creek. Low occurrence potential; likely extirpated.
Amphibians	1, 2, 3, 4, 5	western spadefoot /Spea hammondii	None / None	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Low potential to occur due to suitable habitat of vernal pools. Most recent observations in were in 2011 and 2014, outside of the Program area in isolated pools in the Chino Hills area.
Birds	2, 3, 4, 5	Bell's sage sparrow /Artemisiospiza belli belli	None / None	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	Medium to high potential to occur in the Study Area where dense chamise exists.
Birds	1	black swift /Cypseloides niger	None / SSC	Coastal belt of Santa Cruz and Monterey counties; central & southern Sierra Nevada; San Bernardino & San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.	Potential to occur on the Study Area is low to medium, with higher potential to occur along the montane area north of MZ 1. Potential for foraging individuals throughout the western boundaries of the STUDY AREA.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Birds	1, 2, 3, 4, 5	burrowing owl /Athene cunicularia	None / None	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Potential to occur is high in all MZ's. Burrowing owl has been shown to adapt to urban areas and overwinter in drain pipes, abandoned tires and other cover sites.
Birds	1, 2, 3, 4, 5	California black rail /Laterallus jamaicensis coturniculus	None / Threatened	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Occurrence potential is low for this species although suitable habitat exists in more vegetated weltand areas. The most recent observation was in 1931. Adequate dense vegetation in wetland areas is suitable habitat in the southern portion of the Study Area
Birds	1, 2, 5	coastal cactus wren /Campylorhynchus brunneicapillus sandiegensis	None / SSC	Southern California coastal sage scrub. Wrens require tall opuntia cactus for nesting and roosting.	Low potential for occurrence. This species requires tall cactus for nesting found more inland or on coastal bluffs.
Birds	1, 2, 3, 4, 5	coastal California gnatcatcher /Polioptila californica californica	Threatened / SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Occurrence potential is medium to high. Several individuals have been observed as recently as 2017 in the Study Area. Potential for occurrence is concentrated in pockets of sage scrub habitat.
Birds	1, 2, 3, 4, 5	Cooper's hawk /Accipiter cooperii	None / None	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Occurrence potential for this species is medium to high, as the bird has adapted to semi-urban environments for foraging. Individuals have been observed recently in Chino Hills and Jurupa Valley.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Birds	1, 2, 5	golden eagle /Aquila chrysaetos	None / None	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Medium to high potential to occur in foothills to the north and west of the Study Area, but also in isolated rocky outcrops throughout the Study Area.
Birds	1, 2, 5	grasshopper sparrow /Ammodramus savannarum	None / SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Suitable habitat exists in pockets throughout the STUDY AREA, although occurrence potential is low to medium. Last recorded individual was in the Chino Hills in 2001.
Birds	4, 5	Lawrence's goldfinch /Spinus lawrencei	None / None	Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	Occurrence potential is medium, although only one observation has been recorded near the Santa Ana River in 2015.
Birds	1, 2, 3, 4, 5	least Bell's vireo /Vireo bellii pusillus	Endangered / Endangered	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite. Critical habitat overlaps with the southern portion of the STUDY AREA.	Occurrence potential for this species is high in riparian areas on the edges of the Study Area. Critical habitat overlaps with the Program Area in the south and individuals have been observed from 2003 through 2014 along the Santa Ana River.
Birds	1, 2, 5	long-eared owl /Asio otus	None / SSC	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Occurrence potential is low to medium. Suitable habitat exists, but the last recorded observation was in 1925.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Birds	1	merlin /Falco columbarius	None / None	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Clumps of trees or windbreaks are required for roosting in open country.	Occurrence potential is medium along the Chino Hills and other fringe wildlife and urban habitat transition zones.
Birds	1, 2, 3, 4, 5	southern California rufous-crowned sparrow /Aimophila ruficeps canescens	None / None	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Occurrence potential is high for this species due to suitable sage scrub and mixed chaparral throughout the Program area.
Birds	1, 2, 3, 4, 5	southwestern willow flycatcher /Empidonax traillii extimus	Endangered / Endangered	Riparian woodlands in Southern California. Critical habitat extends along the southern portion of the STUDY AREA.	Occurrence potential for this species is medium to high in areas with willow or cottonwood riparian areas on the edges of the Study Area. Critical habitat overlaps with the southern portions of the Program area and few occurrences have been recorded in the southern Program area along the Santa Ana River as recently as 2005.
Birds	1, 2, 3, 4, 5	Swainson's hawk /Buteo swainsoni	None / Threatened	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Occurrence potential is low to medium for this species, which adapts well to a variety of habitat, both in-tact and disturbed. However, no recently recorded observations have been made of this species in the Program area (Chino area in 1920).

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Birds	1, 2, 3, 4, 5	tricolored blackbird /Agelaius tricolor	None / Threatened	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Occurrence potential for this species is medium to high, particularly along the Santa Ana River corridor along the southern portion of the Program area. Individuals have been recorded in the area most recently between 2009 - 2015.
Birds	1, 2, 3, 4, 5	western yellow-billed cuckoo /Coccyzus americanus occidentalis	Threatened / Endangered	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape. Critical habitat extends along the southern portion of the STUDY AREA.	Occurrence potential for this species is low due to presumed low population numbers and the only one recent observation in the Study Area in 2001 along the Santa Ana River. This species could inhabit areas with willow or cottonwood riparian areas on the edges of the STUDY AREA. Critical habitat overlaps with the southern portions of the Program area.
Birds	1, 2, 5	white-tailed kite /Elanus leucurus	None / None	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Occurrence potential for this species is medium to high, particularly along the southwestern boundary of the Program area where more valley marginal habitat and deciduous forest is present. Individuals have been recorded in the area most recently in 2009.
Birds	1, 2, 3, 4, 5	yellow rail /Coturnicops noveboracensis	None / SSC	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	Occurrence potential is low due to lack of recent recorded observations (last observed in the area in 1914). The most likely area of potential occurrence is limited to the marshland in the southern portion of the Program area.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Birds	1, 2, 3, 4, 5	yellow warbler /Setophaga petechia	None / SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Occurrence potential for this species is medium to high, particularly along the Santa Ana River corridor / Prado Basin, along the southern portion of the Program area. Individuals have been recorded in this area most recently between 2016.
Birds	1, 2, 3, 4, 5	yellow-breasted chat /Icteria virens	None / SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Occurrence potential for this species is medium to high, particularly along the Santa Ana River corridor / Prado Basin, along the southern portion of the Program area. Individuals have been recorded in this area most recently between 2015.
Fish	1, 2, 3, 4, 5	arroyo chub /Gila orcuttii	None / None	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave & San Diego river basins. Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	Occurrence potential is medium. Suitable habitat exists in the Santa Ana River and Chino Creek. The most recent occurrence is found outside of the Study Area in Covina, CA, 2013. All other occurrences were in the late 1990's and early 2000's.
Fish	2, 3, 4, 5	Santa Ana speckled dace /Rhinichthys osculus ssp. 3	None / None	Headwaters of the Santa Ana and San Gabriel rivers. May be extirpated from the Los Angeles River system. Requires permanent flowing streams with summer water temps of 17-20 C. Usually inhabits shallow cobble and gravel riffles.	Suitable habitat exists in the Santa Ana River. The only recent occurrence is found inside of the Study Area along the Santa Ana River in the Hidden Valley Wildlife Area.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Fish	1, 2, 3, 4, 5	Santa Ana sucker /Catostomus santaanae	Threatened / None	Endemic to Los Angeles Basin south coastal streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	Occurrence potential is medium to high. Occurrences observed from 2002 through 2011 in the Santa Ana River and Chino Creek.
Fish	1, 2, 3, 4, 5	steelhead - southern California DPS /Oncorhynchus mykiss irideus pop. 10	Endangered / None	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	Occurrence potential is low in the Program area and no known occurrences have been recently recorded in the Santa Ana River.
Insects	1, 2, 3, 4, 5	Crotch bumble bee /Bombus crotchii	None / Candidate Endangered	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	No recent observation data in the project area. Low occurrence potential.
Insects	1, 2, 3, 4	Delhi Sands flower-loving fly /Rhaphiomidas terminatus abdominalis	Endangered / None	Found only in areas of the Delhi Sands formation in southwestern San Bernardino & northwestern Riverside counties. Requires fine, sandy soils, often with wholly or partly consolidated dunes & sparse vegetation. Oviposition req. shade.	Occurrence potential low in disturbed areas. The last known observance of this species was in 2010. Presumed extant is in the northeast portions of MZ's 2, 3, and 4.
Insects	2, 3, 4	greenest tiger beetle /Cicindela tranquebarica viridissima	None / None	Inhabits the woodlands adjacent to the Santa Ana River basin. Usually found in open spots between trees.	Low occurrence potential. This species was last observed in the area in 1987 in the eastern portion of MZ 4 along the Santa Ana River corridor.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Insects	4, 5	quino checkerspot butterfly /Euphydryas editha quino	Endangered / None	Sunny openings within chaparral & coastal sage shrublands in parts of Riverside & San Diego counties. Hills and mesas near the coast. Need high densities of food plants Plantago erecta, P. insularis, and Orthocarpus purpurescens.	Low potential for occurrence. Occurs primarily outside the immediate project vicinity.
Mammals	1	American badger /Taxidea taxus	None / SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Low potential to occur in majority of the project area. Higher potential to occur where undeveloped land just outside project boundaries exists.
Mammals	1, 2	big free-tailed bat /Nyctinomops macrotis	None / SSC	Low-lying arid areas in Southern California. Need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Potential to occur on the Study Area is low to medium, with higher potential to occur along the montane area west of MZ 1 and 2.
Mammals	1, 2	desert bighorn sheep /Ovis canadensis nelsoni	None / None	Widely distributed from the White Mtns in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	Low potential for occurrence. This species will remain outside of urban areas, possibly descending hills to access water for drinking, although this will be temporary and the sheep will avoid human activity.
Mammals	1	hoary bat /Lasiurus cinereus	None / None	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	There is low potential for occurrence, although some may be found along habitat edges where water and large trees exist along the northern fringe of MZ 1.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Mammals	1, 2, 3, 4	Los Angeles pocket mouse /Perognathus longimembris brevinasus	None / SSC	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with fine, sandy soils. May not dig extensive burrows, hiding under weeds and dead leaves instead.	Low to medium occurrence potential. The most recent observations have been in 2017 along Cajon Wash. No recently observed occurrence within the 4 Management Zones.
Mammals	1, 2, 3, 4	northwestern San Diego pocket mouse /Chaetodipus fallax fallax	None / SSC	Coastal scrub, chaparral, grasslands, sagebrush, etc. in western San Diego County. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Low occurrence potential due to lack of specific habitat requirements.
Mammals	1, 2	pallid bat /Antrozous pallidus	None / None	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low occurrence potential. Suitable habitat exist in some rocky areas and scrub habitat, although no observations have been made since the 1950's in the project area.
Mammals	2, 3	pallid San Diego pocket mouse /Chaetodipus fallax pallidus	None / SSC	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Low occurrence potential due to lack of specific habitat requirements.
Mammals	1, 2, 3, 4, 5	pocketed free-tailed bat /Nyctinomops femorosaccus	None / SSC	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Rocky areas with high cliffs.	Low potential for occurrence in the project area. Some of this species was observed in habitat outside the project area along the Santa Ana River corridor in the mid-1980's.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Mammals	1, 2, 3, 4, 5	San Bernardino kangaroo rat /Dipodomys merriami parvus	Endangered / Candidate Endangered	Alluvial scrub vegetation on sandy loam substrates characteristic of alluvial fans and flood plains. Needs early to intermediate seral stages.	There is a low potential for occurrence of this species. It is possibly extirpated and has not been observed recently in the project area.
Mammals	2, 3, 4, 5	San Diego black-tailed jackrabbit /Lepus californicus bennettii	None / SSC	Intermediate canopy stages of shrub habitats & open shrub / herbaceous & tree / herbaceous edges. Coastal sage scrub habitats in Southern California.	There is low potential for occurrence, although observations as recently as the late 1990's have been made of this species in Jurupa Valley up to Fontana.
Mammals	1, 2, 3, 4	San Diego desert woodrat /Neotoma lepida intermedia	None / SSC	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops, rocky cliffs, and slopes.	Medium potential to occur, based on recent observations, 2010.
Mammals	1, 2, 3, 4, 5	Stephens' kangaroo rat /Dipodomys stephensi	Endangered / Threatened	Primarily annual & perennial grasslands, but also occurs in coastal scrub & sagebrush with sparse canopy cover. Prefers buckwheat, chamise, brome grass and filaree. Will burrow into firm soil.	Low occurrence potential due. Possibly extirpated.
Mammals	1, 2, 3, 4, 5	western mastiff bat /Eumops perotis californicus	None / None	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Medium potential to occur in the project area in all MZ's with suitable habitat (crevices of buildings). Their ability to roost in manmade structures, makes this essential for detection before initiating a new project.
Mammals	1, 2, 3, 4, 5	western yellow bat /Lasiurus xanthinus	None / SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly	Medium potential to occur in the project area in all MZ's with suitable habitat (desertic vegetation such as palm trees).

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
				palms. Forages over water and among trees.	
Plants	1, 2, 3, 4	aparejo grass /Muhlenbergia utilis	None / None	Meadows and seeps, marshes and swamps, chaparral, coastal scrub, cismontane woodland. Sometimes alkaline, sometimes serpentinite. 25-2325 m.	Low to medium potential to occur in the southern portion of the project site where more chaparral and marshland exist.. CRPR Plant Rank 2B.2
Plants	1, 2, 3, 4, 5	Brand's star phacelia /Phacelia stellaris	None / None	Coastal scrub, coastal dunes. Open areas. 3-370 m. (CNPS 2019)	Potential to occur in the Study Area is low to medium and only in open pockets of scrub shrub habitat.. CRPR Plant Rank 1B.1
Plants	1, 2, 5	Braunton's milk-vetch /Astragalus brauntonii	Endangered / None	Chaparral, coastal scrub, valley and foothill grassland. Recent burns or disturbed areas; usually on sandstone with carbonate layers. Soil specialist; requires shallow soils to defeat pocket gophers and open areas, preferably on hilltops, saddles or bowls between hills. 3-640 m. (CNPS 2011)	Potential to occur in the Study Area is low due to specific shallow soil type necessary for successful growth and avoidance of burrowing mammals. Observed occurrence was recorded southwest of the Program area in southern cottonwood willow riparian forest in 2010. CRPR Plant Rank 1B.1
Plants	1, 2, 3, 4	California saw-grass /Cladium californicum	None / None	Meadows and seeps, marshes and swamps (alkaline or freshwater). Freshwater or alkaline moist habitats. -20-2135 m. (CNPS 2017)	Occurrence potential medium in the southern portions of the Study Area. CRPR Plant Rank 2B.2
Plants	1, 2, 3, 4, 5	Chaparral sand-verbena	None / None	Chaparral, coastal scrub, desert dunes. Sandy areas. -60-1570 m. (CNPS 2011)	Low potential to occur. CRPR Plant Rank 1B.1

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
		/Abronia villosa var. aurita			
Plants	4, 5	Coulter's goldfields /Lasthenia glabrata ssp. coulteri	None / None	Coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in playas, sinks, and grasslands. 1-1375 m. (CNPS 2014)	Low potential to occur. CRPR Plant Rank 1B.1
Plants	1, 2, 5	Coulter's saltbush /Atriplex coulteri	None / None	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridgetops, as well as alkaline low places. Alkaline or clay soils. 2-460 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1	Greata's aster /Symphyotrichum greatae	None / None	Chaparral, cismontane woodland, broadleafed upland forest, lower montane coniferous forest, riparian woodland. Mesic canyons. 335-2015 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.3
Plants	2	grey-leaved violet /Viola pinetorum ssp. grisea	None / None	Subalpine coniferous forest, upper montane coniferous forest, meadows and seeps. Dry mountain peaks and slopes. 1580-3700 m. (CNPS 2017)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1	Hall's monardella /Monardella macrantha ssp. hallii	None / None	Broadleafed upland forest, chaparral, lower montane coniferous forest, cismontane woodland, valley and foothill grassland. Dry slopes and ridges in openings. 700-1800 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.3

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Plants	1, 2, 5	intermediate mariposa-lily /Calochortus weedii var. intermedius	None / None	Coastal scrub, chaparral, valley and foothill grassland. Dry, rocky calcareous slopes and rock outcrops. 60-1575 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	2	Johnston's buckwheat /Eriogonum microthecum var. johnstonii	None / None	Subalpine coniferous forest, upper montane coniferous forest. Slopes and ridges on granite or limestone. 1795-2865 m (CNPS 2019)	Low potential to occur. CRPR Plant Rank 1B.3
Plants	1, 2, 5	Jokerst's monardella /Monardella australis ssp. jokerstii	None / None	Lower montane coniferous forest, chapparal. Steep scree or talus slopes between breccia. Secondary alluvial benches along drainages and washes. 210-1740 m. (CNPS 2014)	Low potential to occur. CRPR Plant Rank 1B.1
Plants	1, 2, 3	lemon lily /Lilium parryi	None / None	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest. Wet, mountainous terrain; generally in forested areas; on shady edges of streams, in open boggy meadows & seeps. 625-2930 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1, 2, 5	lucky morning-glory /Calystegia felix	None / None	Meadows and seeps, riparian scrub. Sometimes alkaline, alluvial. 9-205 m. (CNPS 2017)	Low potential to occur. CRPR Plant Rank 1B.1

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Plants	1, 2, 3, 4, 5	many-stemmed dudleya /Dudleya multicaulis	None / None	Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clayey soils or grassy slopes. 1-910 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	2, 3, 4	marsh sandwort /Arenaria paludicola	Endangered / Endangered	Marshes and swamps. Growing up through dense mats of Typha, Juncus, Scirpus, etc. in freshwater marsh. Sandy soil. 3-170 m.	Occurrence potential is low. This species seems to be all but extirpated and no recently recorded individuals have been detected in the Program area. CRPR Plant Rank 1B.1
Plants	1, 2, 3, 4	mesa horkelia /Horkelia cuneata var. puberula	None / None	Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. 15-1645 m. (CNPS 2012)	Low potential to occur. CRPR Plant Rank 1B.1
Plants	1, 2	Nevin's barberry /Berberis nevinii	Endangered / Endangered	Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, N-facing slopes or in low grade sandy washes. 90-1590 m. This species is also a California Native Plant Society S.1 critically imperiled species. (CNPS 2015)	Occurrence potential for this species is low due to historical disturbance in the Study Area. As recently as 2005, some of this species has been detected in the Study Area although this appears to be isolated to the north outside of the Program area. CRPR Plant Rank 1B.1
Plants	2, 3, 4	Parish's bush-mallow /Malacothamnus parishii	None / None	Chaparral, coastal sage scrub. In a wash. 305-455 m.	Low potential to occur. CRPR Plant Rank 1A
Plants	2, 3, 4	Parish's desert-thorn /Lycium parishii	None / None	Coastal scrub, Sonoran desert scrub. -3-570 m.	Low potential to occur. CRPR Plant Rank 2B.3

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Plants	1, 2, 3, 4	Parry's spineflower /Chorizanthe parryi var. parryi	None / None	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. Dry slopes and flats; sometimes at interface of 2 vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 90-1220 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.1
Plants	2	Peirson's spring beauty /Claytonia peirsonii ssp. peirsonii	None / None	Upper montane coniferous forest, subalpine coniferous forest. Granitic scree slopes, often with a sandy or fine soil component and granitic cobbles. 1510-2745 m.	Low potential to occur. CRPR Plant Rank 1B.2
Plants	2, 3, 4	prairie wedge grass /Sphenopholis obtusata	None / None	Cismontane woodland, meadows and seeps. Open moist sites, along rivers and springs, alkaline desert seeps. 15-2625 m. (CNPS 2013)	Low potential to occur. CRPR Plant Rank 2B.2
Plants	2, 3, 4	Pringle's monardella /Monardella pringlei	None / None	Coastal scrub. Sandy hills. 300-400 m. (CNPS 2019)	Low potential to occur. CRPR Plant Rank 1A
Plants	1, 2, 3, 4	prostrate vernal pool navarretia /Navarretia prostrata	None / None	Coastal scrub, valley and foothill grassland, vernal pools, meadows and seeps. Alkaline soils in grassland, or in vernal pools. Mesic, alkaline sites. 3-1235 m. (CNPS 2015)	Low potential to occur. CRPR Plant Rank 1B.2

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Plants	1, 2	rigid fringepod /Thysanocarpus rigidus	None / None	Pinyon and juniper woodland. Dry, rocky slopes and ridges of oak and pine woodland in arid mountain ranges. 425-2165 m. (CNPS 2019)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1	Rock Creek broomrape /Orobanche valida ssp. valida	None / None	Chaparral, pinyon and juniper woodland. On slopes of loose decomposed granite; parasitic on various chaparral shrubs. 975-1985 m. (CNPS 2011)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	2, 3, 4	salt marsh bird's-beak /Chloropyron maritimum ssp. maritimum	Endangered / Endangered	Marshes and swamps, coastal dunes. Limited to the higher zones of salt marsh habitat. 0-10 m.	This is a possibly extirpated species with no recently recorded individual plants in the Study Area. Occurrence potential low. CRPR Plant Rank 1B.2
Plants	1, 2, 5	salt spring checkerbloom /Sidalcea neomexicana	None / None	Playas, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub. Alkali springs and marshes. 3-2380 m. (CNPS 2013)	Low potential to occur. CRPR Plant Rank 2B.2
Plants	1, 2, 3, 4, 5	San Bernardino aster /Symphyotrichum defoliatum	None / None	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 3-2045 m. (CNPS 2018)	Low potential to occur. CRPR Plant Rank 1B.2

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Plants	4, 5	San Diego ambrosia /Ambrosia pumila	Endangered / None	Chaparral, coastal scrub, valley and foothill grassland. Sandy loam or clay soil; sometimes alkaline. In valleys; persists where disturbance has been superficial. Sometimes on margins or near vernal pools. 3-580 m. (CNPS 2011)	This is a presumed extirpated species with no recently recorded individual plants in the Study Area. Occurrence potential low. CRPR Plant Rank 1B.1
Plants	1, 2	San Gabriel linanthus /Linanthus concinnus	None / None	Lower montane coniferous forest, upper montane coniferous forest, chaparral. Dry rocky slopes, often in Jeffrey pine/canyon oak forest. 1310-2560 m. (CNPS 2012)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1, 2	San Gabriel manzanita /Arctostaphylos glandulosa ssp. gabrielensis	None / None	Chaparral. Rocky outcrops; can be dominant shrub where it occurs. 960-2015 m. (CNPS 201)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	2	Sanford's arrowhead /Sagittaria sanfordii	None / None	Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. 0-605 m. (CNPS 2012)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1, 2, 3, 4, 5	Santa Ana River woollystar /Eriastrum densifolium ssp. sanctorum	Endangered / Endangered	Coastal scrub, chaparral. In sandy soils on river floodplains or terraced fluvial deposits. 180-705 m. This species is also a California Native Plant Society S.1 critically imperiled species. (CNPS 2016)	Occurrence potential for this species is low to medium due to historical disturbance in the Study Area, although some individuals have been recorded as recently as 2014 in the eastern portion of the Study Area. CRPR Plant Rank 1B.1

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Plants	2, 3	short-joint beavertail /Opuntia basilaris var. brachyclada	None / None	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Sandy soil or coarse, granitic loam. 425-2015 m. (CNPS 2011)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	2, 3	singlewhorl burrobrush /Ambrosia monogyra	None / None	Chaparral, Sonoran desert scrub. Sandy soils. 5-475 m. (CNPS 2013)	Low potential to occur. CRPR Plant Rank 2B.2
Plants	1	slender mariposa-lily /Calochortus clavatus var. gracilis	None / None	Chaparral, coastal scrub, valley and foothill grassland. Shaded foothill canyons; often on grassy slopes within other habitat. 210-1815 m. (CNPS 2015)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1, 2, 3	slender-horned spineflower /Dodecahema leptoceras	Endangered / Endangered	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. 200-765 m. This species is also a California Native Plant Society S.1 critically imperiled species. Many historical examples have been lost by development and stream channelization. (CNPS 2010)	Occurrence potential for this species is low due to historical disturbance in Study Area. Individual plants have been recorded as recently as 2013 in Cajon Wash north of the Program area. CRPR Plant Rank 1B.1
Plants	1, 2, 3, 4, 5	smooth tarplant /Centromadia pungens ssp. laevis	None / None	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland. Alkali meadow, alkali scrub; also in disturbed places. 5-1170 m. Many historical occurences may be extirpated. Frequently confused with other Centromadia species such as C. parryi ssp.	Low potential to occur. CRPR Plant Rank 1B.1

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
				australis in ORA, LAX, and SDG cos., and C. pungens ssp. Pungens. (CNPS 2016)	
Plants	1, 2, 3, 5	Southern California black walnut /Juglans californica	None / None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; alluvial. (CNPS 2015)	Occurrence potential of this fragmented species is low due to its historic fragementation, possible hybridization with horticultural varieties of walnut.. CRPR Plant Rank 4.2
Plants	1	Watson's amaranth /Amaranthus watsonii	None / None	Mojavean desert scrub, Sonoran desert scrub. (CNPS 2017)	Occurence potential is low. One occurrence northwest of the STUDY AREAon foothills of Mt. Baldy. (Calflora 2020).. CRPR Plant Rank 4.3
Plants	1, 2, 3, 4, 5	white rabbit-tobacco /Pseudognaphalium leucocephalum	None / None	Riparian woodland, cismontane woodland, coastal scrub, chaparral. Sandy, gravelly sites. 35-515 m. (CNPS 2016)	Low potential to occur. CRPR Plant Rank 2B.2
Plants	2, 3	white-bracted spineflower /Chorizanthe xanti var. leucotheca	None / None	Mojavean desert scrub, pinyon and juniper woodland, coastal scrub (alluvial fans). Sandy or gravelly places. 365-1830 m. (CNPS 2010)	Low potential to occur. CRPR Plant Rank 1B.2
Plants	1, 2	woolly mountain-parsley /Oreonana vestita	None / None	Subalpine coniferous forest, upper montane coniferous forest, lower montane coniferous forest. High ridges; on scree, talus, or gravel. 800-3370 m. (CNPS 2011)	Low potential to occur. CRPR Plant Rank 1B.3

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Reptiles	1, 2, 3, 4, 5	California glossy snake /Arizona elegans occidentalis	None / SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Occurrence potential is low to medium for this species in all areas of the Study Area where loose or sandy soils in scrub or grassland patches of habitat occur. The California glossy snake has adapted to a range of shrub and grassland habitats that exist to varying degree in all MZ's. The most recently recorded observations occur outside of the Program area in 2016.
Reptiles	1, 2, 3, 4, 5	coast horned lizard /Phrynosoma blainvillii	None / None	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Occurrence potential is medium, although potential is higher outside of the immediate Program area, where more undisturbed suitable habitat occurs. Recent observations have been in Santa Ana Canyon in 2005 and Cajon Canyon Creek in 2008 and 2009.
Reptiles	1, 4, 5	coastal whiptail /Aspidoscelis tigris stejnegeri	None / SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland & riparian areas. Ground may be firm soil, sandy, or rocky.	Occurrence potential is low to medium in the riparian areas of the Program area, although there have been no recorded observations past 2006 in the Study Area.
Reptiles	1, 2, 3, 4, 5	orange-throated whiptail /Aspidoscelis hyperythra	None / None	Inhabits low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food: termites.	Occurrence potential is low to medium in the scrub brush and chaparral areas of the Program area. Recently recorded observations in 2010 place this species most likely in the Mockingbird Canyon area in the southern portion of the Program area.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Reptiles	1, 2, 3, 4, 5	red-diamond rattlesnake /Crotalus ruber	None / SSC	Chaparral, woodland, grassland, & desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Occurrence potential is low to medium in the central Program area, and more likely to occur in the rocky, densely vegetated areas, in particular west and outside of MZ-1 in the Puente Hills, where the species was most recently observated in 2017.
Reptiles	2, 3, 4, 5	San Diego banded gecko /Coleonyx variegatus abbotti	None / SSC	Coastal & cismontane Southern California. Found in granite or rocky outcrops in coastal scrub and chaparral habitats.	Occurrence potential is low in the central Program area, and more likely to occur in the rocky, chaparral habitat areas, in particular in the eastern portion of MZ-5 and west and outside of MZ-1 in the Puente Hills, where the species was most recently observated in 2003.
Reptiles	1, 2, 3, 4, 5	southern California legless lizard /Anniella stebbinsi	None / SSC	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	Occurrence potential is medium to high. Several individuals have been observed as recently as 2018 throughout the Study Area. This species has been observed in semi-urbanized areas and can be expected to survive in these areas and adapt to development, while remaining on the fringe habitat that exists in the Program area.
Reptiles	1, 2	two-striped gartersnake /Thamnophis hammondii	None / None	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Low Occurrence potential in MZ's 2, 3, 4 and 5. Slightly higher potential in the northwest fringe of MZ 1, due to more suitable habitat requirements.

Taxonomic Group	Management Zone with Potential to Occur	Common Name / Scientific Name	Status Federal / State	Typical Habitat	Occurrence Potential
Reptiles	1, 2, 3, 4, 5	western pond turtle /Emys marmorata	None / SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Occurrence potential is medium. As recently as 2011, western pond turtles have been observed in the Santa Ana River corridor within MZ 5.

Chapter 4. Discussion of Impacts and Mitigation

4.1 Discussion of Project Impacts

The construction and operation of the infrastructure required to support the OBMPU may result in direct impacts and indirect impacts on special-status wildlife species. The extent and nature of impacts on special-status wildlife species varies depending on the species under consideration, their range, and the type and quality of suitable habitats present.

In general, permanent and temporary direct impacts on special-status wildlife species during construction of the future infrastructure improvements include mortality or injury, and disturbances to suitable habitats for special-status wildlife species, including disruption of wetland and streambeds; water pollution; and reptile, bird, and mammal burrow or nest disturbance. These habitat disturbances within the program area, or at specific new or modified facilities, could lead to the permanent or temporary abandonment of these habitats by special-status species, a disruption in the life cycle of these species, or mortality or injury of these species. Because it is difficult to determine the number or extent of these kinds of impacts, direct impacts on special-status wildlife species will be addressed in subsequent environmental review once a specific component of the OBMPU has been defined for design and implementation.

Permanent and temporary indirect impacts on special-status wildlife species would occur through construction or maintenance of the program in a number of ways depending on the species and type of disturbance. Potential indirect impacts include erosion, soil compaction, increased siltation and sedimentation, fractures in the hardpan soils or rock outcroppings, alteration of jurisdictional water hydrology, dust aerosolization, host plant stress, destruction of native vegetation, habitat fragmentation, and noise and light pollution. These indirect impacts could lead to the disturbance of special-status wildlife species such as a temporary shift in foraging patterns or territories, refugia abandonment, increased predation, decreased reproductive success, and reduced population viability. Because it is difficult to quantify and measure these kinds of impacts, indirect impacts on special-status wildlife species are described qualitatively and will be quantitatively addressed in subsequent environmental documentation once specific aspects of the program is proposed for implementation and designed.

Construction of any of the program alternatives should only result in mostly minimal impacts on special-status wildlife species, because only a limited amount of marginal habitat for special-status wildlife species would be impacted by this activity. All facilities would impact only barren, urban, or agricultural areas and thus construction would potentially impact only the special-status wildlife species that use mostly urban area (e.g., special-status bird species, special-status mammal species, special-status bat species or species present in wetland or streambed habitats).

During ongoing operations or maintenance activities requiring ground disturbance, clearing, or grubbing that could cause erosion and sedimentation or that could indirectly affect the hydrology of nearby jurisdictional waters and the species that depend on these resources. Chemical runoff from trucks or equipment within the future OBMPU facility rights-of-way could indirectly degrade suitable habitat used by these species that are present adjacent to or within the management zone boundaries. If operational maintenance requires weed abatement activities, such as the use of herbicides, these activities could also contribute to chemical runoff and pollution of adjacent suitable habitats. However, maintenance activities that have potential impacts on special-status wildlife species are limited to the program right-of-way areas that are currently in service or that will be added to normal program operations and maintenance through separate design, environmental review and construction of such facilities at a later date.

Potential impacts on jurisdictional waters, special-status plant communities, protected trees, special-status plant, and wildlife species (including critical habitat) will be analyzed for each facility as site-specific design has been

established. Once a particular facility APE is established, the following steps will be taken during a detailed second-tier evaluation to assure resource impacts are quantified, and site specific measures are identified. Where none of the biological resource impacts below will occur, no further biological resource impact analysis may be necessary within a second-tier analysis. Further, where potentially significant impacts may occur, but specific mitigation outlined below can reduce such impacts to a less than significant level, future documentation may rely upon the procedures outlined in Sections 15162 and 15168 of the State CEQA Guidelines to determine the required level of CEQA documentation for future infrastructure projects. OBMPU program proponents will perform these analyses at the time individual infrastructure improvements are considered for funding.

- Each resource will be evaluated for its presence or absence, and for the presence of habitat that could support the resource or provide habitat for the resource. Suitable habitat was determined based on background review and identification of species-specific life-history requirements.
- Potential impacts on special-status wildlife species will be determined using a habitat-based approach where the presence of the species was assumed in suitable habitat. Habitats in the project footprint and vicinity were determined through a combination of background review, habitat mapping during field surveys, and aerial photograph interpretation.
- Potential impacts on designated critical habitat will be based on the location of the critical habitat relative to the project footprint and the presence of primary constituent elements (PCEs) associated with the critical habitat designation.

In determining the potential direct and indirect impacts associated with construction and operation impacts on biological resources, a number of assumptions and limitations are identified:

- Construction and operation impacts will be considered temporary if they can be fully restored to pre-disturbance conditions following construction. Temporary impacts would include construction staging areas, construction laydown areas, relocation of underground utilities, and other work space that would not be occupied by permanent facilities during project operation.
- Impacts will be considered permanent when they have lasting effects beyond the project construction period, or cannot be fully restored following construction. Permanent impacts would include new right-of-way for new or expanded facility or water conveyance systems, road crossings, electrical substations, maintenance and operations facilities, and monitoring stations.
- Certain jurisdictional waters types (wetlands) are especially sensitive to disturbance; therefore, impacts on these features will be considered permanent where these features cannot be restored to their pre-project condition due to the permanent loss by new infrastructure.

4.2 Mitigation Measures

Because the individual projects implemented throughout the Program could result in potentially significant impacts on biological resources, mitigation measures were designed to avoid or reduce the impacts on these resources. The mitigation strategy includes avoidance of impacts on biological resources to the extent possible: field verification of sensitive resources and filling data gaps; the formulation of alternative designs (minimization and avoidance); limiting modifications to access and egress points to facilities (minimization); designing cuts and fills to minimize the area of disturbance; and where necessary, and compensation to offset unavoidable impacts to individual species or sensitive habitat.

The following mitigation measures are required to reduce impacts associated with future San Joaquin Corridor Rail Improvement program site-specific projects to a less than significant level. Each stakeholder implementing specific project-related specific capital improvement projects shall implement the measures outlined below, as needed, when the impact being mitigated will be caused by such project.

To reduce or prevent activities that may adversely affect sensitive species, the following mitigation measures will be incorporated into any specific projects and/or contractor specifications for future project-related impacts to protect sensitive resources and habitat.

4.2-1 Where future project-related impacts will affect undeveloped land, site surveys shall be conducted by a qualified biologist/ecologist. If sensitive species are identified as a result of the survey for which mitigation/compensation must be provided in accordance with regulatory requirements, the following subsequent mitigation actions will be taken:

a. The project proponent shall provide compensation for sensitive habitat acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of not less than 1:1 for habitat lost. The property acquisition shall include the presence of at least one animal or plant per animal or plant lost at the development site to compensate for the loss of individual sensitive species.

b. The final mitigation may differ from the above values based on negotiations between the project proponent and USFWS and CDFW for any incidental take permits for listed species. The project proponent shall retain a copy of the incidental take permit as verification that the mitigation of significant biological resource impacts at a project site with sensitive biological resources has been accomplished.

c. Preconstruction botanical surveys for special-status plant communities and special-status plant species will be conducted. in areas that were not previously surveyed because of access or timing issues or project design changes, pre-construction surveys for special-status plant communities and special-status plant species will be conducted before the start of ground-disturbing activities during the appropriate blooming period(s) for the species.

4.2-2 Biological Resources Management Plan: During final design, a BRMP will be prepared to assemble the biological resources mitigation measures for each specific infrastructure improvement in the future. The BRMP will include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP will also discuss habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. The parameters of the BRMP will be formed with the mitigation measures from the project-level EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB/RWQCB, and CDFW.

To reduce or prevent activities that may adversely affect rivers, streambeds or wetlands, the following mitigation measures will be incorporated into any specific projects and/or contractor specifications for future project-related impacts to protect sensitive resources and habitat.

4.2-3 Prior to discharge of fill or streambed alteration of jurisdictional areas, the project proponent shall obtain regulatory permits from the U.S. Army Corps of Engineers, local Regional Water Quality Control Board and the California Department of Fish and Wildlife. Any future project that must discharge fill into a channel or otherwise alter a streambed shall be minimized to the extent feasible, and any discharge of fill not avoidable shall be mitigated through compensatory mitigation. Mitigation can be provided by restoration of temporary impacts, enhancement of existing resources, or purchasing into any authorized mitigation bank or in-lieu fee program; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or by acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence

of sensitive or listed plants or animals in the affected area. A Habitat Mitigation and Monitoring Proposal shall be prepared and reviewed and approved by the appropriate regulatory agencies. The project proponent will also obtain permits from the regulatory agencies (U.S. Army Corps of Engineers, Regional Water Quality Control Board, CDFW and any other applicable regulatory agency with jurisdiction over the proposed facility improvement) if any impacts to jurisdictional areas will occur. These agencies can impose greater mitigation requirements in their permits, but Caltrans will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.

4.2-4 Jurisdictional Water Preconstruction Surveys: A jurisdictional water preconstruction survey will be conducted at least six months before the start of ground-disturbing activities to identify and map all jurisdictional waters in the project footprint and if possible within a 250-foot buffer. The purpose of this survey is to confirm the extent of jurisdictional waters in areas where permission to enter was not previously granted and where aerial photograph interpretation was used to estimate the extent of these features. If possible, surveys would be performed during the spring, when plant species are in bloom and hydrological indicators are most readily identifiable. These results would then be used to calculate impact acreages and determine the amount of compensatory mitigation required to offset the loss of wetland functions and values.

Regarding active bird nests, the following mitigation measure will be applied to this program.

4.2-5 It is illegal to "take" active bird nests of native birds, and if such nests are present at a project site, no take is allowed. To avoid an illegal take of active bird nests, any grubbing, brushing or tree removal will be conducted outside of the State identified nesting season (nesting season is approximately from February 15 through September 1 of a given calendar year). Alternatively, coordination with the CDFW to conduct nesting bird surveys will be completed, and methodology of surveys will be agreed upon. All nesting bird surveys will be conducted by a qualified biologist prior to initiation of ground disturbance to demonstrate that no bird nests will be disturbed by project construction activities.

The following mitigation can reduce the impact to burrowing owl to a less than significant level.

4.2-6 Prior to commencement of construction activity in locations that are not fully developed, protocol burrowing owl survey will be conducted using the 2012 survey protocol methodology identified in the "Staff Report on Burrowing Owl Mitigation, State of California, Natural Resources Agency, Department of Fish and Game, March 7, 2012", or the most recent CDFW survey protocol available. Protocol surveys shall be conducted by a qualified biologist to determine if any burrowing owl burrows are located within the potential area of impact. If occupied burrows may be impacted, an impact minimization plan shall be developed and approved by CDFW that will protect the burrow in place or provide for passive relocation to an alternate burrow within the vicinity but outside of the project footprint in accordance with current CDFW guidelines. Active nests must be avoided with a 250-foot buffer until all nestlings have fledged.

The following mitigation can ensure consistency with any HCP or MSHCP.

4.2-7 Prior to commencement of construction activity on a project facility within a MSHCP/HCP plan area, consistency with that plan, or take authorization through that plan, shall be obtained. Through avoidance, compensation or a comparable mitigation alternative, each project shall be shown to be consistent with a MSHCP/HCP.

Implementation of the above measures is protective of the environment. Should the regulatory agencies determine an alternative, equivalent mitigation program during acquisition of regulatory permits, such measure shall be deemed equivalent to the above measures and no additional environmental documentation shall be required to implement a measure different than outlined above. Note that if impacts cannot be mitigated or avoided in the

manner outlined in the measures above, then subsequent environmental documentation would have to be prepared in accordance with procedures outlined in Section 15162 of the State CEQA Guidelines.

Implementation of the following mitigation measures will ensure that project design and site selection reduce impacts to sensitive biological resources to the extent feasible.

4.2.8 Place primary emphasis on the preservation of large, unbroken blocks of natural open space and wildlife habitat area, and protect the integrity of habitat linkages. As part of this emphasis, incorporate programs for purchase of lands, clustering of development to increase the amount of preserved open space, and assurances that the construction of facilities or infrastructure improvements meet standards identical to the environmental protection policies applicable to the specific facilities improvement.

4.2.9 Require facility designs and maintenance activities to be planned to protect habitat values and to preserve significant, viable habitat areas and habitat connection in their natural conditions.

a. Within designated habitat areas of rare, threatened or endangered species, prohibit disturbance of protected biotic resources.

b. Within riparian areas and wetlands subject to state or federal regulations, riparian woodlands, oak and walnut woodland, and habitat linkages, require that the vegetative resources which contribute to habitat carrying capacity (vegetative diversity, faunal resting sites, foraging areas, and food sources) are preserved in place or replaced so as not to result in an measurable reduction in the reproductive capacity of sensitive biotic resources.

c. Within habitats of plants listed by the CNDDB or CNPS as "special" or "of concern," require that new facilities not result in a reduction in the number of these plants, if they are present.

4.2-10 Maximize the preservation of individual oak, sycamore and walnut trees within proposed development sites.

4.2-11 Require the establishment of buffer zones adjacent to areas of preserved biological resources. Such buffer zones shall be of adequate width to protect biological resources from grading and construction activities, as well as from the long-term use of adjacent lands. Permitted land modification activities with preservation and buffer areas are to be limited to those that are consistent with the maintenance of the reproductive capacity of the identified resources. The land uses and design of project facilities adjacent to a vegetative preservation area, as well as activities within the designated buffer area are not to be permitted to disturb natural drainage patterns to the point that vegetative resources receive too much or too little water to permit their ongoing health. In addition, landscape adjacent to areas of preserved biological resources shall be designed so as to avoid invasive species which could negatively impact the value of the preserved resource.

Implementation of the following mitigation measures will ensure that project construction impacts to sensitive biological resources, including the potential effects of invasive species, are reduced to the extent feasible.

4.2-12 Following construction activities within or adjacent to any natural area, the disturbed areas shall be revegetated using a plant mix of native plant species that are suitable for long term vegetation management at the specific site, which shall be implemented in cooperation with regulatory agencies and with oversight from a qualified biologist. The seeds mix shall be verified to contain the minimum amount of invasive plant species seeds reasonably available for the project area.

4.2-13 Clean Construction Equipment. During construction, equipment will be washed before entering the project footprint to reduce potential indirect impacts from inadvertent introduction of nonnative invasive plant species. Mud and plant materials will be removed from construction equipment when

working in native plant communities, near special-status plant communities, or in areas where special-status plant species have been identified.

4.2-14 Contractor Education and Environmental Training.

Personnel who work onsite will attend a Contractor Education and Environmental Training session. The environmental training is likely to be required by the regulatory agencies and will cover general and specific biological information on the special-status plant species, including the distribution of the resources, the recovery efforts, the legal status of the resources, and the penalties for violation of project permits and laws.

The Contractor Education and Environmental Training sessions will be given before the initiation of construction activities and repeated, as needed, when new personnel begin work within the project limits. Daily updates and synopsis of the training will be performed during the daily safety ("tailgate") meeting. All personnel who attend the training will be required to sign an attendance list stating that they have received the Contractor Education and Environmental Training.

4.2-15 Biological Monitor to Be Present during Construction Activities in areas where impacts to Riparian, Riverine, Wetland, Endangered Species or Endangered Species Critical habitat occurs. A biological monitor (or monitors) will be present onsite during construction activities that could result in direct or indirect impacts on sensitive biological resources (including listed species) and to oversee permit compliance and monitoring efforts for all special-status resources.

A biological monitor (qualified biologist) is any person who has a bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field and/or has demonstrated field experience in and knowledge about the identification and life history of the special-status species or jurisdictional waters that could be affected by project activities. The biological monitor(s) will be responsible for monitoring the Contractor to ensure compliance with the Section 404 Individual Permit, Section 401 Water Quality Certification and the Lake and Streambed Alteration Agreement. Activities to ensure compliance would include performing construction-monitoring activities, including monitoring environmental fencing, identifying areas where special-status plant species are or may be present, and advising the Contractor of methods that may minimize or avoid impacts on these resources. Biological monitor(s) will be required to be present in all areas during ground disturbance activities and for all construction activities conducted within or adjacent to identified Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones.

4.2-16 Food and Trash: All food-related trash items (e.g., wrappers, cans, bottles, food scraps) will be disposed of in closed containers and removed at least once a week from the construction site.

4.2-17 Rodenticides and Herbicides: Use of rodenticides and herbicides in the project footprint will be restricted. This measure is necessary to prevent poisoning of special-status species and the potential reduction or depletion of the prey populations of special–status wildlife species.

4.2-18 Wildlife Exclusion Fencing: Exclusion barriers (e.g., silt fences) will be installed at the edge of the construction footprint and along the outer perimeter of Environmentally Sensitive Areas and Environmentally Restricted Areas to restrict special-status species from entering the construction area. The design specifications of the exclusion fencing will be determined through consultation with the USFWS and/or CDFW. Clearance surveys will be conducted for special-status species after the exclusion fence is installed. If necessary, clearance surveys will be conducted daily.

4.2-19 Equipment Staging Areas: Staging areas for construction equipment will be located outside sensitive biological resources areas, including habitat for special-status species, jurisdictional waters, and wildlife movement corridors, to the maximum extent possible.

4.2-20 Plastic mono-filament netting (erosion-control matting) or similar material will not be used in erosion control materials to prevent potential harm to wildlife. Materials such as coconut coir matting or tackified hydroseeding compounds will be used as substitutes.

4.2-21 Vehicle Traffic: During ground-disturbing activities, project-related vehicle traffic will be restricted within the construction area to established roads, construction areas, and other designated areas to prevent avoidable impacts. Access routes will be clearly flagged and off-road traffic will be prohibited.

4.2-22 Entrapment Prevention: All excavated, steep-sided holes or trenches more than 8 inches deep will be covered at the close of each working day with plywood or similar materials, or a minimum of one escape ramp constructed of earth fill for every 10 feet of trenching will be provided to prevent the entrapment of wildlife. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.

All culverts or similar enclosed structures with a diameter of 4 inches or greater will be covered, screened, or stored more than 1 foot off the ground to prevent use by wildlife. Stored material will be cleared for common and special-status wildlife species before the pipe is subsequently used or moved.

4.2-23 Weed Control Plan: A Weed Control Plan will be prepared and implemented to minimize or avoid the spread of weeds during ground-disturbing activities. In the Weed Control Plan, the following topics will be addressed:

- *Schedule for noxious weed surveys.*
- *Weed control treatments, including permitted herbicides, and manual and mechanical methods for application; herbicide application will be restricted in Environmentally Sensitive Areas.*
- *Timing of the weed control treatment for each plant species.*
- *Fire prevention measures.*

4.2-24 Dewatering/Water Diversion: Open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., USACE, SWRCB/RWQCB, and CDFW), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen impacts on jurisdictional waters during construction:

- *The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the project.*
- *The timing of work within all channelized waters is to be coordinated with the regulatory agencies.*
- *The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the Contractor's work area, where possible, and outlet through a sandbag dam at the downstream end.*
- *Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and sediment-laden water from entering the main stream flow. Accumulated sediments will be periodically removed from the catch basins.*

Implementation of the above mitigation measures is considered adequate to minimize construction-related impacts to the extent feasible, including the potential for invasive species occupancy caused by project-related disturbance of natural areas.

4.3 Regulatory Compliance

Impacts on biological resources will be permitted or authorized through consultation with the various natural resource regulatory agencies (USFWS, USACE, SWRCB/RWQCB, and CDFW). Both formal and informal consultation with these agencies may result in additional project-specific avoidance and minimization measures.

4.3.1 Regulatory Agency Access

If requested, before, during, or on completion of ground-disturbing activities, access to the construction site will be provided to USFWS, USACE, SWRCB/RWQCB, and CDFW staff. Because of safety concerns, agency personnel will check in with the Contractor before accessing the construction site. If agency personal access the construction site, the biological monitor will prepare a memorandum within 1 day of the visit that documents agency access and issues raised during the field meeting.

4.4 Critical Habitat

Critical habitat has been designated for several species adjacent to, directly overlapping, or in the general vicinity of the Program area, with significant concentration along the Santa Ana River corridor. One example is the critical habitat designated for the Southwestern willow flycatcher along the Santa Ana River to the south of the Program area. The specific locations of pertinent critical habitat areas are shown in maps contained in Chapter 6 - Figures. The primary mitigation for potential impacts to critical habitat will be avoidance. Where avoidance is not feasible, mitigation measures 4.2-1 and 4.2-7 will be implemented. It is rare that critical habitat extends directly within the property owned by project proponents because these areas are generally maintained to support the OBMPU operations, not protect habitat. However, where either permanent or temporary disturbances will occur within critical habitat, full mitigation will be provided to offset impacts to such habitat. As indicated in the subsequent discussion on cumulative impacts, certain areas that contain critical habitat for species may not be fully mitigable, and an unavoidable significant adverse biological resource impact may occur. This can only be determined after the new projects are identified, and engineering and designs are completed, and avoidance measures incorporated per specific, necessary project actions. Where avoidance cannot be achieved, the residual impact to critical habitat may be unavoidable.

4.4.1 Wetlands and Other Waters Coordination Summary

Wetlands and other waters in the project vicinity, including waters of the U.S., waters of the state, and state streambeds, are regulated by the federal government (USACE) and the State of California (RWRCB and CDFW). When considering wetlands and other waters, these features are collectively termed jurisdictional waters. Wetlands and other waters are assumed to fall under the jurisdiction of the USACE, SWRCB, and CDFW for purposes of this discussion. The jurisdictional status of these waters will be confirmed by the USACE, SWRCB, and CDFW when the regulatory permitting process is conducted. Further definitions are presented below.

- **Wetlands**: According to the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and the recently published Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008b), three criteria must be satisfied to classify an area as a jurisdictional wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation), (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils), and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).
- **Waters of the U.S.**: The CWA defines waters of the U.S. as follows: (1) all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of

waters otherwise defined as waters of the U.S.; (5) tributaries to the foregoing types of waters; and (6) wetlands adjacent to the foregoing waters (33 CFR 328.3[a]). Current status of the Waters of the US Rule continues to change. Any regulatory environment must be reassessed for each future project to determine which rules apply and which permitting may be necessary during the planning and permitting phase.

- **Waters of the State**: Waters of the state are broadly defined by the Porter-Cologne Water Quality Control Act (Section 1305[e]). Under this definition, isolated wetlands that may not be subject to regulations under federal law are considered waters of the state. On March 9, 2012, the California Water Boards released a preliminary draft of their Wetland Area Protection Policy, which includes a proposed wetland definition. Under their proposed definition, an area is a wetland if, under normal circumstances, it (1) is continuously or recurrently inundated with shallow water or saturated within the upper substrate; (2) has anaerobic conditions within the upper substrate caused by such hydrology; and (3) either lacks vegetation or the vegetation is dominated by hydrophytes (SWRCB 2012).
- **State Streambeds**: CDFW has not released an official definition of lake or streambed and therefore the extent of the area regulated under Section 1602 remains undefined. However, CDFW jurisdiction generally includes the streambed and bank, together with the adjacent floodplain and riparian vegetation.

Based on the background review and subsequent windshield surveys, numerous jurisdictional waters occur in the Study Area for the OBMPU. Many of the jurisdictional waters (built waterways) are heavily managed by local irrigation districts, which serve public water needs and agricultural production. As a result, some of these jurisdictional waters support few natural biological functions and values. The biological functions of these man-made features include limited habitat for wildlife and capacity for water storage or release. A number of these jurisdictional waters have been previously degraded or impacted by existing roads and water resource management infrastructure.

Direct impacts on natural and man-made features include the removal or modification of local hydrology, the redirection of flow, and the placement of fill material. In the case of man-made features, these impacts would remove or disrupt the limited biological functions that these features provide. In natural areas, these activities would remove or disrupt the hydrology, vegetation, wildlife use, water quality conditions, and other biological functions provided by the resources.

Temporary impacts on jurisdictional waters include the placement of temporary fill during construction in both man-made and natural jurisdictional waters. Temporary fill could be placed during the construction of access roads and staging/equipment storage areas. The temporary fill would result in a temporary loss of jurisdictional waters and could potentially increase erosion and sediment transport into adjacent areas.

Potential indirect impacts on jurisdictional waters include a number of water-quality-related impacts: erosion and transport of fine sediments or fill downstream of construction to unintentional release of contaminants into jurisdictional waters that are outside of the project footprint. These discharges would indirectly impact adjacent or downstream jurisdictional waters.

A Jurisdictional Determination and subsequent approval of the determination by the regulatory agencies will be conducted on each facility as the design becomes available and construction of a particular facility is scheduled to occur within the foreseeable future. However, unforeseen direct impacts, indirect impacts, and temporary impacts to natural and man-made water bodies may occur depending upon the design of the infrastructure improvement, and the construction methodology required.

4.5 Cumulative Impacts

Cumulative biological resource impacts can only occur when such resources are not avoided, protected or mitigated as outlined above. The mitigation requirements outlined in Section 4.2 are identified to ensure that biological resources are avoided or otherwise protected or mitigated, such that no cumulatively considerable impacts to significant biological resources are forecast to occur if the proposed project is implemented as analyzed in this document.

These impacts may include direct impacts such as the removal or modification of local hydrology, the redirection of flow, and the placement of fill material. Potential indirect impacts on jurisdictional waters include a number of water-quality-related impacts: erosion and transport of fine sediments or fill downstream of construction to unintentional release of contaminants into jurisdictional waters that are outside of the project footprint. Temporary impacts on jurisdictional waters include the placement of temporary fill during construction in both man-made and natural jurisdictional waters. Temporary fill could be placed during the construction of access roads and staging/equipment storage areas. The temporary fill would result in a temporary loss of jurisdictional waters and could potentially increase erosion and sediment transport into adjacent areas.

In the case of man-made features, these impacts would remove or disrupt the limited biological functions that these features provide. In natural areas, these activities would remove or disrupt the hydrology, vegetation, wildlife use, water quality conditions, and other biological functions provided by the resources. Therefore, these impacts should be quantified and analyzed in a second tier environmental documentation.

However, there are certain areas within the overall project area of potential impact where the resource impacts from constructing new infrastructure may cause unavoidable significant adverse impacts on biological resources. These areas are highly dependent upon the final design of each Program goal, i.e. individual project, and if those actions cannot be reasonably or feasibly offset, the ultimate design of these Program improvements must be based on sound engineering. In each case where most environmental impacts cannot be fully avoided, it may be possible to avoid certain impacts by designs that avoid such impacts through sound mitigation-based planning at each step.

Chapter 5. References

Akcakaya, H. R. And J. L. Atwood. 1997. A habitat-based metapopulation model of the California gnatcatcher. Conservation Biology 11: 422-434.

Alamand, J.D. and W.B. Krohn. 1978. The position of the Bureau of Land Management on the protection and management of riparian ecosystems. In Johnson, R.R. and J.F.McCormick [tech. coords.], Strategies for protection and management of floodplain wetlands and other riparian ecosystems: Proc. of the symposium. USDA Forest Service Gen. Tech. Rep. WO-12., Washington, D.C., 410 pp.

Atkinson, W.L 1899. Nesting of the California cuckoo. Condor 1:95.

Barbour, M., and J. Major. 1977. Terrestrial vegetation of California. John Wiley and Sons, New York, New York.

Barbour, R. W., and W.H. Davis. 1969. Bats of America. The University Press of Kentucky. Lexington, KY.

Baumgart, J.H. 1951. Yellow-billed Cuckoo in the San Bernardino Mountains, California. Condor 53:207.

Brady, W., D.R., Patton, J. Paxson. 1985. The development of Southwestern Riparian Gallery Forests. Proceedings Riparian Ecosystems and their Management: Reconciling Conflicting uses Conference, Tucson, Arizona, April 16-18.

Braden, G. T, R. L. McKernan, and S. M. Powell. 1997. Effects of nest parasitism by the brown-headed cowbird on nesting success of the California gnatcatcher. Condor 99: 858-865. Brattstrom, B. H. 1989. Status survey of the Orange-throated Whiptail, Cnemidophorus hyperythrus beldingi, and the San Diego Horned Lizard, Phrynosoma coronatum blainvillei. Progress report on Fish and Game Contract FG 8597. Brunell, M. and R. Whitkus. 1993. Patterns of Morphological Variation in Eriastrum densifolium,. [Abstract]. American Journal of Botany, 80(6):134.

Burk, J., C. Jones and J. Wheeler. 1989. New Information on the Rare Santa Ana River Woolly-star. Fremontia, 17(3):20-21.

California Department of Fish and Game (CDFG). 1995. Staff Report on Burrowing owl mitigation. State of California.

California Department of Fish and Wildlife (CDFW). *California Natural Diversity Database (CNDDB)* https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx (downloaded January 2020)

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org (accessed 29 January 2020).

Calflora: Information on California plants for education, research and conservation. [web application]. 2007. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. (Accessed: Aug 28, 2007)

Calflora online. https://www.calflora.org/ (accessed January 2020)

California Natural Diversity Data Base. 2008. Data Base Record Search for Information on Threatened, Endangered, Rare, or Otherwise Sensitive Species and Communities in the Vicinity of "Corona North" and —Prado Dam — USGS 7.5 Minute Quadrangle. State of California Resources Agency, CDFG Natural Heritage Division. Sacramento, CA.

Center for Conservation Biology. 1990. The decline of the Western Yellow-billed Cuckoo. Update Vol 4,No 2.

Cink, C.L. 1977. Snake predation on Bell's Vireo nestling. Wilson Bulletin 89(2):349.

Clay, M.B. 1929. The Yellow-billed Cuckoo. Bird Lore 31:189-190.

Cookman, A. 1915. Home of California Cuckoo discovered. Zoologist 32:5.

Collins, C.T., L.R. Hays, M. Wheeler, and D. Willick, 19898. The status and management of the Least Bell's Vireo within the Prado Basin, California, during 1989. Final Rep. to Orange County Water District, Fountain Valley, CA.

Coulombe, H.N. 1971. Behavior and population ecology of the burrowing owl, Speotyto cunicularia, in the Imperial Valley of California. Condor 73: 162-176. Cox, T.J. 1965. Behavior of the mastiff bat. Journal of Mammalogy 466: 687-688.

Dixon, J. 1916. Mexican Ground Dove, Western Grasshopper Sparrow, and California Cuckoo at Escondido, San Diego County, California. Condor 18:84

Dudek. 2019. DRAFT San Bernardino Countywide Plan Biological Resources Existing Conditions.

Faber, P.A., E. Keller, A. Sands, and B.W. Massey. 1989. The ecology of riparian habitats of the southern California coastal region: a community profile. U.S. Fish and Wildl. Service Biol Rep. 85(7.27): 152pp.

Fjetland, Conrad A. 1986. Memorandum to Director, FWS, Washington, D.C. concerning petition to list the Western Yellow-billed Cuckoo dated 7/25/86.

Johnson, S.A. 1989. The thin green line in Preserving Communities and Corridors. Defenders of Wildlife, Washington, D.C.

Laymon, Stephen A. and Mary D. Halterman. 1987. Can the western subspecies of the Yellow-billed Cuckoo be saved from extinction? Western Birds 18:19-25.

Manolis, Tim, Bruce Webb, Richard Spotts, Steven Evans, Betty Andrews, Corey Brown, Robert Schmidt, Alta Tura, Mark J Palmer. 1986. Petition to list the Western Yellowbilled Cuckoo as Endangered in a significant portion of its range.

P.A., E. Keller, A. Sands, and B.M. Massey. 1989. The ecology of riparian habitats of the Southern California Coastal Regions: a community profile. U.S. Fish and Wildlife Service Biol. Rep. 85(7.27). 157 pp.

Garrett, K. and J. Dunn. 1981. Birds of Southern California: status and distribution. Los Angeles Audubon Society, Los Angeles, California.

Hanes, Ted L., Richard D. Friesen, and Kathy Keane. 1989. Alluvial scrub vegetation in coastal southern California. In Abell, Dana L. (tech. coord.). Proceedings of the California Riparian Systems Conference: Protection, management, and restoration for the 1990s, September 22-24, 1988. Davis, CA. Gen. Tech. Rep. PSW-110. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, USDA.

Hickman, J.C. 1993. The Jepson Manual, Higher Plants of California, J.C. Hickman, edit., University of California Press, Berkeley, California.

Hjertaas, D., S. Brechtel, K. De Smet, O. Dyer, E. Haug, G. Holroyd, P. James, and J. Schmutz. 1995. National Recovery Plan for the Burrowing Owl. Report No. 13. Ottawa: Recovery of the Nationally Endangered Wildlife Committee. 33 pp.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities ofCalifornia. The resources Agency, Department of Fish and Game, Sacramento, California. 156 pp.

Jameson, E.W. Jr. and H.J. Peeters. 1988. California Mammals. University of California Berkeley Press. 403 pp.

Johnsgard, P. A. 1988. North American owls, biolgoy and natural history. Smithsonian Inst. Press, Washington, D. C. Johnston, D.S. 2004. [ABS]. Winter roosting ecology of Pallid bats (Antrozous pallidus) in a central California woodland forest. 2nd Bats and Forest Conference. Hot Springs, AR.

Krutzsch, P.H. 1943. Zonal distribution of the California mastiff bat. Journal of Mammalogy 24: 269.

Lincer, J. L., and K. Steenhof . [eds]. 1997. The burrowing owl, its biology and management: including the Proceedings of the First International Symposium. Raptor Research Report Number 9. Lewis, S.E. 1994. Night roosting ecology of Pallid bats (Antrozous pallidus) in Oregon . American Midland Naturalist. 132(2): 19-226.

Lutz, R. S., and D. L. Plumpton. 1999. Philopatry and nest site reuse by burrowing owls: implications for productivity. J. Raptor Research 33: 149-153.

Marti, C. D. 1974. Feeding ecology of four sympatric owls. Condor 76: 45-61.

Paton, P.W. 1994. The effect of edge on avian nest success: How strong is the evidence? Conservation Biology 8:17-26.

Pike, J., D. Pelligrini, S. Reynolds, and l.H. Hays. 2000. The status and management of the least Bell's vireo and southwestern willow flycatcher within the Prado Basin, California, 1986-2000. Prepared for the Orange County Water District, U.S. Army Corps of Engineers, Los Angeles District, U.S. Fish and Wildlife Service, and California Department of Fish and Game.

Rambaldini, D.A. and R.M. Brigham. 2004. Habitat use and roost selection by Pallid bats (Antrozous pallidus) in the Okanagan Valley, British Columbia. Unpublished report prepared for Canadian Wildlife Service, BC Ministry of Land, Water and Air Protection, Osoyoos (Nk'Mip) Indian Band, and World Wildlife Fund of Canada. 65 pp.

RBF, Consulting. 2008. Initial Study for the Santa Ana Regional Interceptor Pipeline Reach IV-B

San Marino Environmental Associates, 2008. Fish Protection Activities at Prado Dam, Corona CA., Prepared for the U.S. Army Corps of Engineers.

Sogge, Mark K., Robert M. Marshall, Susan J. Sferra, and Timothy J. Tibbetts. 1997. A Southwestern Willow Flycatcher Natural History Summary and Survey Protocol Survey Guidelines. Technical Report NPS/NAUCPRS/NRTR-97/12. National Park Service, May.

Soule, M. E. 1991. Land use planning and wildlife maintenance: guidelines for conserving wildlife in an urban landscape. Journal of the American Planning Association 57: 313-323.

Terborgh, J.W. 1980. The conservation status of neotropical migrants: present and future in Keast, A., and E.S. Morton, eds., Neotropics: Ecology, Behavior, Distribution, and Conservation, Smithsonian Institute Press, 1980, Washington, D.C.

Tom Dodson and Associates. 2010. Optimum Basin Management Programmatic Environmental Impact Report (PEIR)

Tom Dodson and Associates. 2010. Peace II Biological Assessment for the Santa Ana River Interceptor (SARI).

1988. Metropolitan Water district of Southern California. Chino Basin Groundwater Storage Program Draft Environmental Impact Report. Report Number 975.

U.S. Fish and Wildlife Service. Information for Planning and Consultation (IPaC). https://ecos.fws.gov/ipac/ (downloaded January 2020)

National Wetlands Inventory (NWI). https://www.fws.gov/wetlands/data/google-earth.html (downloaded January 2020)

U.S. Fish and Wildlife Service Critical Habitat for Threatened and Endangered Species data layer for Google Earth, Environmental Conservation Online System (ECOS) https://ecos.fws.gov/ecp/report/table/critical-habitat.html (updated November 5, 2019; downloaded January 2020) and online Critical Habitat Online Mapper https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77 (accessed January 2020)

U.S. Army Corps of Engineers. 2001. Supplemental Final EIR/EIS for the Prado Basin and Vicinity, including Reach 9 and Stabilization of the Bluff Toe at Norco Bluffs.

U.S. Fish and Wildlife Service. 1993. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the coastal California gnatcatcher. 58 Federal Register 16742-16757

U.S. Fish and Wildlife Service. 2000. Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the coastal California gnatcatcher. 65 Federal Register 63680-63743

U.S. Fish and Wildlife Service. 1986. Endangered and Threatened Wildlife and Plants: Determination of Endangered Status for the Least Bell's Vireo, Final Rule. Federal Register 51(85): 16474-16483.

U.S. Fish and Wildlife Service, 1999. Least Bell's Vireo Survey Guidelines. Issued by the Carlsbad Fish and Wildlife Office. April 8, 3 pp.

U.S. Fish and Wildlife Service. 1998. Draft recovery plan for the least Bell's vireo. U.S. Fish and Wildlife Office. April 8 3 pp/

U.S. Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Least Bell's Vireo, Final Rule. Federal Register 59(22):4845-4867.

U.S. Fish and Wildlife Service. 1995. Endangered and Threatened Wildlife and Plants: Determination of Endangered Status for the Southwestern Willow Flycatcher, Final Rule. Federal Register 60: 10693-10715.

U.S. Fish and Wildlife Service. 1997b. Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Southwestern Willow Flycatcher. Federal Register 62(140):3912939146.

U.S. Fish and Wildlife Service. 1998a. Draft Recovery Plan for the Least Bell's Vireo. Endangered Species Office, Region 1. Portland, OR.

U.S. Fish and Wildlife Service 2000. Proposed Threatened Status for the Santa Ana Sucker within the Los Angles, San Gabriel, and Santa Ana River Drainages, California. Federal Register

U.S. Fish and Wildlife Service. 2005. Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Santa Ana Sucker. Federal Register 70(426).

U.S. Fish and Wildlife Service. 2000b. Endangered and Threatened Wildlife and Plants: Threatened Status for the Santa Ana Sucker. Federal Register 65(71): 19686-19698.

U.S. Fish and Wildlife Service. 1996. Draft Recovery Plan for Slender-horned Spiderflower (*Dodecahema leptocerus*) and Santa Ana River Woolly Star (Eriastrum densifolium ssp. sanctorum). U.S. Fish and Wildlife Service, Portland, Oregon. 79 pp.

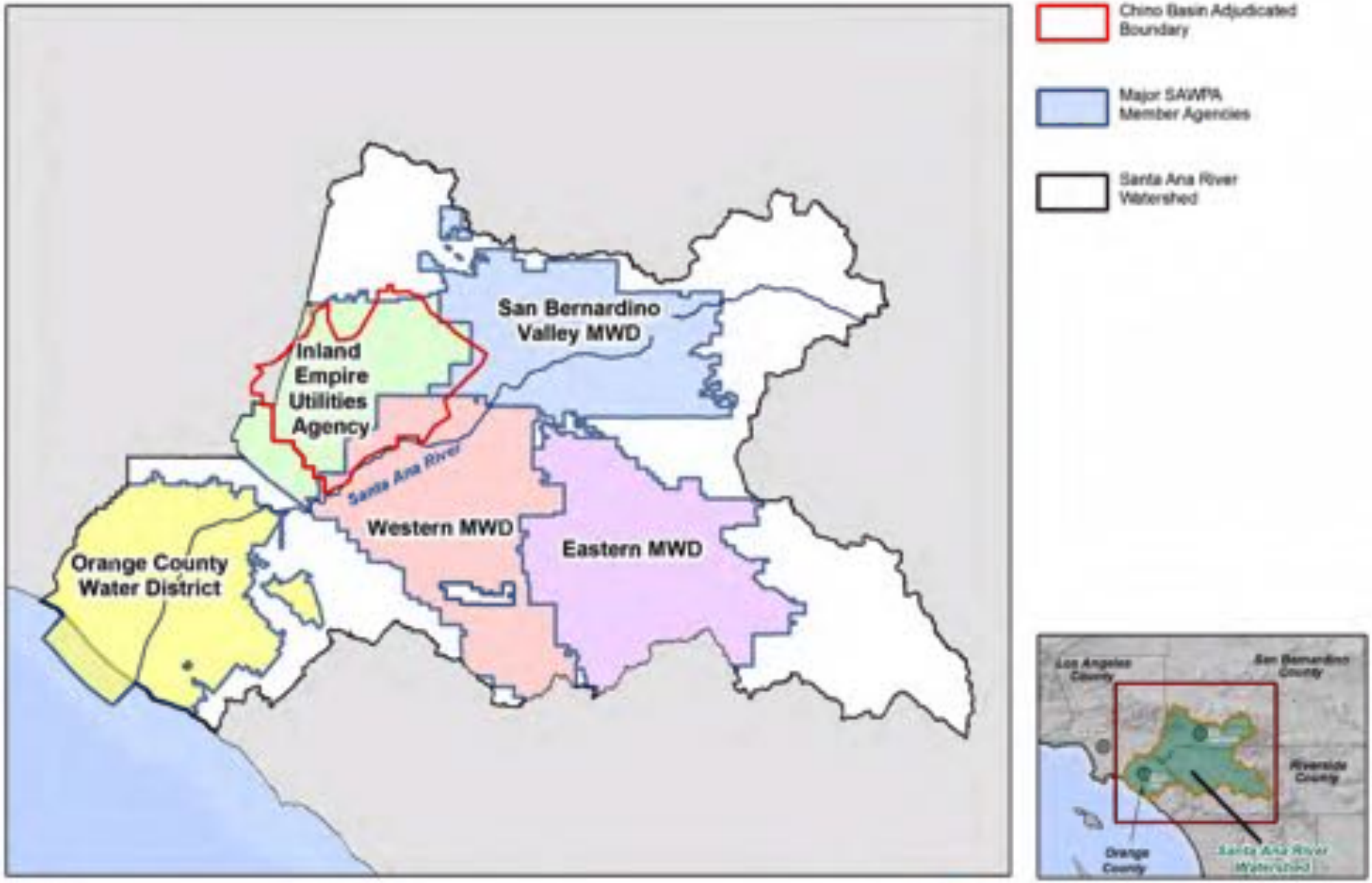
U.S. Fish and Wildlife Service. 1984. Riparian vegetation protection program--An appraisal level study Prepared by the USFWS Division of Ecological Services, Sacramento, California, for the U.S. Army Corps of Engineers, Sacramento, California September 1984, 36 pp.

U.S. Fish and Wildlife Service. 1985. Sensitive species management plan for the Western Yellow-billed Cuckoo. USFWS, Region 1

Zembal, R. L., Kramer, K. J., Bransfield, R. J., and Kaufman, N. M. 1985. Survey of Vegetation and vertebrate Fauna in the Prado Basin and the Santa Ana River Canyon, California. U. S. Fish and Wildlife Service. Laguna Niguel, CA.

Chapter 6. Figures

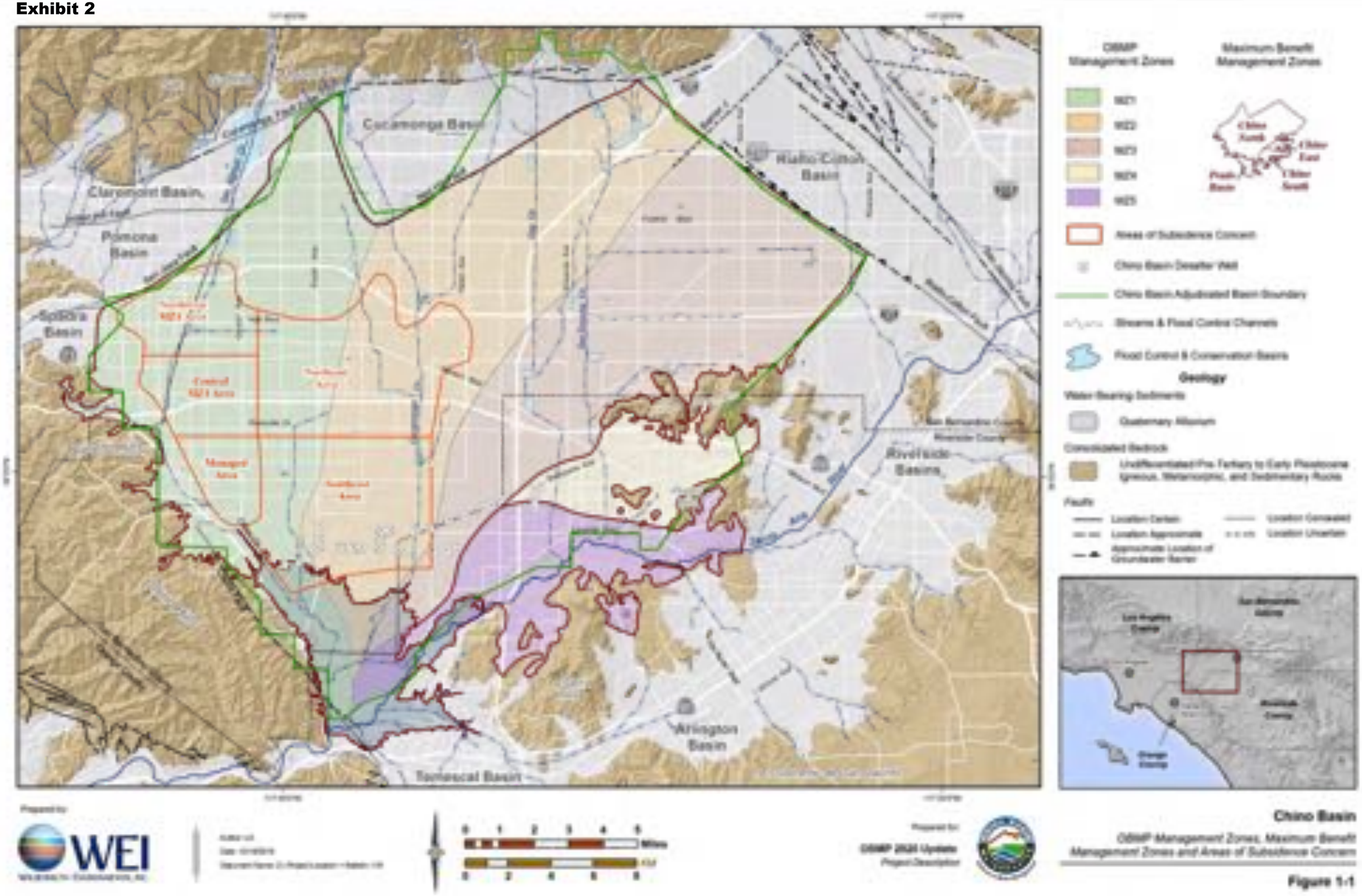
Exhibit 1



Location of the Chino Basin and the Santa Ana River Watershed

Figure 1-1

Exhibit 2



Prepared by: WEI

Prepared for: OBMP 2020 Update, Program Description

Chino Basin

OBMP Management Zones, Maximum Benefit Management Zones and Areas of Subsidence Concern

Figure 1-1

Exhibit 3

Figure 1 – Drivers and Trends and Their Implications
2020 OBMP Update

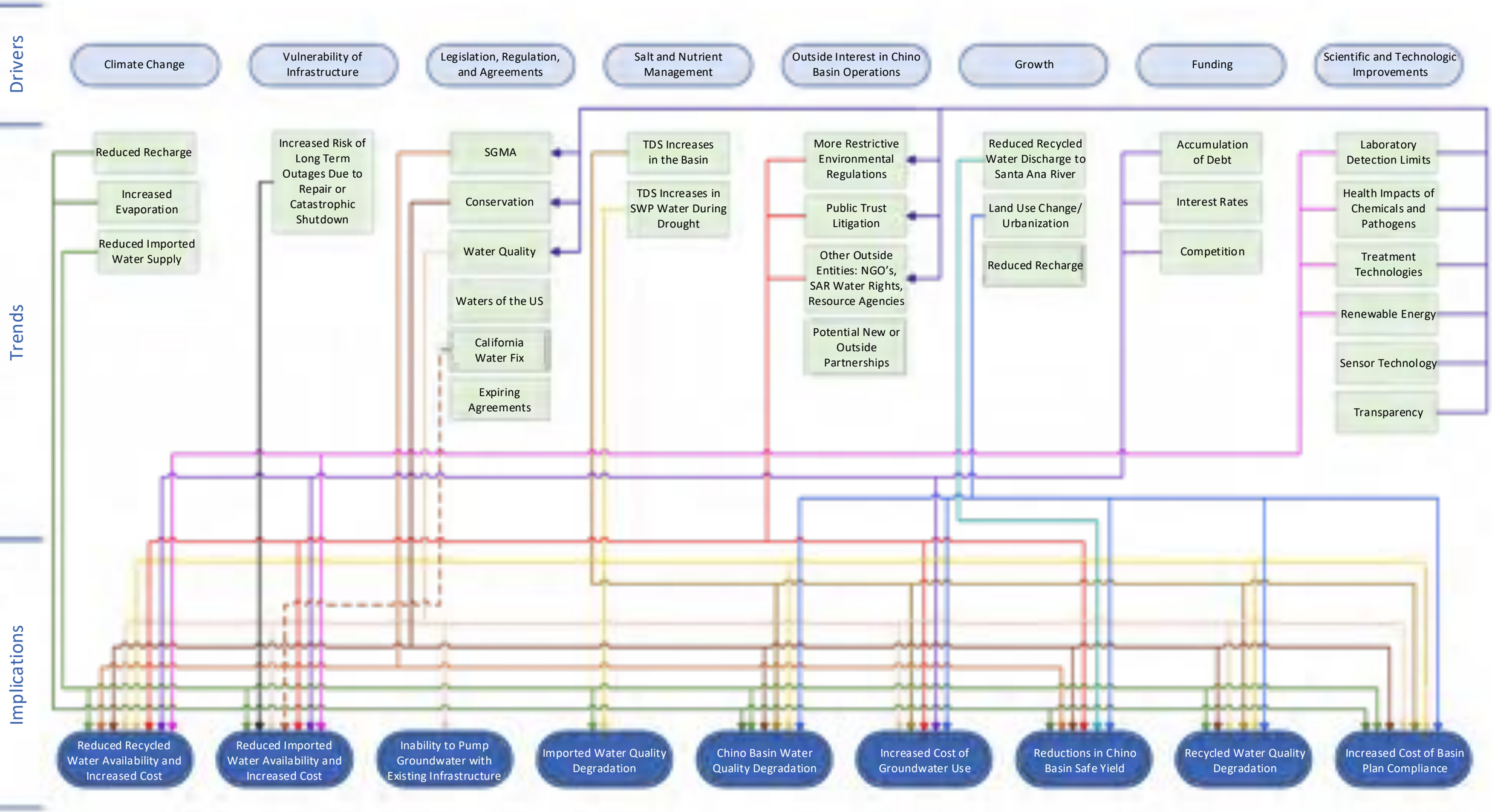


Exhibit 4

Implementation actions for the next 20 years by Program Element
Program Element 1
Watermaster will continue to conduct the required monitoring and reporting programs, including collection of: groundwater production, groundwater level, groundwater quality, ground level, surface water, climate, water supply planning, biological, and well construction/destruction monitoring data.
Perform review and update of Watermaster's regulatory and Court-ordered monitoring and reporting programs and document in a work plan: *OBMP Monitoring and Reporting Work Plan* .
Perform periodic review and update of the *OBMP Monitoring and Reporting Work Plan* (or other guidance documents developed by Watermaster) and modify the monitoring and reporting programs, as appropriate.
Program Element 2
Continue to convene the Recharge Investigations and Projects Committee.
Complete the 2023 Recharge Master Plan Update (RMPU).
Implement recharge projects based on need and available resources.
Update the RMPU no less than every five years (2028, 2033, 2038).
Program Element 4
Implement Watermaster's Subsidence Management Plan, and adapt it as necessary.
Watermaster will arrange for the physical recharge of at least 6,500 afy of Supplemental Water in MZ-1 as an annual average. Watermaster may re-evaluate the minimum annual quantity of Supplemental Water recharge in MZ-1 and may increase this quantity through the term of the Peace Agreement.
Program Element 5
The IEUA will maximize the reuse of its recycled water in the Chino Basin.
The IEUA, the TVMWD, the WMWD, and/or other Party acting as a coordinating agency will establish or expand future recycled water planning efforts to maximize the reuse of all available sources of recycled water.
Watermaster will support the IEUA, the TVMWD, the WMWD, and/or others in their efforts to maximize recycled water reuse to ensure these efforts are integrated with Watermaster's groundwater and salinity management efforts.
The IEUA, the TVMWD, the WMWD, and/or other Party acting as a coordinating agency will establish or expand future integrated water resources planning efforts to address water supply reliability for all Watermaster Parties.
Watermaster will support the IEUA, the TVMWD, the WMWD, and/or others in their efforts to improve water supply reliability to ensure those efforts are integrated with Watermaster's groundwater management efforts.

Implementation actions for the next 20 years by Program Element
Program Element 6
Re-convene the water quality committee and meet periodically to update groundwater quality management priorities.
Develop and implement an initial emerging contaminants monitoring plan.
Prepare a water quality assessment of the Chino Basin to evaluate the need for a *Groundwater Quality Management Plan* and prepare a long-term emerging contaminants monitoring plan.
Continue to support the Parties in identifying funding from outside sources to finance cleanup efforts.
Develop and implement a *Groundwater Quality Management Plan* and periodically update it.
Implement long-term emerging contaminants monitoring plan.
Continue to conduct investigations to assist the parties and/or the Regional Board in accomplishing mutually beneficial objectives as needed.
Implement projects of mutual interest.
Program Element 7
Complete the 2020 update of TDS and nitrate projections to evaluate compliance with maximum benefit salt and nutrient management plan, and, if necessary, based on the outcome, prepare a plan and schedule to implement a salt offset compliance strategy.
Continue to implement the maximum-benefit salt and nutrient management plan pursuant to the Basin Plan.
Starting in 2025 and every five years thereafter, update water quality projections to evaluate compliance with the maximum-benefit salt and nutrient management plan.
Program Element 8/9
Complete and submit to the Court the 2020 Safe Yield Recalculation.
Complete and submit to the Court the 2020 Storage Management Plan (SMP).
Develop a *Storage and Recovery Master Plan* to support the design of optimized storage and recovery programs that are consistent with the 2020 Storage Management Plan and provide the Watermaster with criteria to review, condition, and approve applications in a manner that is consistent with the Judgment and the Peace Agreement.
Assess losses from storage accounts based on the findings of the 2020 Safe Yield Recalculation.
Update the Storage Management Plan in 2025 and every five years thereafter, and when: • the Safe Yield is recalculated, • Watermaster determines a review and update is warranted based new information and/or the needs of the parties or the basin, and • at least five years before the aggregate amount of managed storage by the parties is projected to fall below 340,000 af
Perform safe yield recalculation every 10 years (2030, 2040).
Update the storage loss rate following each recalculation of Safe Yield (2030, 2040) and during periodic updates of the SMP.

Actions in blue represent actions that are not in the 2000 OBMP ("new" actions).

Exhibit 5

List of facilities to be evaluated in CEQA	PE1	PE2	PE4	PE5	PE6	PE7	PE8/9
New monitoring wells	✓	✓	✓	✓	✓	✓	✓
New surface water and groundwater recharge monitoring facilities	✓	✓					✓
New meteorological monitoring facilities	✓	✓					✓
New meter installation at pumping wells	✓						
New extensometers	✓		✓				✓
New benchmarks	✓		✓				✓
New stormwater diversion, storage, transfer and recharge facilities		✓	✓	✓			✓
CIM storage facilities*		✓	✓	✓			✓
Flood MAR*		✓	✓	✓			✓
Regional conveyance:*		✓	✓	✓			✓
Lower Cucamonga Basin		✓		✓			✓
Mills Wetlands		✓		✓			✓
Riverside Basin		✓		✓			✓
Vulcan Basin *		✓		✓			✓
Confluence Project*		✓		✓			✓
Injection wells*		✓	✓	✓			✓
Treatment (for some sources)*		✓	✓	✓			✓
Restore WFA Agua de Lejos Treatment Plant capacity for in-lieu recharge		✓	✓	✓			✓
MS4 recharge project incentives		✓	✓				✓
Relocate pumping from MZ1 to MZ2/3 and southern portion of the Chino Basin and/or increase recharge in MZ1			✓				✓
New production wells*			✓				✓
Acquire supplemental water supplies*		✓		✓			
Regional conveyance				✓			✓
New dedicated regional conveyance facilities				✓			✓
North-south pipeline*				✓			✓
East-west pipeline*				✓			✓
Incorporate local conveyance facilities into a regional conveyance system*				✓			✓
Maximize recycled water reuse				✓			
Expand system for indirect reuse*				✓			
Advanced water treatment*				✓		✓	
Direct potable use*				✓			
New regional groundwater treatment plants (up to 10 mgd for local use; up to 30 mgd for export)*				✓	✓		✓
Expansion of existing groundwater treatment plants*				✓	✓		✓
Upgrade recycled water treatment plant to desalt effluent*						✓	
Maintain or increase groundwater pumping in Chino Creek Well Field (CCWF) area:							
New production wells in CCWF area*						✓	✓
Acquire wells in CCWF area*						✓	✓
New ASR wells in MZ2/3 north of Highway 60*							✓

*Includes conveyance infrastructure

Exhibit 6

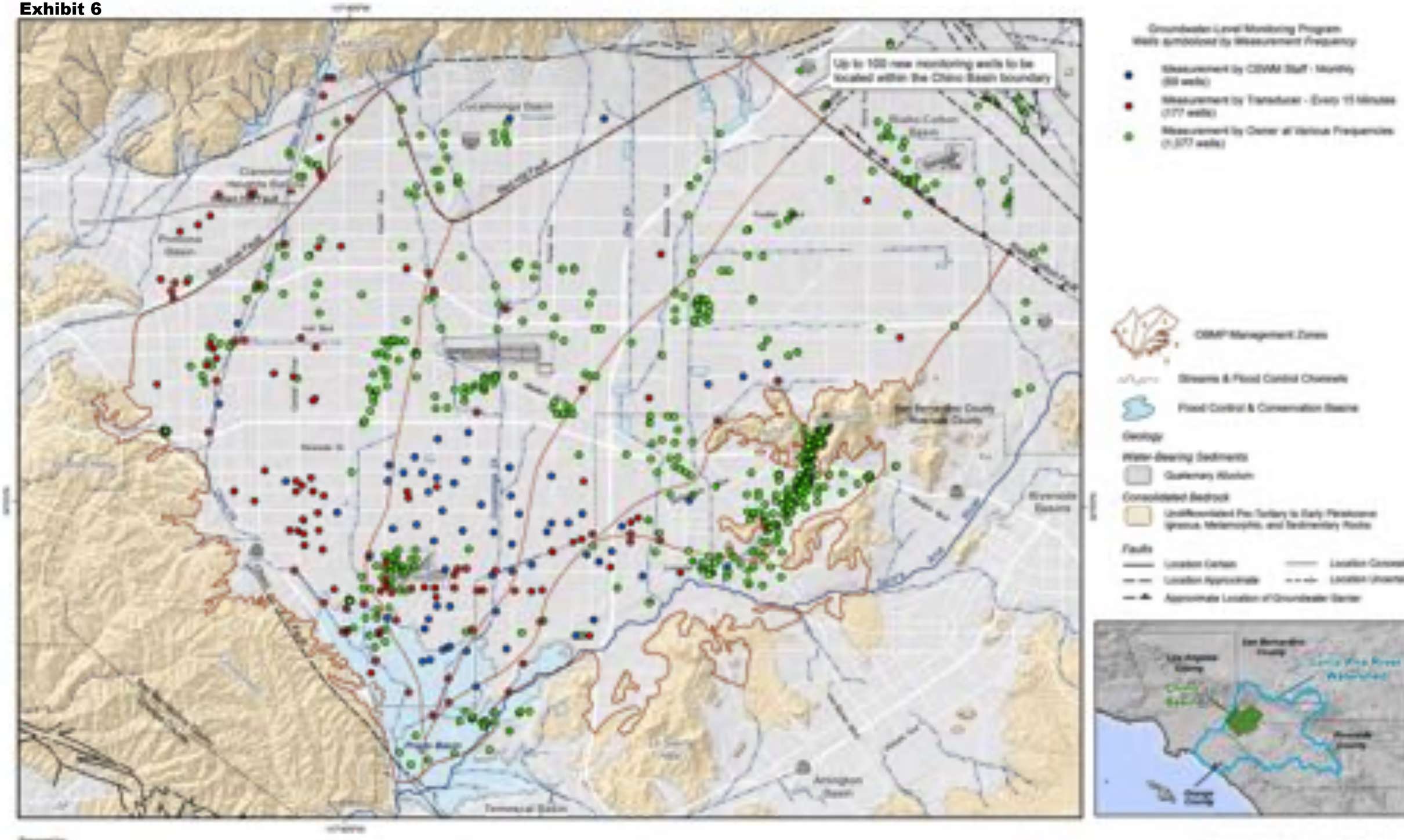
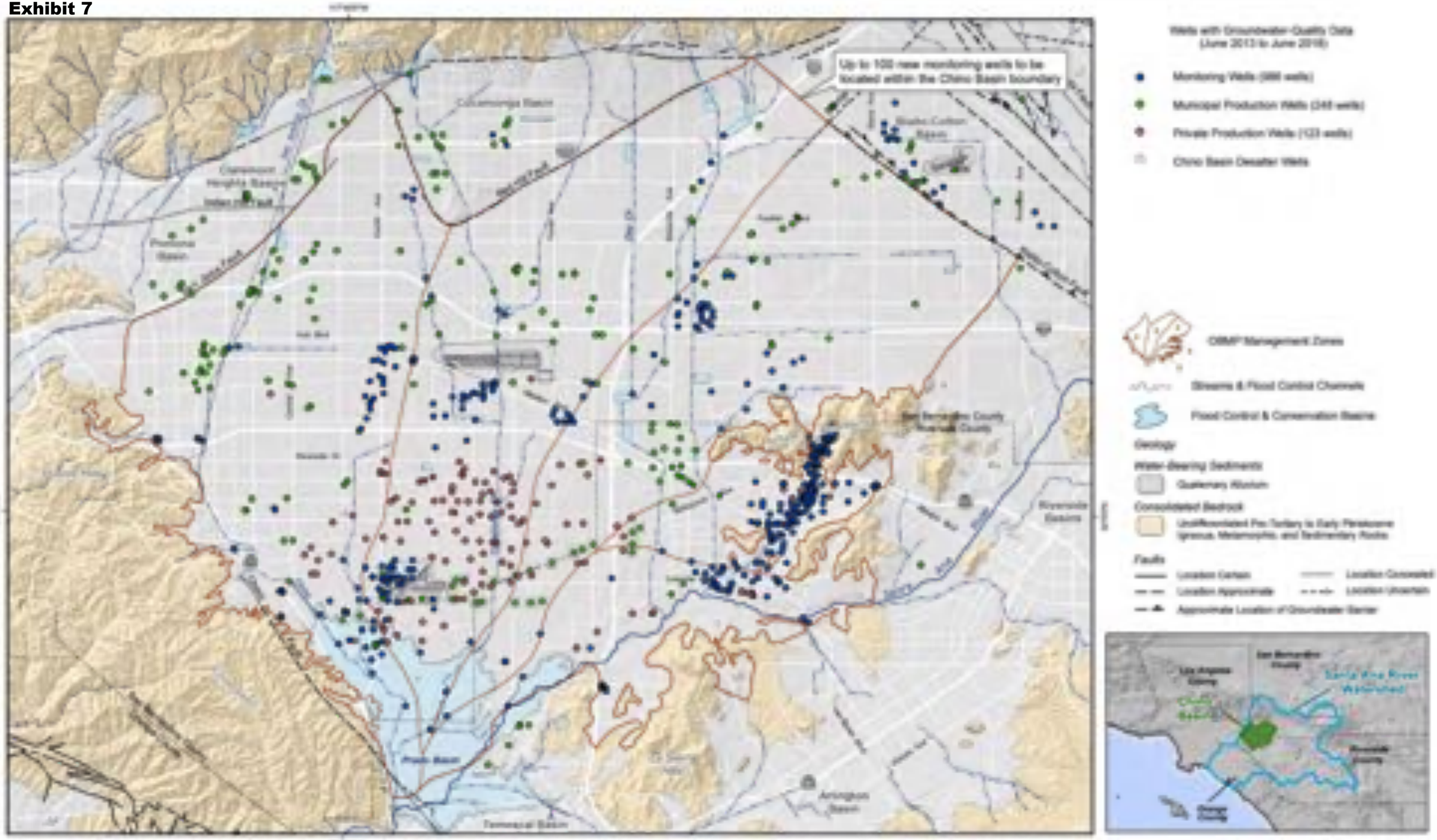

Up to 100 new monitoring wells to be located within the Chino Basin boundary
Groundwater Level Monitoring Program
Wells symbolized by Measurement Frequency
Measurement by CBWM Staff - Monthly
(69 wells)
Measurement by Transducer - Every 15 Minutes
(177 wells)
Measurement by Owner at Various Frequencies
(1,377 wells)
OBMP Management Zones
Streams & Flood Control Channels
Flood Control & Conservation Basins
Geology
Water-Bearing Sediments
Quaternary Alluvium
Consolidated Bedrock
Unconsolidated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks
Faults
Location Certain
Location Concealed
Location Approximate
Location Uncertain
Approximate Location of Groundwater Barrier
Prepared by
WEI
Prepared for
OBMP 2020 Update
Scoping Report
Miles
Km
Groundwater-Level Monitoring
Well Location and Measurement Frequency
Fiscal Year 2017/18
Exhibit L-3

Exhibit 7



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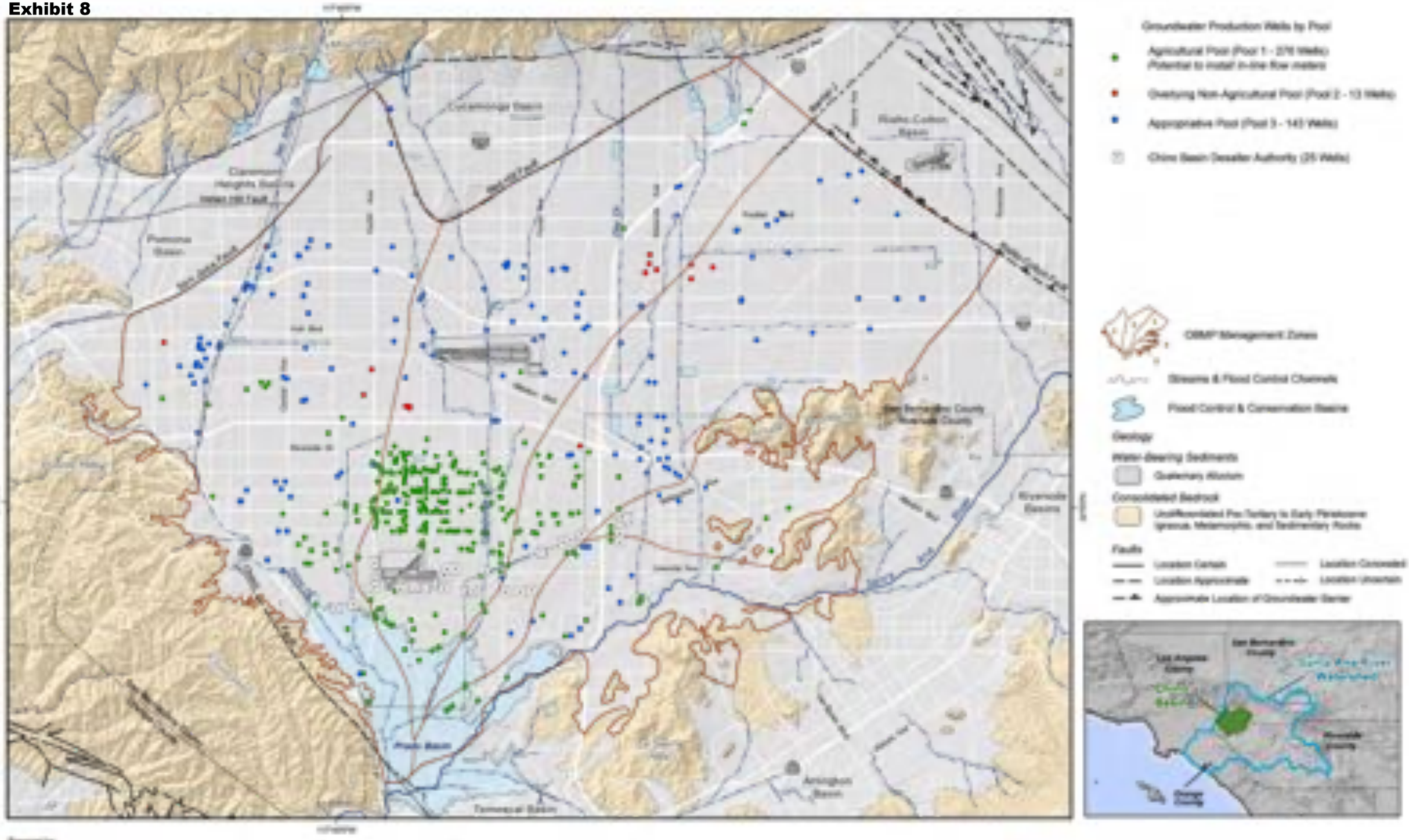
Prepared for: OBMP 2020 Update Scoping Report

Groundwater-Quality Monitoring

July 2013 to June 2018

Exhibit L-4

Exhibit 8



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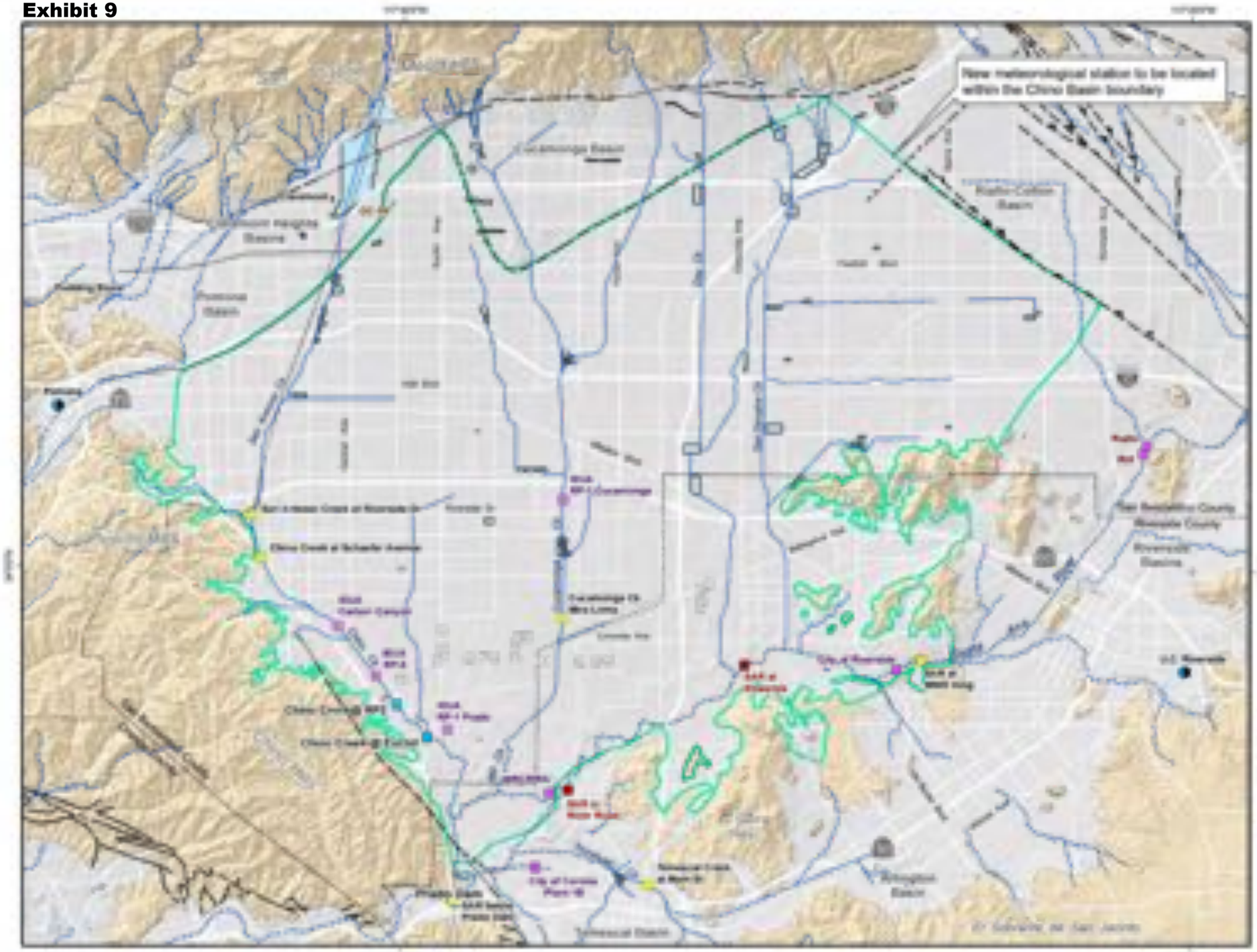
Groundwater-Production Monitoring

Fiscal Year 2017/18

Exhibit L-2

Exhibit 9



Concrete-Lined Channels
Unlined Rivers and Streams
Flood Control & Conservation Basins

Locations of new flow and stage measuring equipment

Surface-Water Monitoring Program
- POTW Discharge Outfall
- USGS Stream-Gage Station
- Maximum-Benefit Monitoring Program Site
- RP-4SP Site

Climate-Monitoring Program
- CIMIS Stations (Temperature and Evaporation)
- Chino Basin - Area to Extract Gridded Data from PRISM and NEXRAD Data Sets (Precipitation)

Chino Basin Desalter Authority Well

Geology

Water-Bearing Sediments
- Quaternary Alluvium

Consolidated Bedrock
- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults
- Location Certain
- Location Concealed
- Location Approximate
- Location Uncertain
- Approximate Location of Groundwater Barrier

Prepared by: WEI

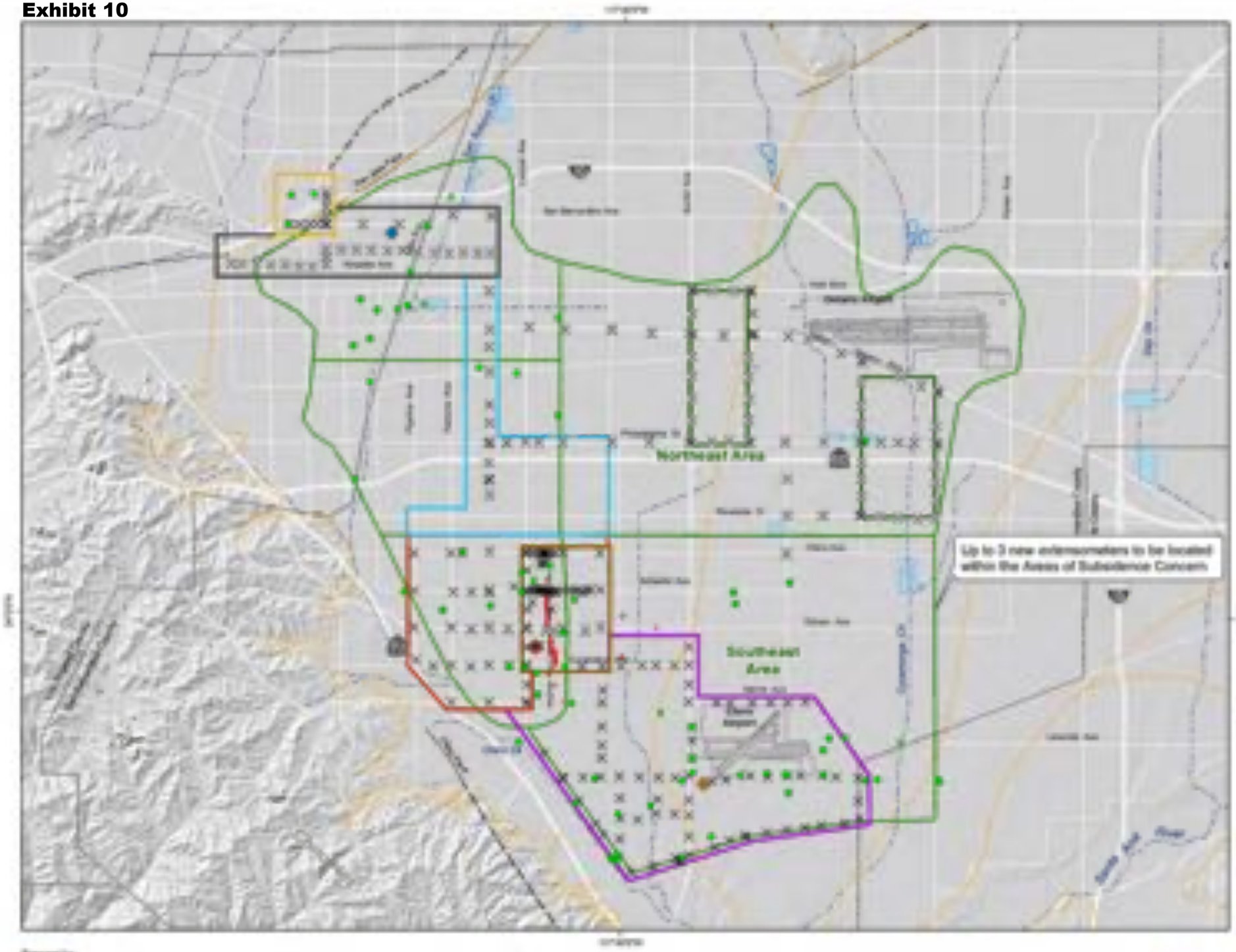
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

Prepared for: CBWM 2020 Update Scoping Report

Surface-Water and Climate Monitoring

Exhibit L-6

Exhibit 10



Ground-Level Monitoring Network Facilities

- Ayala Park Extensometer
- Chino Creek Extensometer
- Pomona Extensometer
- Well Equipped with Pressure Transducer (2018/19)
- Ground-Level Survey Benchmark
- Ground-Level Survey Benchmark (Measured in April 15, 2019)

Ground-Level Survey Areas

- Managed Area
- Pasture Zone Area
- Central Area
- Northeast Area
- San Jose Fault Zone Area
- Northwest Area
- Southeast Area

- Areas of Subsidence Concern
- Flood Control and Conservation Basins
- Fault (solid where accurately located; dashed where approximately located or inferred; dotted where concealed)
- Ground Fissures
- Approximate Location of the Riley Barrier

Prepared by: WEI

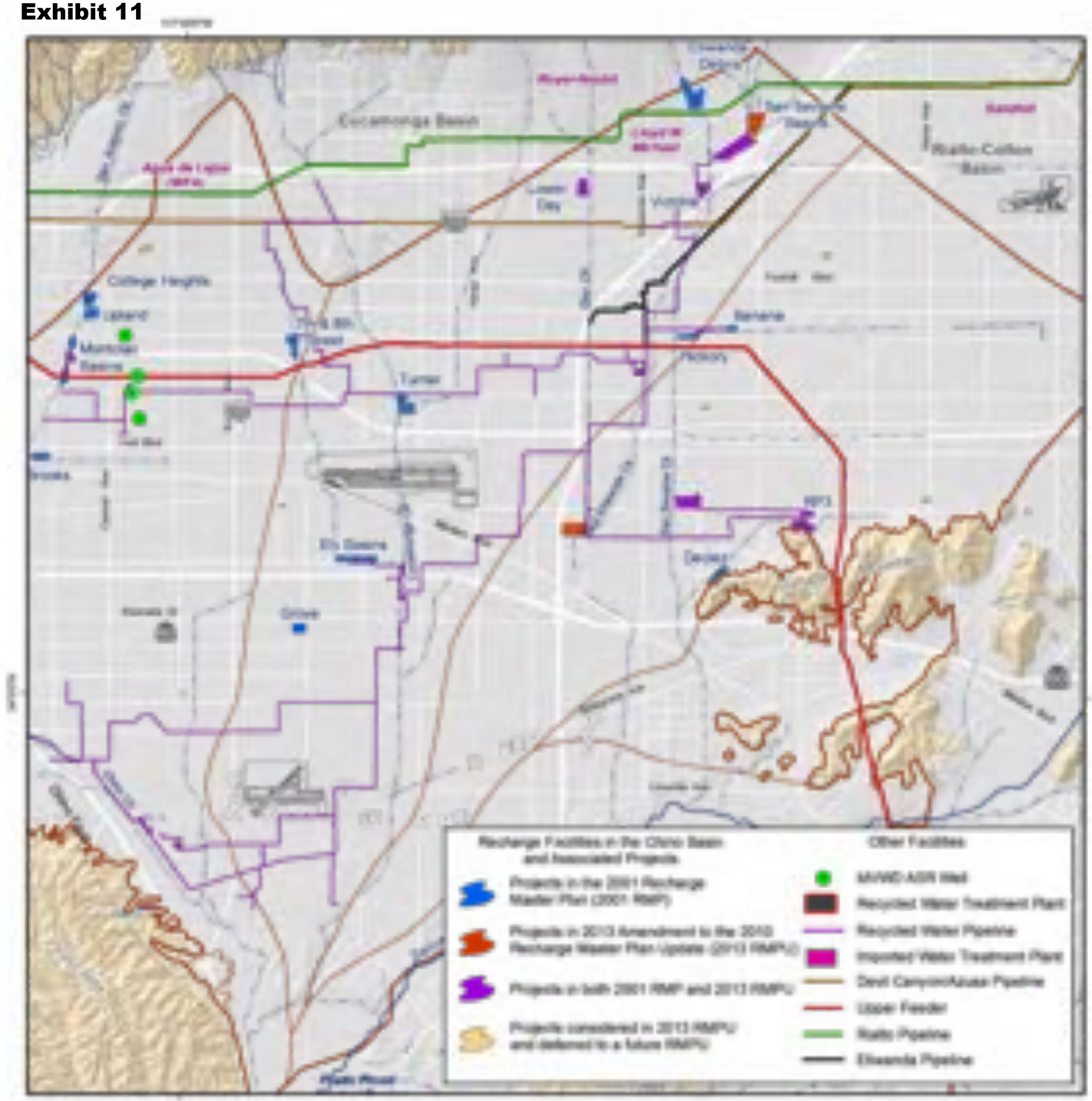
0 1 2 3 4 5 Miles
0 2 4 6 8 Km

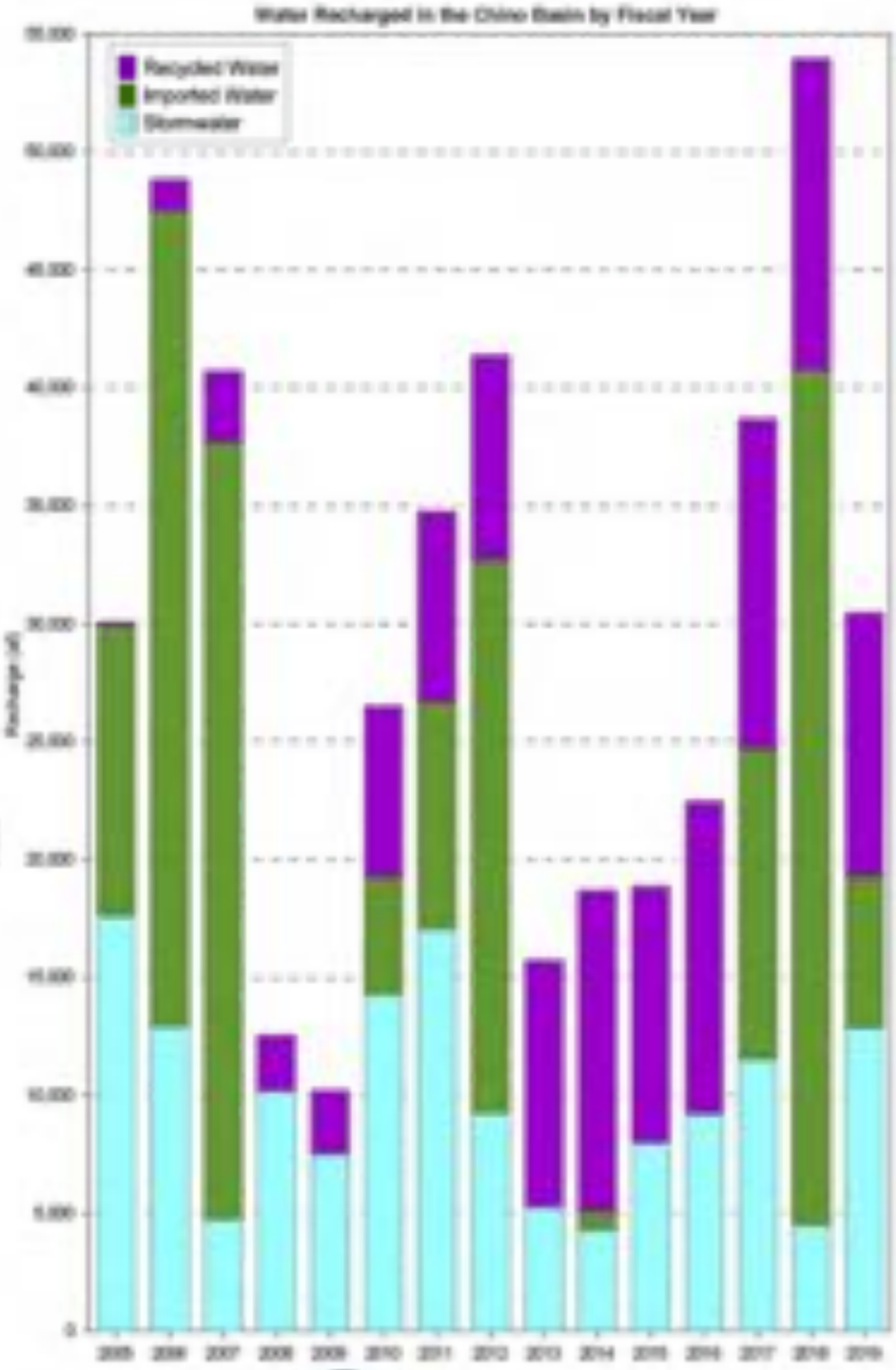
Prepared for: OBMP 2020 Update, Scoping Report

Ground-Level Monitoring Network
Western Chino Basin

Exhibit L-6

Exhibit 11





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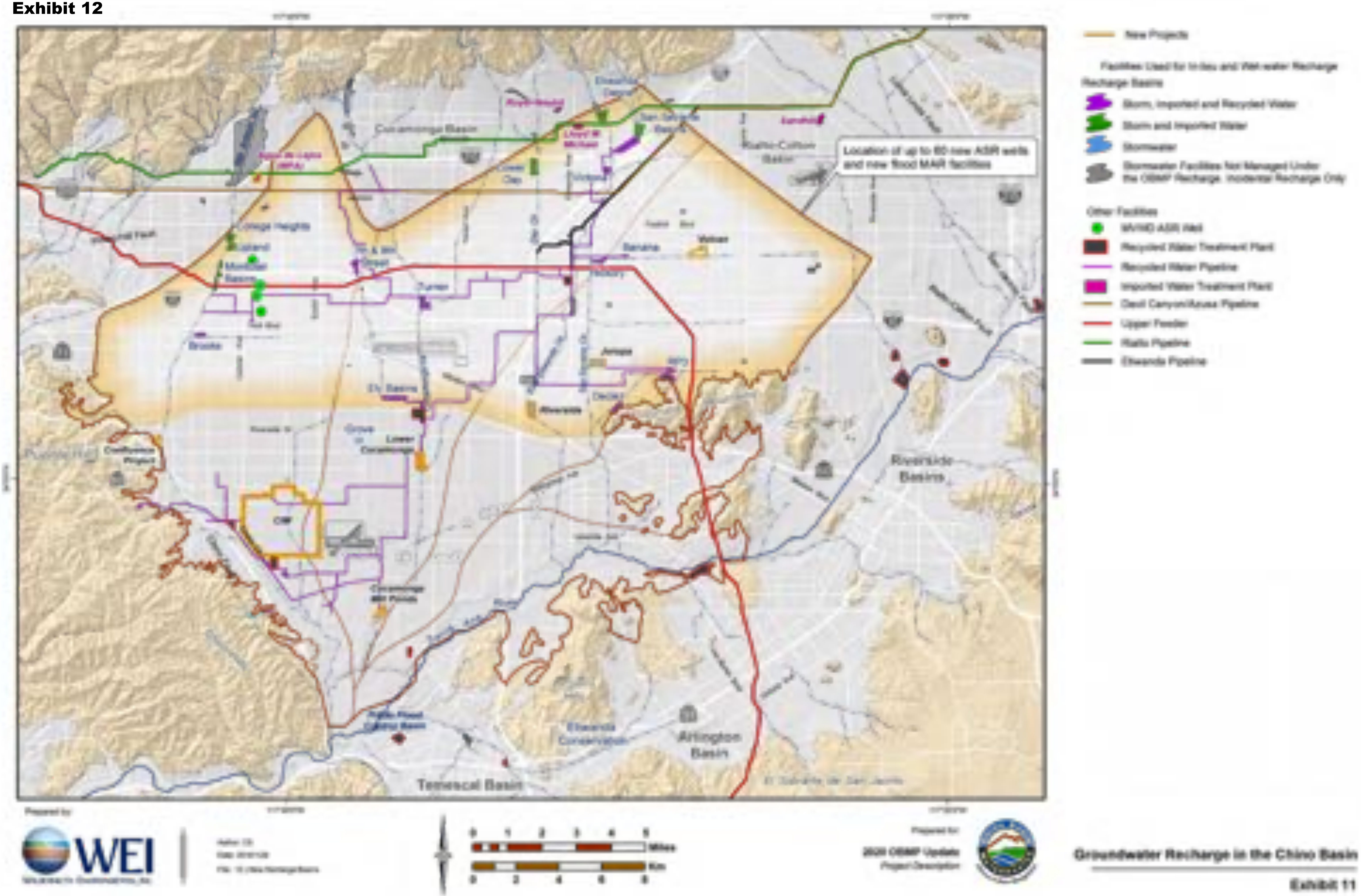
Groundwater Recharge in the Chino Basin

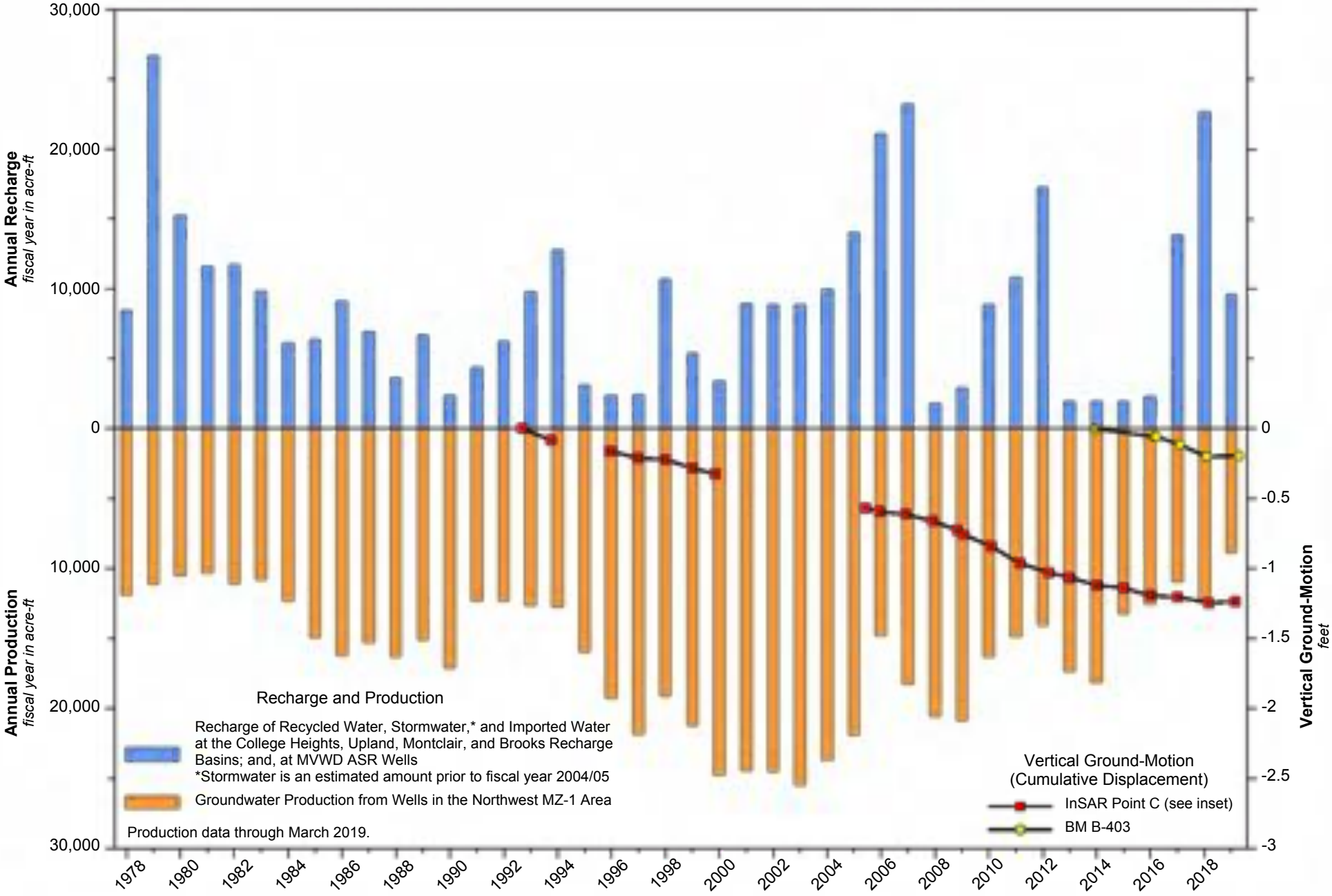
Exhibit 10

Exhibit 12



Location of up to 60 new ASR wells and new flood MAR facilities
Cucamonga Basin
Riverside Basin
Arlington Basin
Temescal Basin
WEI
Groundwater Recharge in the Chino Basin
Exhibit 11

Exhibit 13



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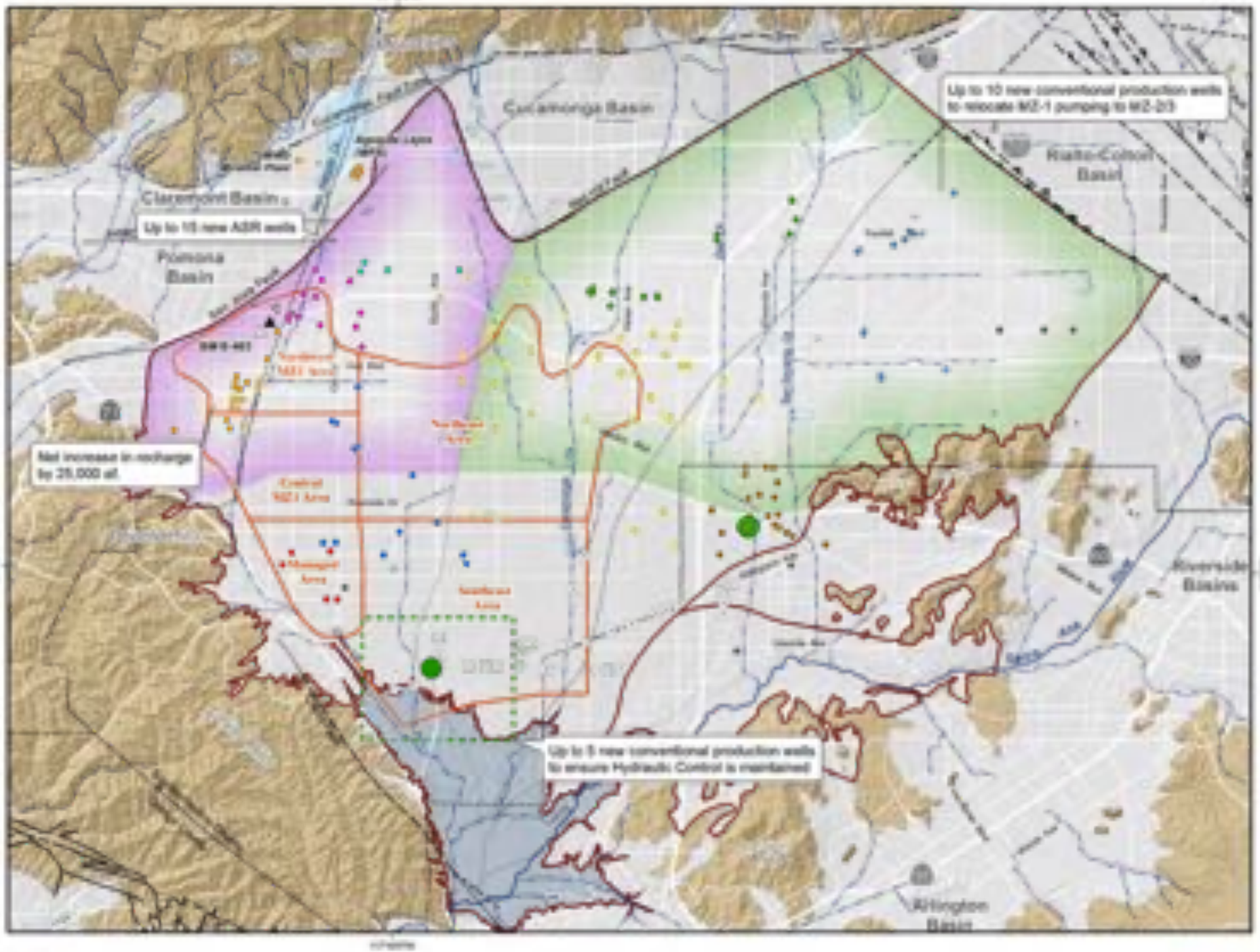
OBMP 2020 Update
Scoping Report

Pumping, Recharge and Land Subsidence in the Northwest MZ-1 Area

Exhibit CG-3

Exhibit 14



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0 1 2 3 4 5 Miles

0 2 4 6 8 KM

Prepared for:

OBMP 2020 Update

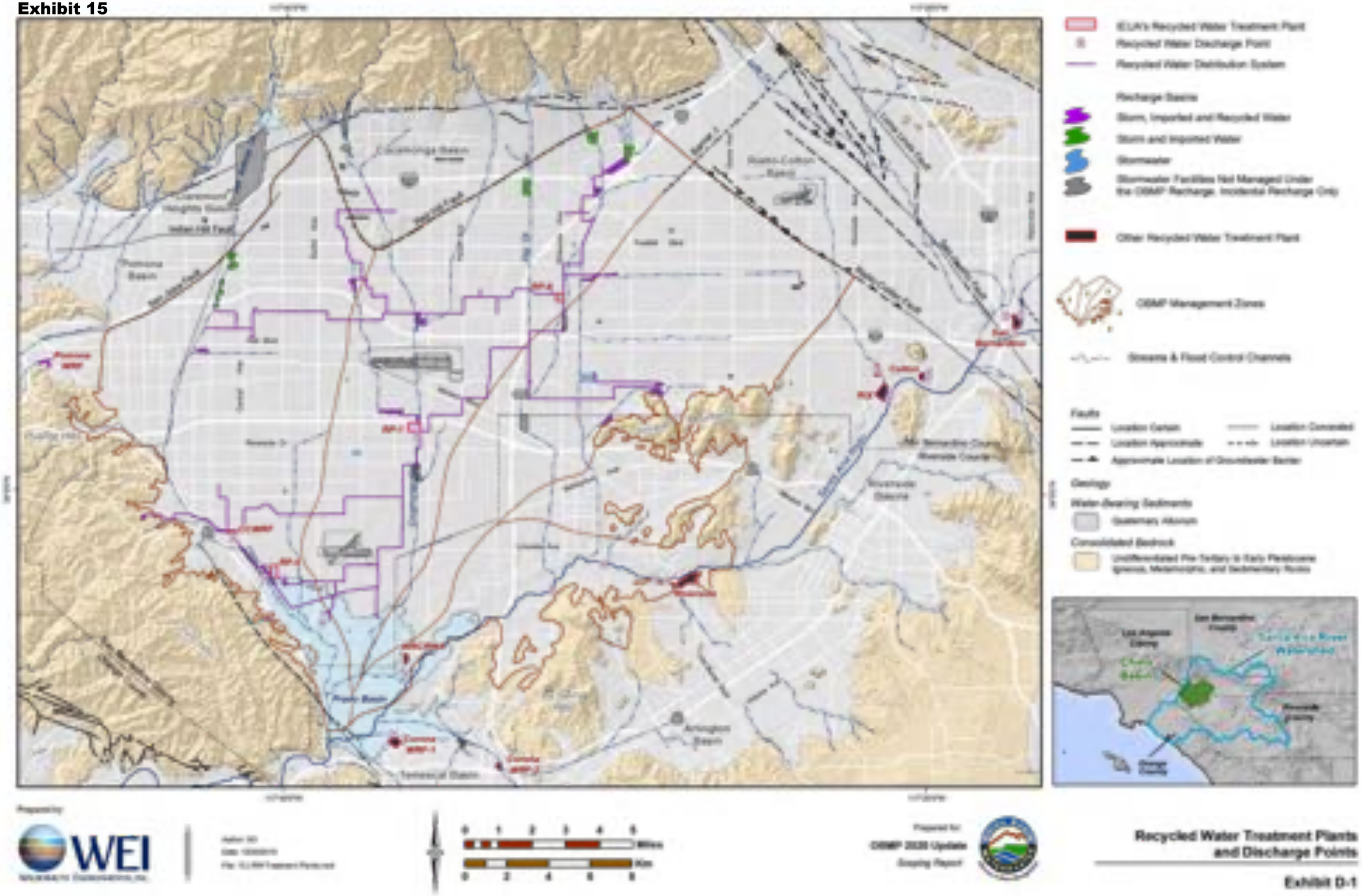
Project Description

Chino Basin

OBMP Management Zones, Maximum Benefit Management Zones and Areas of Subsidence Concern

Figure 1-1

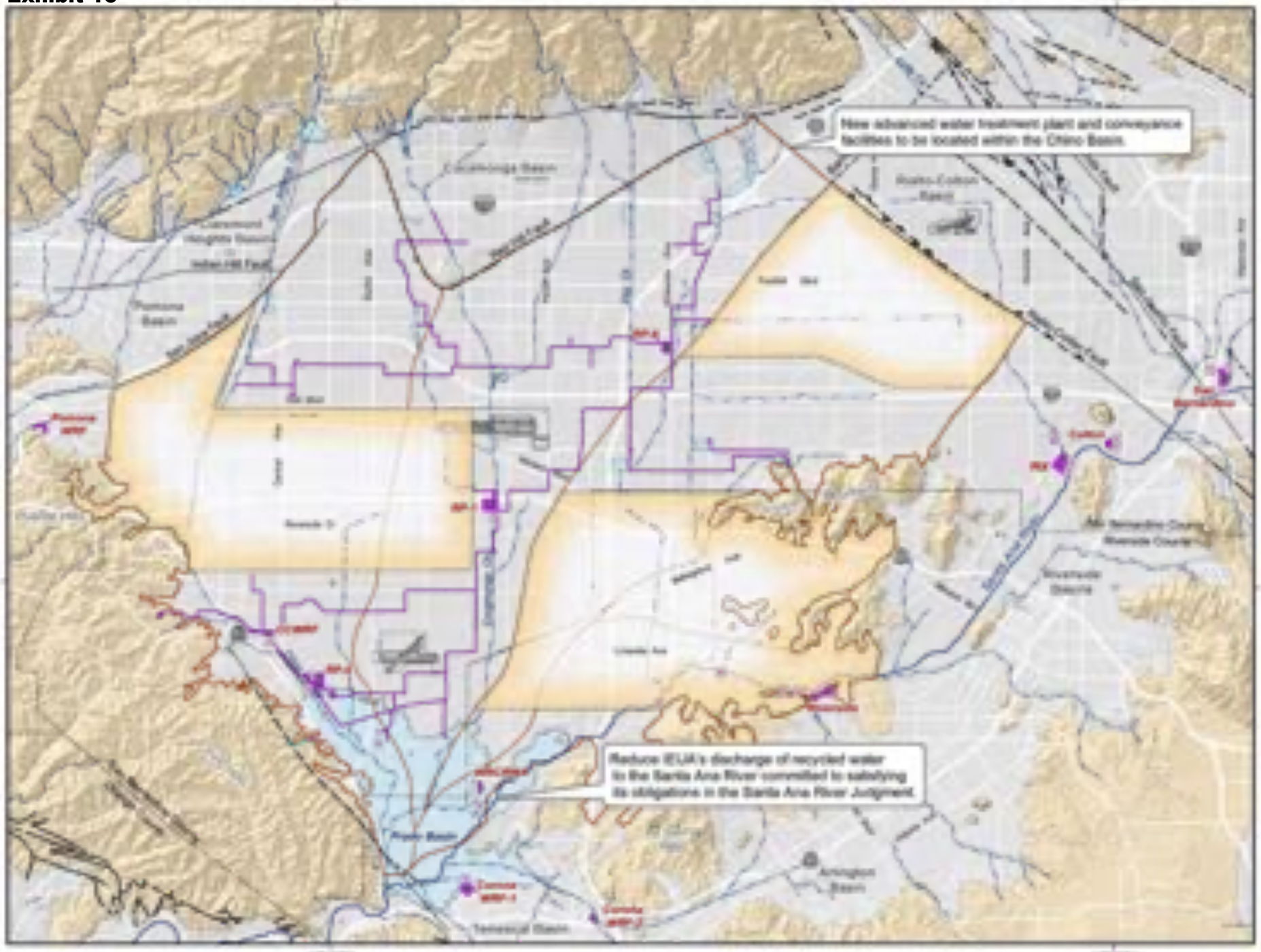
Exhibit 15



Recycled Water Treatment Plants and Discharge Points

Exhibit D-1

Exhibit 16



Recycled Water Treatment Plant
Recycled Water Discharge Point
Recycled Water Distribution System
Expanded Recycled Water Distribution System

CBMP Management Zones

Streams & Flood Control Channels

Flood Control & Conservation Basins

Faults
Location Certain
Location Concealed
Location Approximate
Location Uncertain
Approximate Location of Groundwater Barrier

Geology
Water-Bearing Sediments
Quaternary Alluvium
Consolidated Bedrock
Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Prepared by: WEI

0 1 2 3 4 5 Miles
0 2 4 6 8 Kilometers

Prepared for: CBMP 2020 Update Scoping Report

Recycled Water Treatment Plants and Discharge Points

Exhibit D-1

Exhibit 17

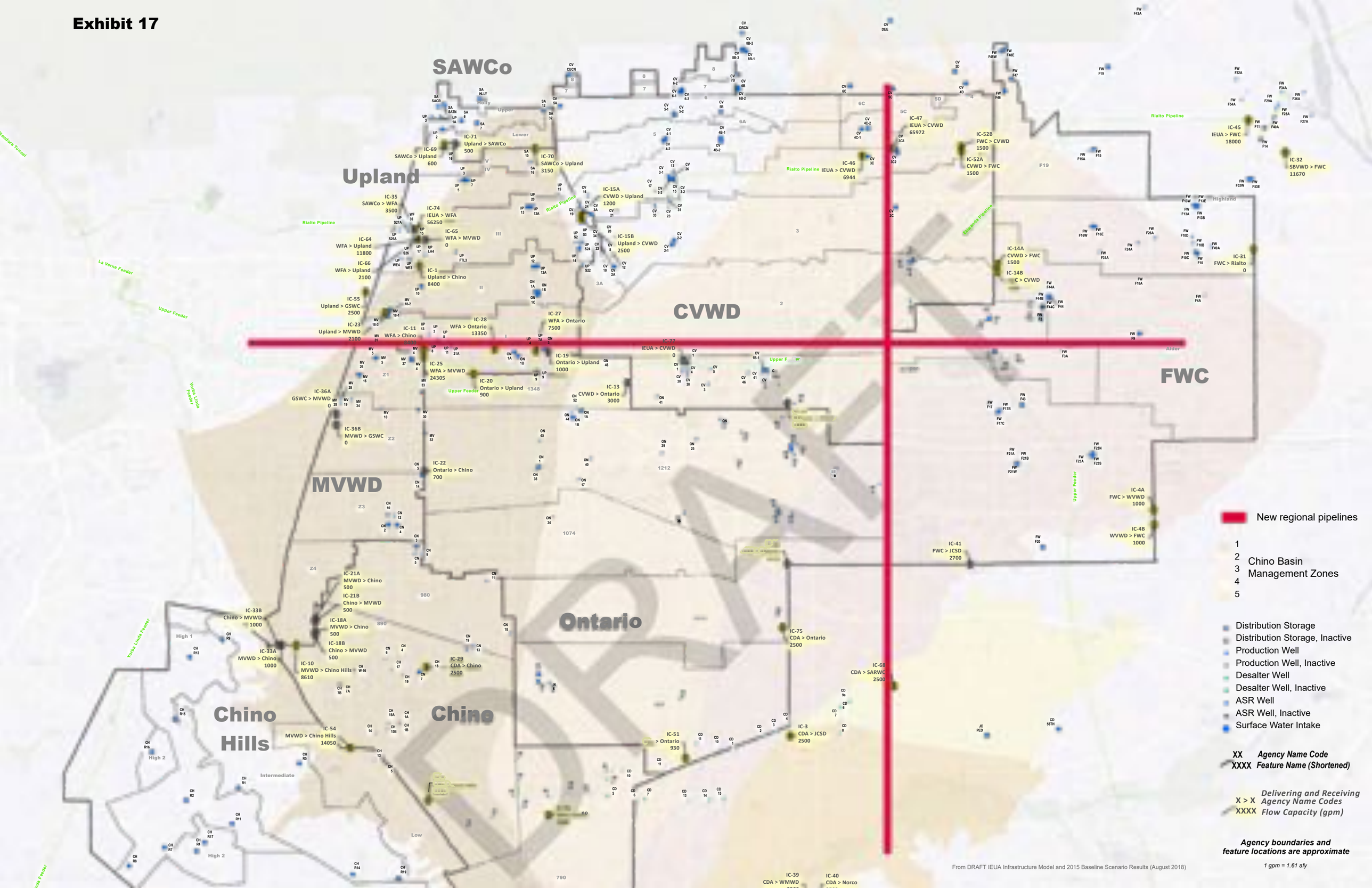
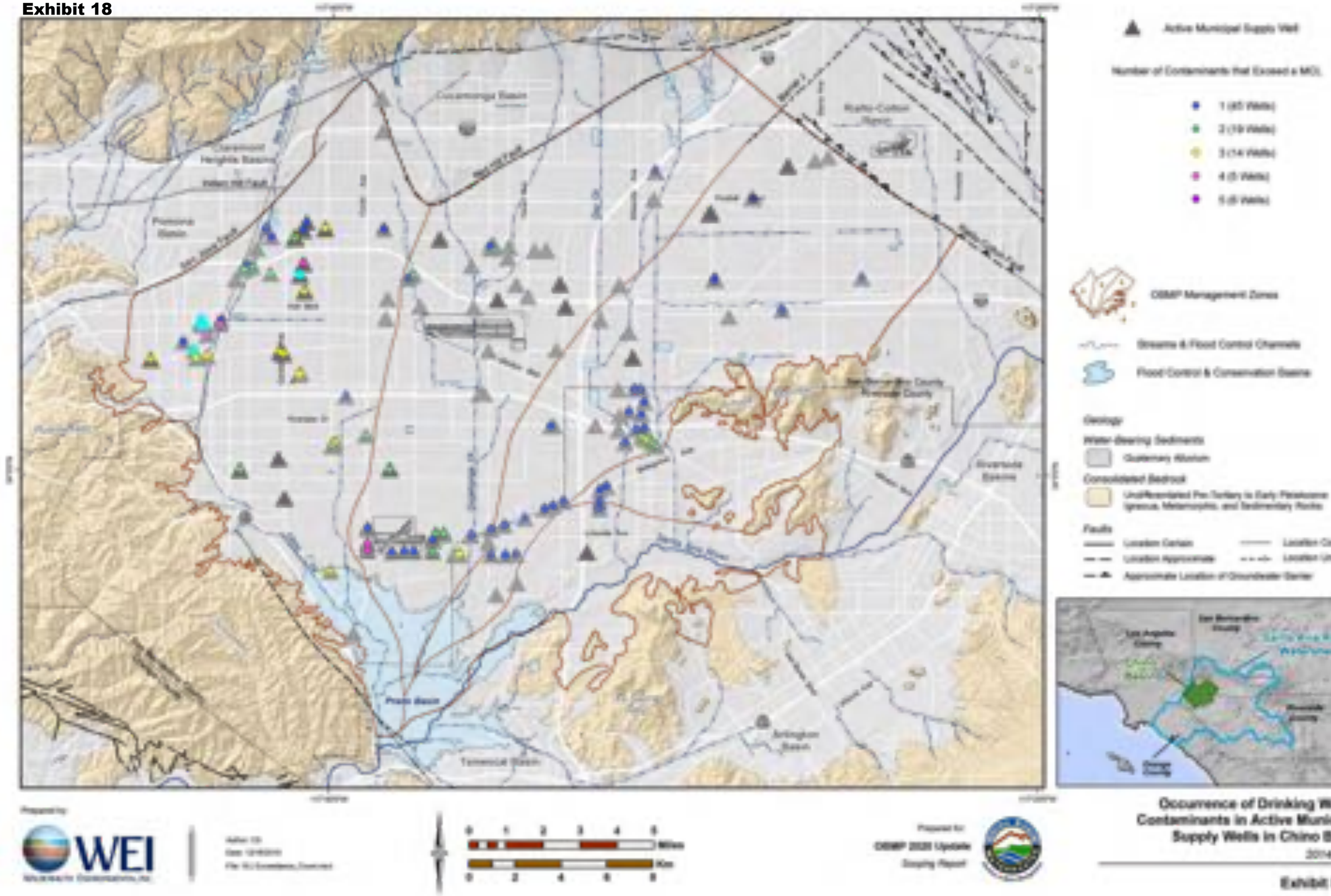

SAWCo
Upland
CVWD
FWC
MVWD
Ontario
Chino
Chino Hills
IC-71 Upland > SAWCo 500
IC-69 SAWCo > Upland 600
IC-70 SAWCo > Upland 3150
IC-35 SAWCo > WFA 3500
IC-74 IEUA > WFA 56250
IC-65 WFA > MVWD 0
IC-64 WFA > Upland 11800
IC-66 WFA > Upland 2100
IC-1 Upland > Chino 8400
IC-55 Upland > GSWC 2500
IC-23 Upland > MVWD 2100
IC-11 WFA > Chino
IC-28 WFA > Ontario 13350
IC-27 WFA > Ontario 7500
IC-25 WFA > MVWD 24305
IC-20 Ontario > Upland 900
IC-19 Ontario > Upland 1000
IC-13 CVWD > Ontario 3000
IC-77 IEUA > CVWD 0
IC-36A GSWC > MVWD 0
IC-36B MVWD > GSWC 0
IC-22 Ontario > Chino 700
IC-21A MVWD > Chino 500
IC-21B Chino > MVWD 500
IC-18A MVWD > Chino 500
IC-18B Chino > MVWD 500
IC-33B Chino > MVWD 1000
IC-33A MVWD > Chino 1000
IC-10 MVWD > Chino Hills 8610
IC-29 CDA > Chino 2500
IC-54 MVWD > Chino Hills 14050
IC-15A CVWD > Upland 1200
IC-15B Upland > CVWD 2500
IC-46 IEUA > CVWD 6944
IC-47 IEUA > CVWD 65972
IC-52B FWC > CVWD 1500
IC-52A CVWD > FWC 1500
IC-14A CVWD > FWC 1500
IC-14B C > CVWD
IC-45 IEUA > FWC 18000
IC-32 SBVWD > FWC 11670
IC-31 FWC > Rialto 0
IC-4A FWC > WVWD 1000
IC-4B WVWD > FWC 1000
IC-41 FWC > JCSD 2700
IC-75 CDA > Ontario 2500
IC-68 CDA > SARWC 2500
IC-3 CDA > JCSD 2500
IC-51 > Ontario 930
IC-39 CDA > WMWD
IC-40 CDA > Norco
Rialto Pipeline
Etiwanda Pipeline
La Verne Feeder
Upper Feeder
Yorba Linda Feeder
Lower
Holly
Alder
Highland
High 1
High 2
Intermediate
Low
Z1
Z2
Z3
Z4
1348
1212
1074
980
890
790
New regional pipelines
Chino Basin Management Zones
Distribution Storage
Distribution Storage, Inactive
Production Well
Production Well, Inactive
Desalter Well
Desalter Well, Inactive
ASR Well
ASR Well, Inactive
Surface Water Intake
XX Agency Name Code
XXXX Feature Name (Shortened)
X > X Delivering and Receiving Agency Name Codes
XXXX Flow Capacity (gpm)
Agency boundaries and feature locations are approximate
1 gpm = 1.61 afy
From DRAFT IEUA Infrastructure Model and 2015 Baseline Scenario Results (August 2018)

Exhibit 18

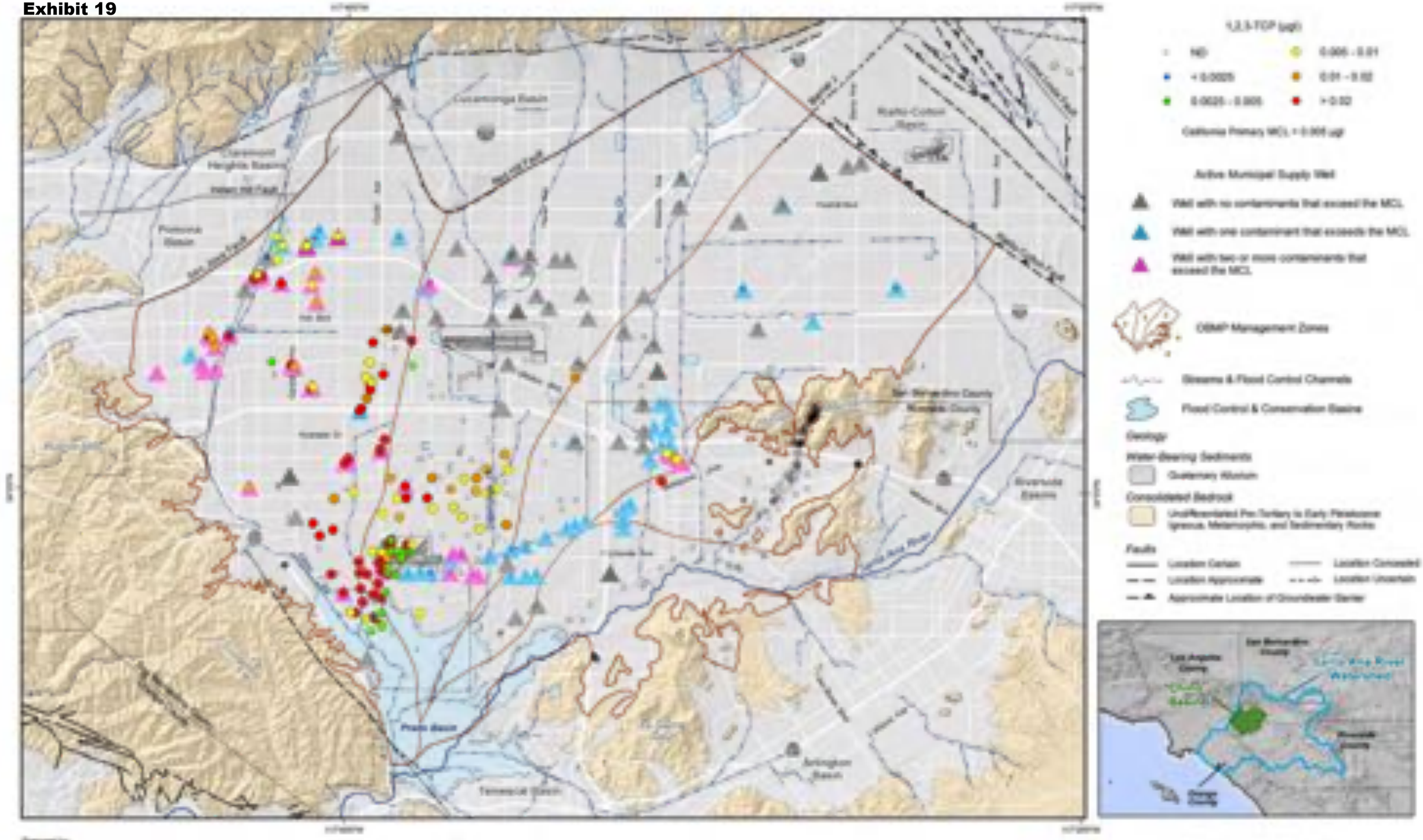


Occurrence of Drinking Water Contaminants in Active Municipal Supply Wells in Chino Basin

2014-2018

Exhibit EF-2

Exhibit 19



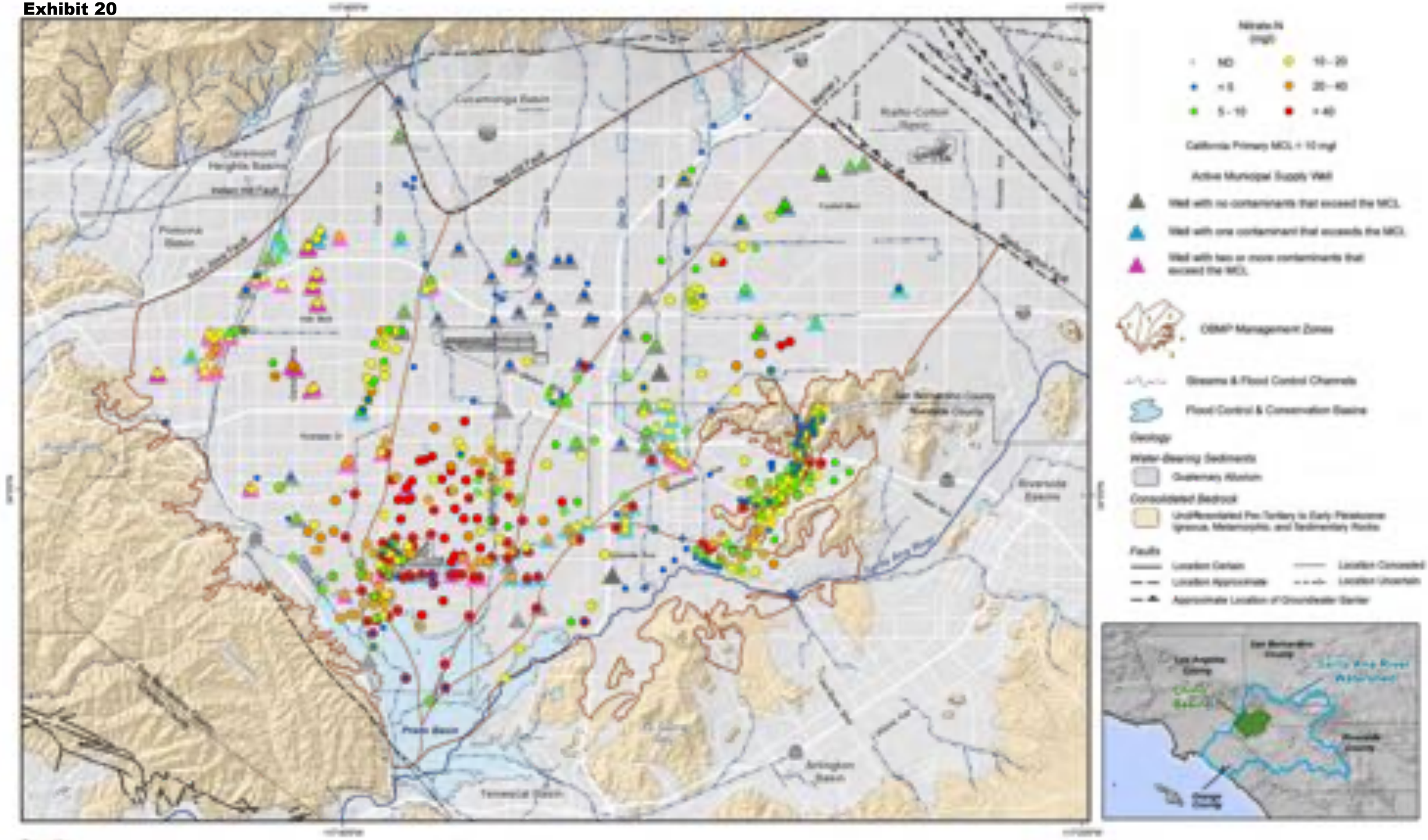
Prepared by: WEI

Prepared for: OBMP 2020 Update, Existing Report

Maximum 1,2,3-Trichloropropane (1,2,3-TCP) Concentration
2014-2018

Exhibit EF-4

Exhibit 20



Prepared by: WEI

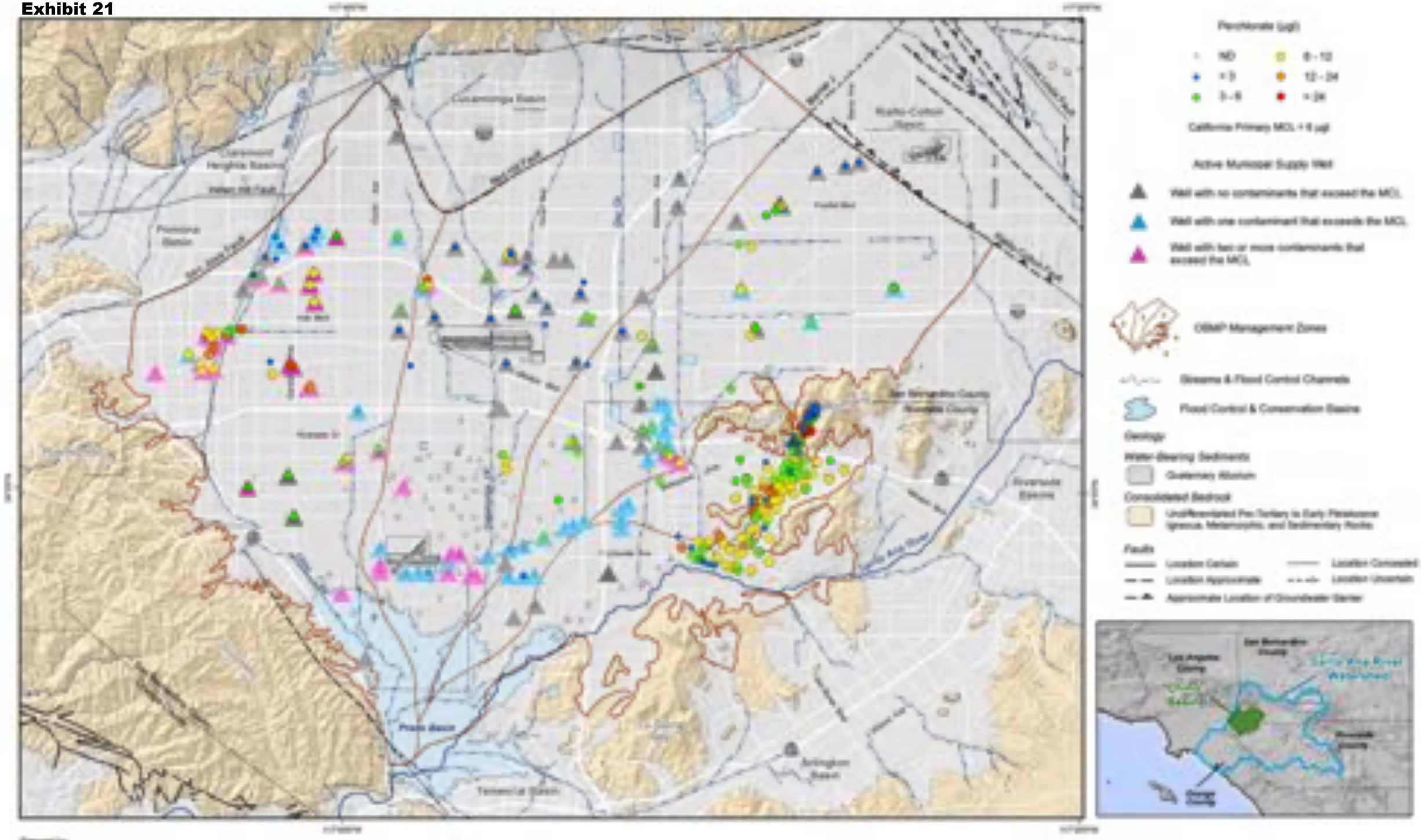
Prepared for: OBMP 2020 Update Scoping Report

Maximum Nitrate Concentration

2014-2018

Exhibit EF-3

Exhibit 21



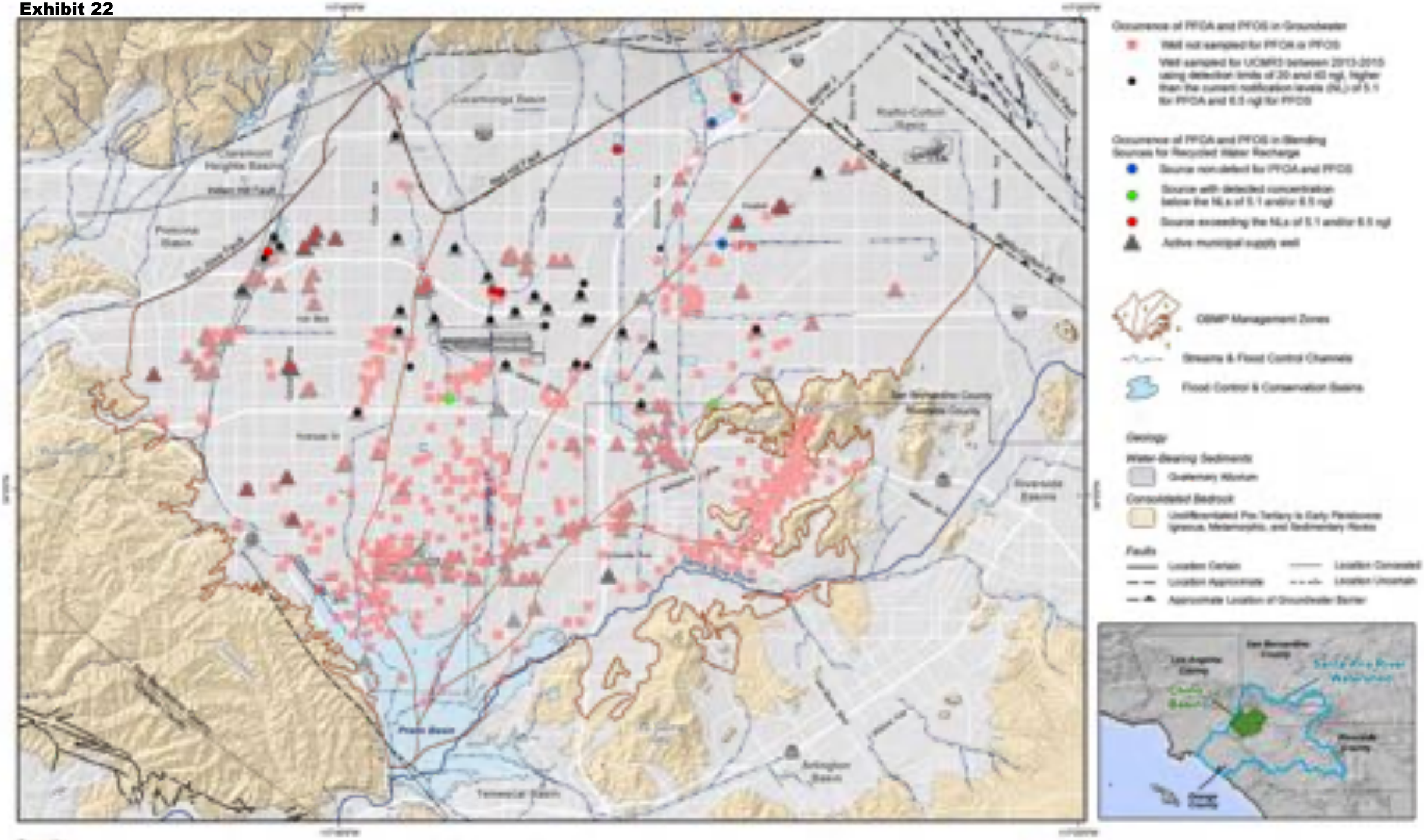
Prepared by: WEI

Prepared for: OBMP 2020 Update Scoping Report

Maximum Perchlorate Concentration
2014-2018

Exhibit EF-6

Exhibit 22



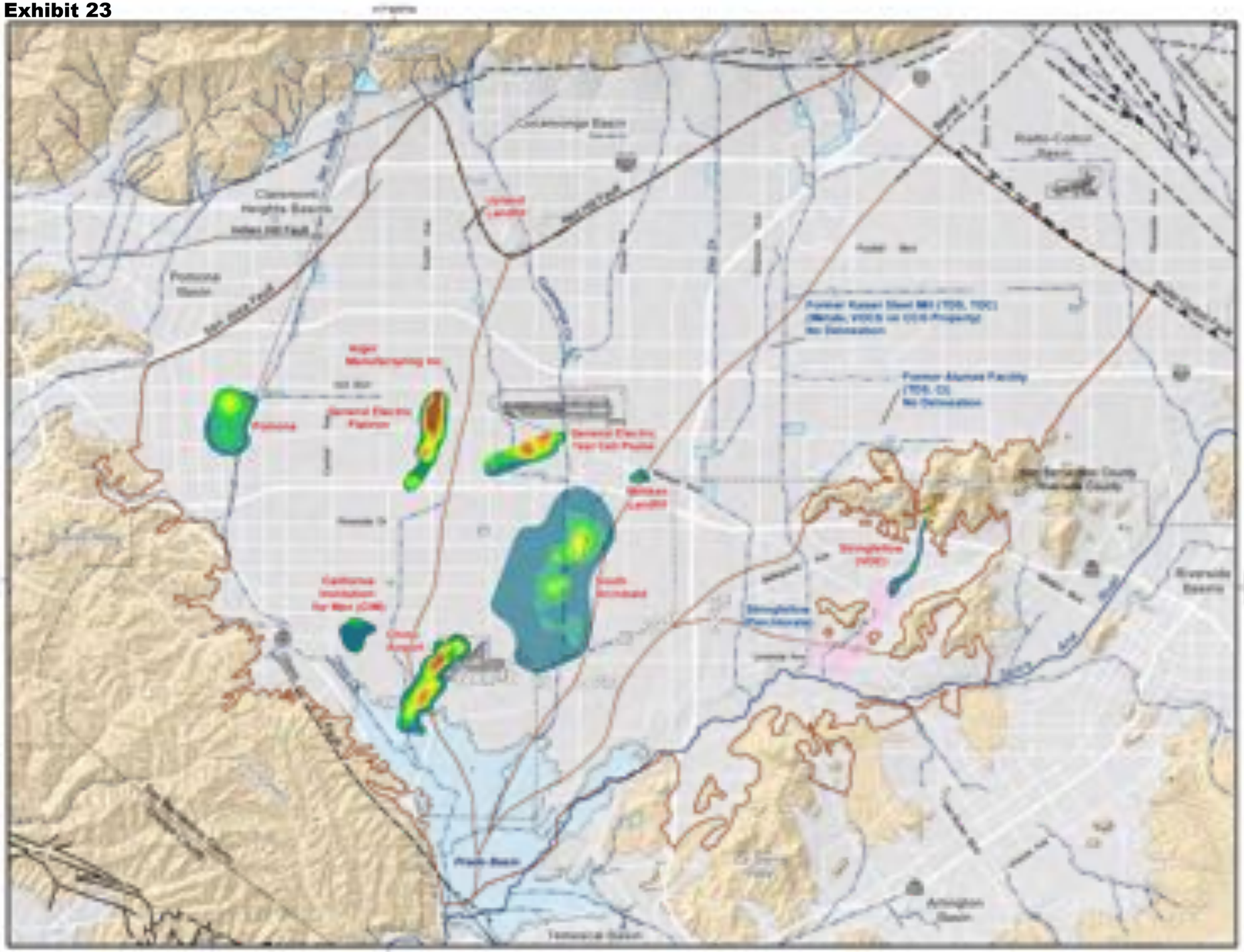
Prepared by: WEI

Prepared for: OBMP 2020 Update, Existing Report

PFOA and PFOS Concentrations
Through March 2019

Exhibit EF-10

Exhibit 23



VOC Concentration (µg/l)

- > 0 to ≤ 5
- > 5 to ≤ 10
- > 10 to ≤ 20
- > 20 to ≤ 50
- > 50 to ≤ 100
- > 100 to ≤ 200
- > 200 to ≤ 500
- > 500

The VOC plumes shown on this map are generalized illustrations of the estimated spatial extent of TCE or PCE, based on the maximum concentration measured at wells over the five-year period of July 2013 to June 2018. The VOC plume illustrations were created with the grid function in Golden Software's Surfer 16 using an ordinary kriging interpolation model with model input parameter estimation and optimization performed by semivariogram analysis in Golden Software's Surfer 16. Interpretations of the plume extent and boundary delineation were made based on measured concentrations and local groundwater flow patterns as predicted by the Chino Basin groundwater flow model.

VOC Plumes Labeled in Red by Name

Other Plumes - Labeled in Blue by Name and Dominant Contaminant

The plumes characterized by color ramp represent Watermaster's most recent characterization of the primary contaminant of concern. The spatial extent of the VOC contamination was delineated by Watermaster based on the five-year maximum concentrations of the primary contaminant of concern for the period of July 2013 to June 2018. The primary VOC contaminant of concern in all of the plumes is TCE with the exception of the CIM plume, which is PCE. The VOC plumes associated with the Upland Landfill and the Algar Manufacturing Facility are of limited geographical extent at the scale of this map, so only their general locations are identified.

Other point-source contamination plumes in the Chino Basin include the former Kaiser Steel Mill, the former Alumax Facility, and the Stringfellow NPL Site, which are labeled by name and the primary contaminants associated with the sites. The former Kaiser Steel Mill TDS and total organic carbon (TOC) plume has not been delineated since 2008 (WEI, 2008b), and there are no plume delineations for the contamination associated with the former Kaiser Steel Mill CCG Property for metals and VOCs or the former Alumax Facility for TDS and chloride (Cl). The Stringfellow perchlorate plume shown here was delineated in the most recent remediation evaluation report for the site (Kleinfelder, 2018).

Prepared by: WEI

Prepared for: 2018 State of the Basin Report, Groundwater Quality

Delineation of Groundwater Contamination

Plumes and Point Sources of Concern

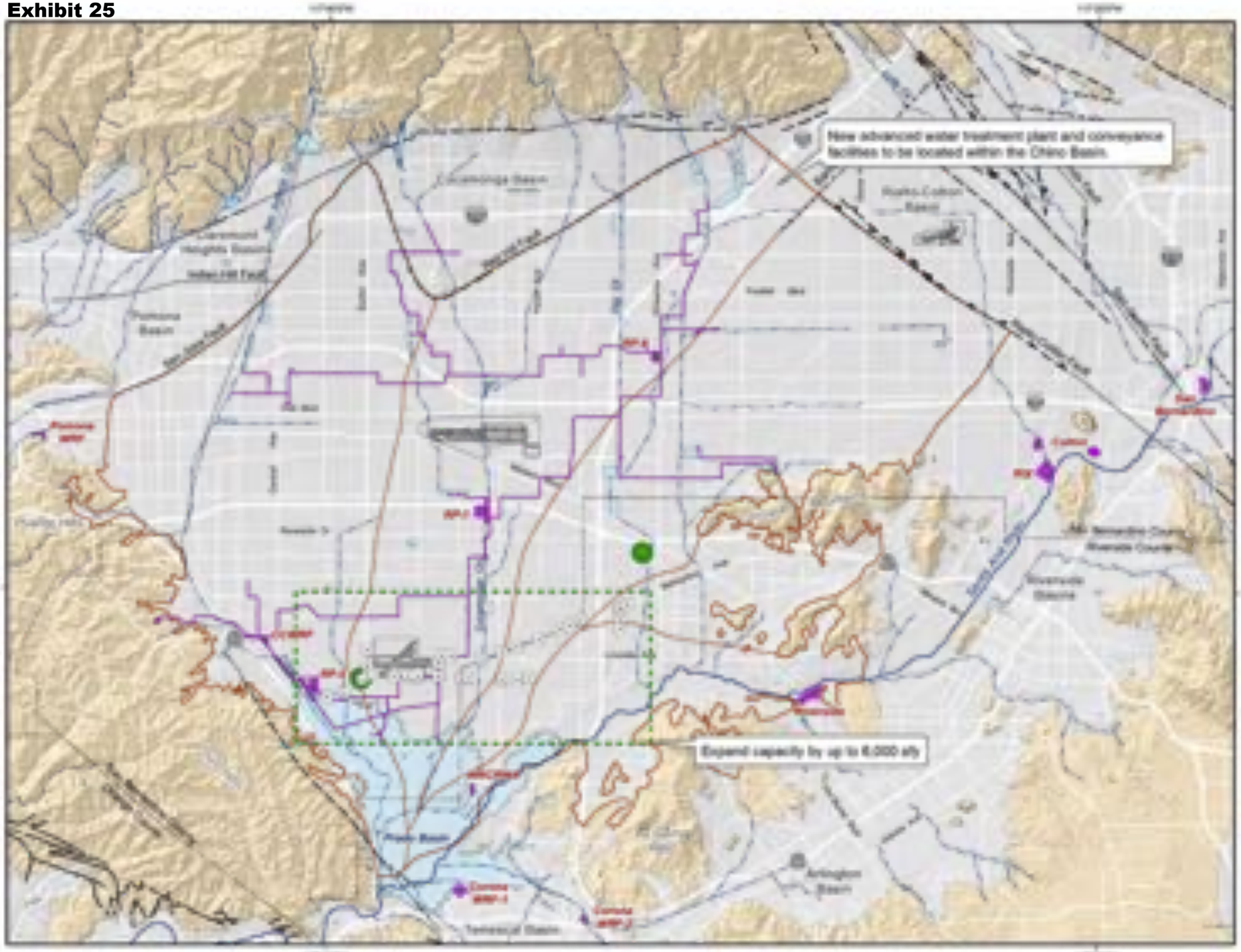
Exhibit 5-1S

Exhibit 24

Exhibit 15
Limitations, Compliance Metrics, and Compliance Actions for the Chino Basin Maximum-Benefit Commitments

Source Waters with Water Quality Limitations in the Chino Basin SNMP	Water Quality Limitation	Compliance Metric	Action Limit	Required Compliance Action when Compliance Metric Exceeds the Action Limit
IEUA Recycled Water (Commitment 6)	TDS: 550 mgl	The agency-wide, 12-month running-average concentration	When the compliance metric exceeds 545 mgl for three consecutive months	Submit to the Regional Board for approval a plan and schedule to comply with the water quality limitations within 60 days.
	TIN: 8 mgl		When the compliance metric exceeds 8 mgl in any month	
Combined water sources used for managed recharge: storm, imported and recycled waters (Commitment 7)	TDS: 420 mgl Nitrate: 5 mgl	The five-year, volume-weighted running-average concentration of all sources of managed recharge	TDS: 420 mgl Nitrate: 5 mgl	Prepare a salt offset plan to mitigate salt loading from recharge greater than 420 mgl. Offsets could include desalting of recycled water or groundwater, or increased recharge of low-TDS waters.
Groundwater (Commitment 9)	TDS: 420 mgl	The volume-weighted concentration of groundwater in the Chino North GMZ (computed every three years)	TDS: 420 mgl	Reduce the TDS concentration of IEUA recycled water to comply with the maximum-benefit TDS objective or prepare a salt offset plan to mitigate loading from the use of recycled water than 420 mgl.
	Nitrate: 5 mgl		n/a	This action limit was already exceeded when the objective was established. So long as all other maximum benefit commitments are met, no compliance action is required.

Exhibit 25



Recycled Water Treatment Plant*

*New treatment train at one or more IEUA plants to reduce the TDS concentration to levels to ensure compliance with its permits

Recycled Water Distribution System

Desalter Treatment Facility

Chino Basin Desalter Well

OBMP Management Zones

Streams & Flood Control Channels

Flood Control & Conservation Basins

Faults

Location Certain — Location Concealed

Location Approximate — Location Uncertain

Approximate Location of Groundwater Barrier

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene igneous, Metamorphic, and Sedimentary Rocks

Prepared by: WEI

Author: MO
Date: 10/2/2019
File: [illegible]

0 1 2 3 4 5 Miles
0 2 4 6 8 Kilometers

Prepared for: OBMP 2020 Update Scoping Report

Recycled Water Treatment Plants and Discharge Points

Exhibit D-1

Exhibit 26

Exhibit 16

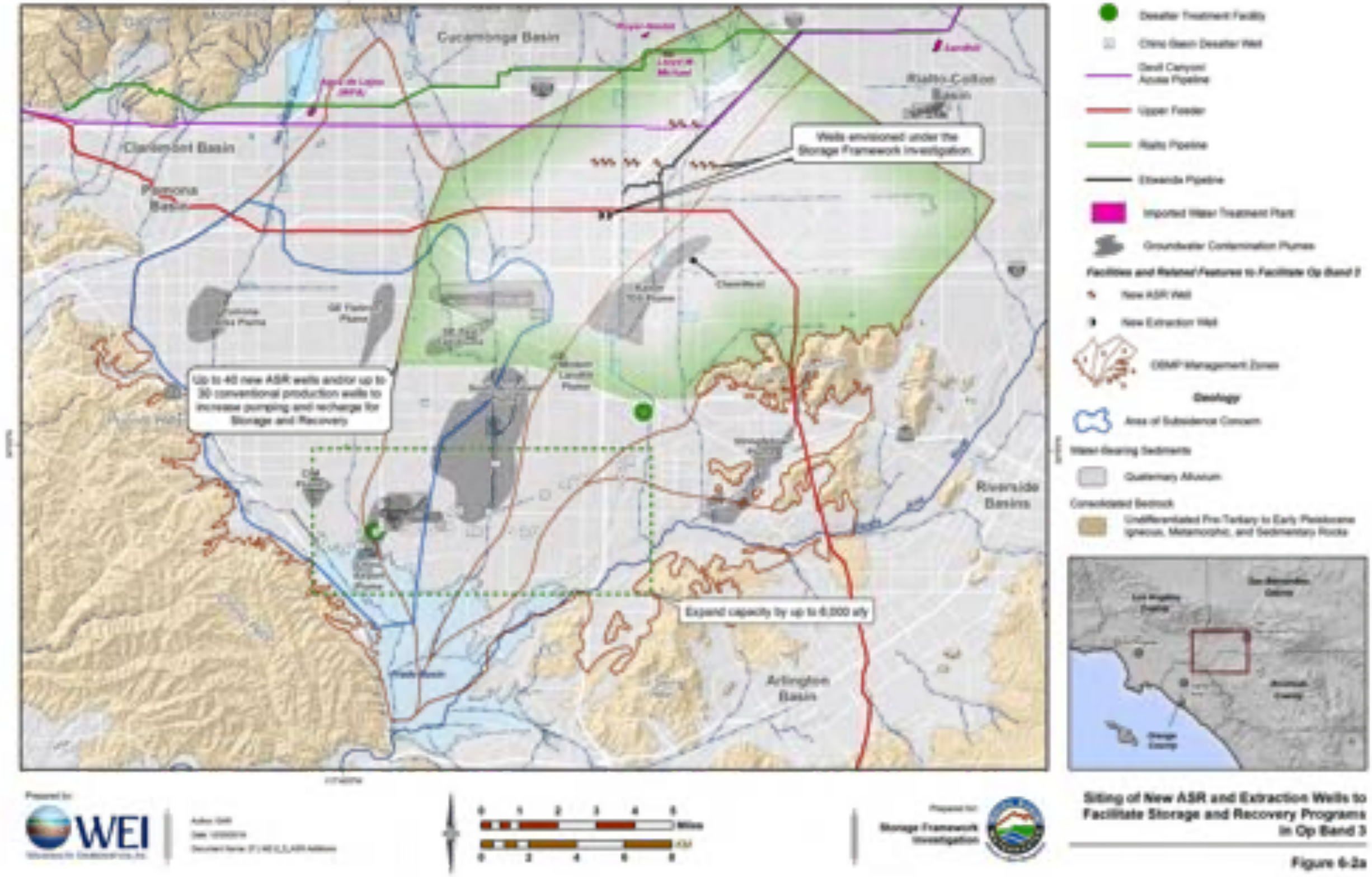
Ending Balances in Managed Storage in the Chino Basin[1]

(af)

Fiscal Year ending June 30	Appropriative Pool				Overlying Non-Agricultural Pool			Total Managed Storage by Parties	Dry Year Yield Program Storage	Total Managed Storage
	Carryover	Excess Carryover	Local Supplemental Storage	Subtotal	Carryover	Excess Carryover	Subtotal			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (7) + (4)	(9)	(10) = (9) + (8)
2000	28,911	170,342		199,253	6,541	31,031	37,572	236,825	0	236,825
2001	15,940	77,907	92,813	186,660	5,301	32,330	37,631	224,291	0	224,291
2002	13,521	70,103	87,801	171,425	5,285	33,727	39,012	210,437	0	210,437
2003	18,656	71,329	81,180	171,165	6,743	36,850	43,593	214,758	7,738	222,496
2004	21,204	70,503	80,963	172,670	7,177	40,881	48,058	220,728	26,300	247,028
2005	21,289	76,080	88,849	186,218	7,227	45,888	53,115	239,333	38,754	278,087
2006	32,062	56,062	86,170	174,294	7,227	49,178	56,405	230,699	58,653	289,352
2007	34,552	50,895	83,184	168,631	7,084	51,476	58,560	227,191	77,116	304,307
2008	41,626	83,962	81,520	207,108	6,819	45,248	52,067	259,175	74,877	334,052
2009	42,795	101,908	79,890	224,593	6,672	46,600	53,272	277,865	34,494	312,359
2010	41,263	120,897	90,133	252,293	6,934	47,732	54,666	306,959	8,543	315,502
2011	41,412	146,074	98,080	285,566	6,959	49,343	56,302	341,868	0	341,868
2012	42,614	209,981	116,138	368,733	6,914	13,993	20,907	389,640	0	389,640
2013	39,413	225,068	116,378	380,859	7,073	15,473	22,546	403,405	0	403,405
2014	41,708	224,496	123,484	389,688	6,478	12,812	19,290	408,978	0	408,978
2015	40,092	239,517	127,994	407,603	6,823	12,225	19,048	426,651	0	426,651
2016	39,733	248,013	131,522	419,267	7,195	9,949	17,144	436,411	0	436,411
2017	38,340	260,682	143,552	442,575	7,226	8,292	15,519	458,093	6,315	464,408
2018	34,582	254,221	155,018	443,821	7,198	10,775	17,973	461,795	41,380	503,174
2019	38,605	279,033	166,406	484,044	7,227	12,004	19,231	503,275	45,969	549,244

1 -- WEI. (2019). Draft Storage Management Plan.

Exhibit 27



Prepared by: WEI

Prepared for: Storage Framework Investigation

Siting of New ASR and Extraction Wells to Facilitate Storage and Recovery Programs in Op Band 3

Figure 6-2a

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

Management Zone 1
CNDDB and IPaC Lists

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

OBMPU Management Zone 1

Query Summary:
Quad IS (San Dimas (3411717) OR Ontario (3411716) OR Mt. Baldy (3411726) OR Prado Dam (3311786) OR Guasti (3411715))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Abronia villosa var. aurita	chaparral sand-verbena	Dicots	PDNYC010P1	98	1	None	None	G5T2?	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert dunes
Accipiter cooperii	Cooper's hawk	Birds	ABNKC12040	118	1	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	4	None	Threatened	G2G3	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Birds	ABPBX91091	235	3	None	None	G5T3	S3	null	CDFW_WL-Watch List	Chaparral, Coastal scrub
Ammodramus savannarum	grasshopper sparrow	Birds	ABPBXA0020	27	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Valley & foothill grassland
Anaxyrus californicus	arroyo toad	Amphibians	AAABB01230	139	1	Endangered	None	G2G3	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered	Desert wash, Riparian scrub, Riparian woodland, South coast flowing waters, South coast standing waters
Anniella stebbinsi	southern California legless lizard	Reptiles	ARACC01060	417	11	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Coastal dunes, Coastal scrub
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	2	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland

Aquila chrysaetos	golden eagle	Birds	ABNKC22010	321	3	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland
Arctostaphylos glandulosa ssp. gabrielensis	San Gabriel manzanita	Dicots	PDERI042P0	35	3	None	None	G5T3	S3	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral
Arizona elegans occidentalis	California glossy snake	Reptiles	ARADB01017	260	5	None	None	G5T2	S2	null	CDFW_SSC-Species of Special Concern	null
Asio otus	long-eared owl	Birds	ABNSB13010	48	1	None	None	G5	S3?	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Cismontane woodland, Great Basin scrub, Riparian forest, Riparian woodland, Upper montane coniferous forest
Aspidoscelis hyperythra	orange-throated whiptail	Reptiles	ARACJ02060	369	2	None	None	G5	S2S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Aspidoscelis tigris stejnegeri	coastal whiptail	Reptiles	ARACJ02143	148	2	None	None	G5T5	S3	null	CDFW_SSC-Species of Special Concern	null
Astragalus brauntonii	Braunton's milk-vetch	Dicots	PDFAB0F1G0	44	1	Endangered	None	G2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Chaparral, Coastal scrub, Limestone, Valley & foothill grassland
Athene cunicularia	burrowing owl	Birds	ABNSB10010	1989	31	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Atriplex coulteri	Coulter's saltbush	Dicots	PDCHE040E0	121	1	None	None	G3	S1S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley & foothill grassland
Batrachoseps gabrieli	San Gabriel slender salamander	Amphibians	AAAAD02110	8	3	None	None	G2G3	S2S3	null	IUCN_DD-Data Deficient, USFS_S-Sensitive	Talus slope
Berberis nevinii	Nevin's barberry	Dicots	PDBER060A0	32	4	Endangered	Endangered	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub

Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	234	5	None	Candidate Endangered	G3G4	S1S2	null	null	null
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2518	2	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
California Walnut Woodland	California Walnut Woodland	Woodland	CTT71210CA	76	13	None	None	G2	S2.1	null	null	Cismontane woodland
Callophrys mossii hidakupa	San Gabriel Mountains elfin butterfly	Insects	IILEPE2206	3	3	None	None	G4T1T2	S1S2	null	USFS_S-Sensitive	Lower montane coniferous forest
Calochortus clavatus var. gracilis	slender mariposa-lily	Monocots	PMLIL0D096	143	5	None	None	G4T2T3	S2S3	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Calochortus plummerae	Plummer's mariposa-lily	Monocots	PMLIL0D150	230	14	None	None	G4	S4	4.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley & foothill grassland
Calochortus weedii var. intermedius	intermediate mariposa-lily	Monocots	PMLIL0D1J1	140	6	None	None	G3G4T2	S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Calystegia felix	lucky morning-glory	Dicots	PDCON040P0	10	6	None	None	G1Q	S1	1B.1	null	Meadow & seep, Riparian scrub
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	Birds	ABPBG02095	156	1	None	None	G5T3Q	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Coastal scrub
Canyon Live Oak Ravine Forest	Canyon Live Oak Ravine Forest	Riparian	CTT61350CA	50	14	None	None	G3	S3.3	null	null	Riparian forest
Catostomus santaanae	Santa Ana sucker	Fish	AFCJC02190	28	2	Threatened	None	G1	S1	null	AFS_TH-Threatened, IUCN_VU-Vulnerable	Aquatic, South coast flowing waters
Centromadia pungens ssp. laevis	smooth tarplant	Dicots	PDAST4R0R4	126	1	None	None	G3G4T2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Riparian woodland, Valley & foothill grassland, Wetland
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	Mammals	AMAFD05031	101	3	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Chorizanthe parryi var. parryi	Parry's spineflower	Dicots	PDPGN040J2	150	2	None	None	G3T2	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Cladium californicum	California saw-grass	Monocots	PMCYP04010	13	1	None	None	G4	S2	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Alkali marsh, Freshwater marsh, Meadow & seep, Wetland
Coccyzus	western	Birds	ABNRB02022	156	3	Threatened	Endangered	G5T2T3	S1	null	BLM_S-	Riparian forest

americanus occidentalis	yellow-billed cuckoo										Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	1	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Meadow & seep
Crotalus ruber	red-diamond rattlesnake	Reptiles	ARADE02090	192	3	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Mojavean desert scrub, Sonoran desert scrub
Cypseloides niger	black swift	Birds	ABNUA01010	46	1	None	None	G4	S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	null
Diplectrona californica	California diplectronan caddisfly	Insects	IITRI23010	1	1	None	None	G1G2	S1S2	null	null	Aquatic
Dipodomys merriami parvus	San Bernardino kangaroo rat	Mammals	AMAFD03143	81	3	Endangered	Candidate Endangered	G5T1	S1	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Dipodomys stephensi	Stephens' kangaroo rat	Mammals	AMAFD03100	220	1	Endangered	Threatened	G2	S2	null	IUCN_EN-Endangered	Coastal scrub, Valley & foothill grassland
Dodecahema leptoceras	slender-horned spineflower	Dicots	PDPGN0V010	41	1	Endangered	Endangered	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub
Dudleya multicaulis	many-stemmed dudleya	Dicots	PDCRA040H0	154	14	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	180	3	None	None	G5	S3S4	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern	Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland
Empidonax traillii extimus	southwestern willow flycatcher	Birds	ABPAE33043	70	2	Endangered	Endangered	G5T2	S1	null	NABCI_RWL-Red Watch List	Riparian woodland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1385	2	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing

												waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Dicots	PDPLM03035	31	1	Endangered	Endangered	G4T1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	5	None	None	G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, WBWG_H-High Priority	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Falco columbarius	merlin	Birds	ABNKD06030	37	1	None	None	G5	S3S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Estuary, Great Basin grassland, Valley & foothill grassland
Gila orcuttii	arroyo chub	Fish	AFCJB13120	49	2	None	None	G2	S2	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Horkelia cuneata var. puberula	mesa horkelia	Dicots	PDROS0W045	103	6	None	None	G4T1	S1	1B.1	USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Icteria virens	yellow-breasted chat	Birds	ABPBX24010	100	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Lasiurus cinereus	hoary bat	Mammals	AMACC05030	238	2	None	None	G5	S4	null	IUCN_LC-Least Concern, WBWG_M-Medium Priority	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North coast coniferous forest
Lasiurus xanthinus	western yellow bat	Mammals	AMACC05070	58	2	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Desert wash
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	1	None	Threatened	G3G4T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Dicots	PDBRA1M114	142	6	None	None	G5T3	S3	4.3	null	Chaparral, Coastal scrub
Lilium parryi	lemon lily	Monocots	PMLIL1A0J0	160	1	None	None	G3	S3	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Lower montane coniferous forest, Meadow & seep, Riparian forest, Upper montane coniferous forest, Wetland
Linanthus	San Gabriel	Dicots	PDPLM090D0	43	1	None	None	G2	S2	1B.2	SB_RSABG-	Chaparral,

concinnus	linanthus										Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Lower montane coniferous forest, Upper montane coniferous forest
Monardella australis ssp. jokerstii	Jokerst's monardella	Dicots	PDLAM18112	3	1	None	None	G4T1?	S1?	1B.1	USFS_S-Sensitive	Chaparral, Lower montane coniferous forest
Monardella macrantha ssp. hallii	Hall's monardella	Dicots	PDLAM180E1	41	4	None	None	G5T3	S3	1B.3	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland
Muhlenbergia californica	California muhly	Monocots	PMPOA480A0	5	1	None	None	G4	S4	4.3	null	Chaparral, Coastal scrub, Lower montane coniferous forest, Meadow & seep
Muhlenbergia utilis	aparejo grass	Monocots	PMPOA481X0	14	1	None	None	G4	S2S3	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Marsh & swamp, Meadow & seep, Ultramafic
Navarretia prostrata	prostrate vernal pool navarretia	Dicots	PDPLM0C0Q0	60	1	None	None	G2	S2	1B.2	null	Coastal scrub, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Neotoma lepida intermedia	San Diego desert woodrat	Mammals	AMAFF08041	132	4	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	1	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Joshua tree woodland, Pinon & juniper woodlands, Riparian scrub, Sonoran desert scrub
Nyctinomops macrotis	big free-tailed bat	Mammals	AMACD04020	32	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_MH-Medium-High Priority	null
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Fish	AFCHA0209J	20	1	Endangered	None	G5T1Q	S1	null	AFS_EN-Endangered	Aquatic, South coast flowing waters
Oreonana vestita	woolly mountain-parsley	Dicots	PDAPI1G030	55	2	None	None	G3	S3	1B.3	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest
Orobanche valida ssp. valida	Rock Creek broomrape	Dicots	PDORO040G2	12	2	None	None	G4T2	S2	1B.2	USFS_S-Sensitive	Chaparral, Pinon & juniper woodlands
Ovis canadensis nelsoni	desert bighorn sheep	Mammals	AMALE04013	46	1	None	None	G4T4	S3	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, USFS_S-Sensitive	Alpine, Alpine dwarf scrub, Chaparral, Chenopod scrub, Great Basin scrub, Mojavean desert scrub, Montane dwarf scrub, Pinon & juniper woodlands, Riparian

												woodland, Sonoran desert scrub
Perognathus longimembris brevinasus	Los Angeles pocket mouse	Mammals	AMAFD01041	70	4	None	None	G5T1T2	S1S2	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Phacelia stellaris	Brand's star phacelia	Dicots	PDHYD0C510	15	1	None	None	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes, Coastal scrub
Phrynosoma blainvillii	coast horned lizard	Reptiles	ARACF12100	784	5	None	None	G3G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland
Polioptila californica californica	coastal California gnatcatcher	Birds	ABPBJ08081	846	22	Threatened	None	G4G5T2Q	S2	null	CDFW_SSC-Species of Special Concern, NABCI_YWL-Yellow Watch List	Coastal bluff scrub, Coastal scrub
Pseudognaphalium leucocephalum	white rabbit-tobacco	Dicots	PDAST440C0	62	3	None	None	G4	S2	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland
Rana boylii	foothill yellow-legged frog	Amphibians	AAABH01050	2468	1	None	Candidate Threatened	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, USFS_S-Sensitive	Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow & seep, Riparian forest, Riparian woodland, Sacramento/San Joaquin flowing waters
Rana muscosa	southern mountain yellow-legged frog	Amphibians	AAABH01330	186	2	Endangered	Endangered	G1	S1	null	CDFW_WL-Watch List, IUCN_EN-Endangered, USFS_S-Sensitive	Aquatic
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Insects	IIDIP05021	36	6	Endangered	None	G1T1	S1	null	null	Interior dunes
Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub	Scrub	CTT32720CA	30	5	None	None	G1	S1.1	null	null	Coastal scrub
Senecio aphanactis	chaparral ragwort	Dicots	PDAST8H060	98	1	None	None	G3	S2	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub
Setophaga petechia	yellow warbler	Birds	ABPBX03010	78	1	None	None	G5	S3S4	null	CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Riparian forest, Riparian scrub, Riparian woodland
Sidalcea neomexicana	salt spring checkerbloom	Dicots	PDMAL110J0	30	3	None	None	G4	S2	2B.2	USFS_S-Sensitive	Alkali playa, Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Wetland

Southern California Arroyo Chub/Santa Ana Sucker Stream	Southern California Arroyo Chub/Santa Ana Sucker Stream	Inland Waters	CARE2330CA	4	2	None	None	GNR	SNR	null	null	null
Southern Coast Live Oak Riparian Forest	Southern Coast Live Oak Riparian Forest	Riparian	CTT61310CA	246	5	None	None	G4	S4	null	null	Riparian forest
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	Riparian	CTT61330CA	111	3	None	None	G3	S3.2	null	null	Riparian forest
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	Riparian	CTT62400CA	230	14	None	None	G4	S4	null	null	Riparian woodland
Southern Willow Scrub	Southern Willow Scrub	Riparian	CTT63320CA	45	1	None	None	G3	S2.1	null	null	Riparian scrub
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1213	6	None	None	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Symphyotrichum defoliatum	San Bernardino aster	Dicots	PDASTE80C0	102	5	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Valley & foothill grassland
Symphyotrichum greatae	Greata's aster	Dicots	PDASTE80U0	56	4	None	None	G2	S2	1B.3	BLM_S-Sensitive	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland
Taricha torosa	Coast Range newt	Amphibians	AAAAF02032	88	2	None	None	G4	S4	null	CDFW_SSC-Species of Special Concern	null
Taxidea taxus	American badger	Mammals	AMAJF04010	592	2	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog & fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, Ione formation, Joshua tree woodland, Limestone, Lower montane coniferous forest, Marsh &

												swamp, Meadow & seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous forest, Upper Sonoran scrub, Valley & foothill grassland
Thamnophis hammondii	two-striped gartersnake	Reptiles	ARADB36160	184	2	None	None	G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Marsh & swamp, Riparian scrub, Riparian woodland, Wetland
Thysanocarpus rigidus	rigid fringepod	Dicots	PDBRA2Q070	5	1	None	None	G1G2	S1	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Pinon & juniper woodlands
Vireo bellii pusillus	least Bell's vireo	Birds	ABPBW01114	503	15	Endangered	Endangered	G5T2	S2	null	IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List	Riparian forest, Riparian scrub, Riparian woodland
Walnut Forest	Walnut Forest	Forest	CTT81600CA	6	3	None	None	G1	S1.1	null	null	Broadleaved upland forest

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: January 07, 2020
Consultation Code: 08ECAR00-2020-SLI-0426
Event Code: 08ECAR00-2020-E-01015
Project Name: OBMP PEIR Update MZ1

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2020-SLI-0426

Event Code: 08ECAR00-2020-E-01015

Project Name: OBMP PEIR Update MZ1

Project Type: WATER SUPPLY / DELIVERY

Project Description: Optimum Basin Management Plan PEIR Update - MZ1

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/34.02331759100005N117.69534835335432W

Counties: Los Angeles, CA | Riverside, CA | San Bernardino, CA

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2060

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad *Anaxyrus californicus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3762	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae* Population: 3 CA river basins There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3785	Threatened

Insects

NAME	STATUS
Delhi Sands Flower-loving Fly *Rhaphiomidas terminatus abdominalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1540	Endangered

Flowering Plants

NAME	STATUS
Braunton's Milk-vetch *Astragalus brauntonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5674	Endangered
Nevin's Barberry *Berberis nevinii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8025	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
Thread-leaved Brodiaea *Brodiaea filifolia* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

There are 3 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Least Bell's Vireo *Vireo bellii pusillus* https://ecos.fws.gov/ecp/species/5945#crithab	Final
Southwestern Willow Flycatcher *Empidonax traillii extimus* https://ecos.fws.gov/ecp/species/6749#crithab	Final
Yellow-billed Cuckoo *Coccyzus americanus* For information on why this critical habitat appears for your project, even though Yellow-billed Cuckoo is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/3911#crithab	Proposed

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

Management Zone 2
CNDDB and IPaC Lists

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

OBMPU Management Zone 2

Query Summary:
Quad IS (Prado Dam (3311786) OR Ontario (3411716) OR Guasti (3411715) OR Cucamonga Peak (3411725) OR Devore (3411724) OR Corona North (3311785) OR Fontana (3411714))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Abronia villosa var. aurita	chaparral sand-verbena	Dicots	PDNYC010P1	98	2	None	None	G5T2?	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert dunes
Accipiter cooperii	Cooper's hawk	Birds	ABNKC12040	118	1	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	8	None	Threatened	G2G3	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Birds	ABPBX91091	235	3	None	None	G5T3	S3	null	CDFW_WL-Watch List	Chaparral, Coastal scrub
Ambrosia monogyra	singlewhorl burrobrush	Dicots	PDAST50010	30	1	None	None	G5	S2	2B.2	null	Chaparral, Sonoran desert scrub
Ammodramus savannarum	grasshopper sparrow	Birds	ABPBXA0020	27	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Valley & foothill grassland
Anniella stebbinsi	southern California legless lizard	Reptiles	ARACC01060	417	29	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Coastal dunes, Coastal scrub
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	1	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Aquila chrysaetos	golden eagle	Birds	ABNKC22010	321	3	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive,	Broadleaved upland forest, Cismontane woodland,

											CDFW_FP-Fully Protected, CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland
Arctostaphylos glandulosa ssp. gabrielensis	San Gabriel manzanita	Dicots	PDERI042P0	35	1	None	None	G5T3	S3	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral
Arenaria paludicola	marsh sandwort	Dicots	PDCAR040L0	16	1	Endangered	Endangered	G1	S1	1B.1	SB_SBBG-Santa Barbara Botanic Garden	Freshwater marsh, Marsh & swamp, Wetland
Arizona elegans occidentalis	California glossy snake	Reptiles	ARADB01017	260	10	None	None	G5T2	S2	null	CDFW_SSC-Species of Special Concern	null
Artemisiospiza belli belli	Bell's sage sparrow	Birds	ABPBX97021	61	2	None	None	G5T2T3	S3	null	CDFW_WL-Watch List, USFWS_BCC-Birds of Conservation Concern	Chaparral, Coastal scrub
Asio otus	long-eared owl	Birds	ABNSB13010	48	1	None	None	G5	S3?	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Cismontane woodland, Great Basin scrub, Riparian forest, Riparian woodland, Upper montane coniferous forest
Aspidoscelis hyperythra	orange-throated whiptail	Reptiles	ARACJ02060	369	5	None	None	G5	S2S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Astragalus brauntonii	Braunton's milk-vetch	Dicots	PDFAB0F1G0	44	1	Endangered	None	G2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Chaparral, Coastal scrub, Limestone, Valley & foothill grassland
Athene cunicularia	burrowing owl	Birds	ABNSB10010	1989	48	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Atriplex coulteri	Coulter's saltbush	Dicots	PDCHE040E0	121	1	None	None	G3	S1S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley & foothill grassland
Batrachoseps gabrieli	San Gabriel slender salamander	Amphibians	AAAAD02110	8	1	None	None	G2G3	S2S3	null	IUCN_DD-Data Deficient, USFS_S-Sensitive	Talus slope
Berberis nevinii	Nevin's barberry	Dicots	PDBER060A0	32	1	Endangered	Endangered	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub

											Botanic Garden	
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	234	9	None	Candidate Endangered	G3G4	S1S2	null	null	null
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2518	2	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
California Walnut Woodland	California Walnut Woodland	Woodland	CTT71210CA	76	10	None	None	G2	S2.1	null	null	Cismontane woodland
Calochortus plummerae	Plummer's mariposa-lily	Monocots	PMLIL0D150	230	25	None	None	G4	S4	4.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley & foothill grassland
Calochortus weedii var. intermedius	intermediate mariposa-lily	Monocots	PMLIL0D1J1	140	4	None	None	G3G4T2	S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Calystegia felix	lucky morning-glory	Dicots	PDCON040P0	10	6	None	None	G1Q	S1	1B.1	null	Meadow & seep, Riparian scrub
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	Birds	ABPBG02095	156	1	None	None	G5T3Q	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Coastal scrub
Catostomus santaanae	Santa Ana sucker	Fish	AFCJC02190	28	6	Threatened	None	G1	S1	null	AFS_TH-Threatened, IUCN_VU-Vulnerable	Aquatic, South coast flowing waters
Centromadia pungens ssp. laevis	smooth tarplant	Dicots	PDAST4R0R4	126	2	None	None	G3G4T2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Riparian woodland, Valley & foothill grassland, Wetland
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	Mammals	AMAFD05031	101	9	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	Mammals	AMAFD05032	79	1	None	None	G5T34	S3S4	null	CDFW_SSC-Species of Special Concern	Desert wash, Pinon & juniper woodlands, Sonoran desert scrub
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Dicots	PDSCR0J0C2	30	1	Endangered	Endangered	G4?T1	S1	1B.2	SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Marsh & swamp, Salt marsh, Wetland
Chorizanthe parryi var. parryi	Parry's spineflower	Dicots	PDPGN040J2	150	13	None	None	G3T2	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Chorizanthe xanti var. leucotheca	white-bracted spineflower	Dicots	PDPGN040Z1	59	4	None	None	G4T3	S3	1B.2	BLM_S-Sensitive,	Coastal scrub, Mojavean desert

											SB_RSABG-Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture, USFS_S-Sensitive	scrub, Pinon & juniper woodlands
Cicindela tranquebarica viridissima	greenest tiger beetle	Insects	IICOL02201	1	1	None	None	G5T1	S1	null	null	Riparian woodland
Cladium californicum	California saw-grass	Monocots	PMCYP04010	13	1	None	None	G4	S2	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Alkali marsh, Freshwater marsh, Meadow & seep, Wetland
Claytonia peirsonii ssp. peirsonii	Peirson's spring beauty	Dicots	PDPOR03121	9	2	None	None	G2G3T2	S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Subalpine coniferous forest, Upper montane coniferous forest
Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	Marsh	CTT52410CA	60	1	None	None	G3	S2.1	null	null	Marsh & swamp, Wetland
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Birds	ABNRB02022	156	4	Threatened	Endangered	G5T2T3	S1	null	BLM_S-Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Riparian forest
Coleonyx variegatus abbotti	San Diego banded gecko	Reptiles	ARACD01031	8	1	None	None	G5T3T4	S1S2	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	1	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Meadow & seep
Crotalus ruber	red-diamond rattlesnake	Reptiles	ARADE02090	192	3	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Mojavean desert scrub, Sonoran desert scrub
Diplectrona californica	California diplectronan caddisfly	Insects	IITRI23010	1	1	None	None	G1G2	S1S2	null	null	Aquatic
Dipodomys merriami parvus	San Bernardino kangaroo rat	Mammals	AMAFD03143	81	37	Endangered	Candidate Endangered	G5T1	S1	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Dipodomys stephensi	Stephens' kangaroo rat	Mammals	AMAFD03100	220	4	Endangered	Threatened	G2	S2	null	IUCN_EN-Endangered	Coastal scrub, Valley & foothill grassland
Dodecahema leptoceras	slender-horned spineflower	Dicots	PDPGN0V010	41	5	Endangered	Endangered	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub
Dudleya multicaulis	many-stemmed dudleya	Dicots	PDCRA040H0	154	4	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	180	3	None	None	G5	S3S4	null	BLM_S-Sensitive,	Cismontane woodland,

											CDFW_FP-Fully Protected, IUCN_LC-Least Concern	Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland
Empidonax traillii extimus	southwestern willow flycatcher	Birds	ABPAE33043	70	3	Endangered	Endangered	G5T2	S1	null	NABCI_RWL-Red Watch List	Riparian woodland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1385	3	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Dicots	PDPLM03035	31	9	Endangered	Endangered	G4T1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub
Eriogonum microthecum var. johnstonii	Johnston's buckwheat	Dicots	PDPGN083W5	7	2	None	None	G5T2	S2	1B.3	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Limestone, Subalpine coniferous forest, Upper montane coniferous forest
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	6	None	None	G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, WBWG_H-High Priority	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Gila orcuttii	arroyo chub	Fish	AFCJB13120	49	2	None	None	G2	S2	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Horkelia cuneata var. puberula	mesa horkelia	Dicots	PDROS0W045	103	10	None	None	G4T1	S1	1B.1	USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Icteria virens	yellow-breasted chat	Birds	ABPBX24010	100	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Lasiurus xanthinus	western yellow bat	Mammals	AMACC05070	58	5	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Desert wash
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	1	None	Threatened	G3G4T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland

Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Dicots	PDBRA1M114	142	8	None	None	G5T3	S3	4.3	null	Chaparral, Coastal scrub
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Mammals	AMAEB03051	103	4	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Lilium parryi	lemon lily	Monocots	PMLIL1A0J0	160	2	None	None	G3	S3	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Lower montane coniferous forest, Meadow & seep, Riparian forest, Upper montane coniferous forest, Wetland
Linanthus concinnus	San Gabriel linanthus	Dicots	PDPLM090D0	43	4	None	None	G2	S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest
Lycium parishii	Parish's desert-thorn	Dicots	PDSOL0G0D0	21	1	None	None	G4	S1	2B.3	null	Coastal scrub, Sonoran desert scrub
Malacothamnus parishii	Parish's bush-mallow	Dicots	PDMAL0Q0C0	1	1	None	None	GXQ	SX	1A	null	Chaparral, Coastal scrub
Monardella australis ssp. jokerstii	Jokerst's monardella	Dicots	PDLAM18112	3	2	None	None	G4T1?	S1?	1B.1	USFS_S-Sensitive	Chaparral, Lower montane coniferous forest
Monardella pringlei	Pringle's monardella	Dicots	PDLAM180J0	2	1	None	None	GX	SX	1A	null	Coastal scrub
Muhlenbergia californica	California muhly	Monocots	PMPOA480A0	5	1	None	None	G4	S4	4.3	null	Chaparral, Coastal scrub, Lower montane coniferous forest, Meadow & seep
Muhlenbergia utilis	aparejo grass	Monocots	PMPOA481X0	14	1	None	None	G4	S2S3	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Marsh & swamp, Meadow & seep, Ultramafic
Navarretia prostrata	prostrate vernal pool navarretia	Dicots	PDPLM0C0Q0	60	1	None	None	G2	S2	1B.2	null	Coastal scrub, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Neotoma lepida intermedia	San Diego desert woodrat	Mammals	AMAFF08041	132	5	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	2	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Joshua tree woodland, Pinon & juniper woodlands, Riparian scrub, Sonoran desert scrub
Nyctinomops macrotis	big free-tailed bat	Mammals	AMACD04020	32	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_MH-Medium-High Priority	null
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Fish	AFCHA0209J	20	1	Endangered	None	G5T1Q	S1	null	AFS_EN-Endangered	Aquatic, South coast flowing waters
Opuntia basilaris var. brachyclada	short-joint beavertail	Dicots	PDCAC0D053	199	1	None	None	G5T3	S3	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Joshua tree woodland, Mojavean desert scrub, Pinon & juniper woodlands

Oreonana vestita	woolly mountain-parsley	Dicots	PDAPI1G030	55	6	None	None	G3	S3	1B.3	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest
Ovis canadensis nelsoni	desert bighorn sheep	Mammals	AMALE04013	46	1	None	None	G4T4	S3	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, USFS_S-Sensitive	Alpine, Alpine dwarf scrub, Chaparral, Chenopod scrub, Great Basin scrub, Mojavean desert scrub, Montane dwarf scrub, Pinon & juniper woodlands, Riparian woodland, Sonoran desert scrub
Perognathus longimembris brevinasus	Los Angeles pocket mouse	Mammals	AMAFD01041	70	6	None	None	G5T1T2	S1S2	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Phacelia stellaris	Brand's star phacelia	Dicots	PDHYD0C510	15	1	None	None	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes, Coastal scrub
Phrynosoma blainvillii	coast horned lizard	Reptiles	ARACF12100	784	17	None	None	G3G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland
Polioptila californica californica	coastal California gnatcatcher	Birds	ABPBJ08081	846	31	Threatened	None	G4G5T2Q	S2	null	CDFW_SSC-Species of Special Concern, NABCI_YWL-Yellow Watch List	Coastal bluff scrub, Coastal scrub
Pseudognaphalium leucocephalum	white rabbit-tobacco	Dicots	PDAST440C0	62	3	None	None	G4	S2	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland
Rana muscosa	southern mountain yellow-legged frog	Amphibians	AAABH01330	186	4	Endangered	Endangered	G1	S1	null	CDFW_WL-Watch List, IUCN_EN-Endangered, USFS_S-Sensitive	Aquatic
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Insects	IIDIP05021	36	18	Endangered	None	G1T1	S1	null	null	Interior dunes
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	Fish	AFCJB3705K	13	2	None	None	G5T1	S1	null	AFS_TH-Threatened, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub	Scrub	CTT32720CA	30	7	None	None	G1	S1.1	null	null	Coastal scrub
Sagittaria sanfordii	Sanford's arrowhead	Monocots	PMALI040Q0	126	1	None	None	G3	S3	1B.2	BLM_S-Sensitive	Marsh & swamp, Wetland
Senecio aphanactis	chaparral ragwort	Dicots	PDAST8H060	98	1	None	None	G3	S2	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub
Setophaga petechia	yellow warbler	Birds	ABPBX03010	78	1	None	None	G5	S3S4	null	CDFW_SSC-Species of Special	Riparian forest, Riparian scrub,

											Concern, USFWS_BCC-Birds of Conservation Concern	Riparian woodland
Sidalcea neomexicana	salt spring checkerbloom	Dicots	PDMAL110J0	30	3	None	None	G4	S2	2B.2	USFS_S-Sensitive	Alkali playa, Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Wetland
Southern California Arroyo Chub/Santa Ana Sucker Stream	Southern California Arroyo Chub/Santa Ana Sucker Stream	Inland Waters	CARE2330CA	4	1	None	None	GNR	SNR	null	null	null
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	Riparian	CTT61330CA	111	3	None	None	G3	S3.2	null	null	Riparian forest
Southern Riparian Forest	Southern Riparian Forest	Riparian	CTT61300CA	20	1	None	None	G4	S4	null	null	Riparian forest
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	Riparian	CTT62400CA	230	10	None	None	G4	S4	null	null	Riparian woodland
Southern Willow Scrub	Southern Willow Scrub	Riparian	CTT63320CA	45	1	None	None	G3	S2.1	null	null	Riparian scrub
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1213	6	None	None	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Sphenopholis obtusata	prairie wedge grass	Monocots	PMPOA5T030	19	1	None	None	G5	S2	2B.2	null	Cismontane woodland, Meadow & seep, Wetland
Streptanthus bernardinus	Laguna Mountains jewelflower	Dicots	PDBRA2G060	22	2	None	None	G3G4	S3S4	4.3	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest
Symphyotrichum defoliatum	San Bernardino aster	Dicots	PDASTE80C0	102	5	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Valley & foothill grassland
Thamnophis hammondii	two-striped gartersnake	Reptiles	ARADB36160	184	2	None	None	G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Marsh & swamp, Riparian scrub, Riparian woodland, Wetland
Thysanocarpus rigidus	rigid fringepod	Dicots	PDBRA2Q070	5	1	None	None	G1G2	S1	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Pinon & juniper woodlands
Viola pinetorum ssp. grisea	grey-leaved violet	Dicots	PDVIO04431	90	1	None	None	G4G5T3	S3	1B.2	null	Meadow & seep, Subalpine coniferous forest, Upper montane coniferous forest
Vireo bellii pusillus	least Bell's vireo	Birds	ABPBW01114	503	22	Endangered	Endangered	G5T2	S2	null	IUCN_NT-Near Threatened,	Riparian forest, Riparian scrub,

											NABCI_YWL-Yellow Watch List	Riparian woodland

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: January 07, 2020
Consultation Code: 08ECAR00-2020-SLI-0427
Event Code: 08ECAR00-2020-E-01019
Project Name: OBMP PEIR Update MZ2

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2020-SLI-0427

Event Code: 08ECAR00-2020-E-01019

Project Name: OBMP PEIR Update MZ2

Project Type: WATER SUPPLY / DELIVERY

Project Description: Optimum Basin Management Plan PEIR Update - MZ2

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/34.037629519000035N117.60389695221778W

Counties: Riverside, CA | San Bernardino, CA

Endangered Species Act Species

There is a total of 15 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2060	Endangered
Stephens' Kangaroo Rat *Dipodomys stephensi (incl. D. cascus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad *Anaxyrus californicus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3762	Endangered
Mountain Yellow-legged Frog *Rana muscosa* Population: Southern California DPS There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8037	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae* Population: 3 CA river basins There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3785	Threatened

Insects

NAME	STATUS
Delhi Sands Flower-loving Fly *Rhaphiomidas terminatus abdominalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1540	Endangered

Flowering Plants

NAME	STATUS
Braunton's Milk-vetch *Astragalus brauntonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5674	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
Santa Ana River Woolly-star *Eriastrum densifolium ssp. sanctorum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6575	Endangered
Slender-horned Spineflower *Dodecahema leptoceras* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4007	Endangered
Thread-leaved Brodiaea *Brodiaea filifolia* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

There are 4 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Least Bell's Vireo *Vireo bellii pusillus* https://ecos.fws.gov/ecp/species/5945#crithab	Final
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* https://ecos.fws.gov/ecp/species/2060#crithab	Final
Southwestern Willow Flycatcher *Empidonax traillii extimus* https://ecos.fws.gov/ecp/species/6749#crithab	Final
Yellow-billed Cuckoo *Coccyzus americanus* For information on why this critical habitat appears for your project, even though Yellow-billed Cuckoo is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/3911#crithab	Proposed

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

Management Zone 3
CNDDB and IPaC Lists

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

OBMPU Management Zone 3

Query Summary:
Quad IS (Corona North (3311785) OR Guasti (3411715) OR Fontana (3411714) OR Devore (3411724))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Abronia villosa var. aurita	chaparral sand-verbena	Dicots	PDNYC010P1	98	1	None	None	G5T2?	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert dunes
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	5	None	Threatened	G2G3	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Birds	ABPBX91091	235	2	None	None	G5T3	S3	null	CDFW_WL-Watch List	Chaparral, Coastal scrub
Ambrosia monogyra	singlewhorl burrobrush	Dicots	PDAST50010	30	1	None	None	G5	S2	2B.2	null	Chaparral, Sonoran desert scrub
Anniella stebbinsi	southern California legless lizard	Reptiles	ARACC01060	417	19	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Coastal dunes, Coastal scrub
Arenaria paludicola	marsh sandwort	Dicots	PDCAR040L0	16	1	Endangered	Endangered	G1	S1	1B.1	SB_SBBG-Santa Barbara Botanic Garden	Freshwater marsh, Marsh & swamp, Wetland
Arizona elegans occidentalis	California glossy snake	Reptiles	ARADB01017	260	8	None	None	G5T2	S2	null	CDFW_SSC-Species of Special Concern	null
Artemisiospiza belli belli	Bell's sage sparrow	Birds	ABPBX97021	61	2	None	None	G5T2T3	S3	null	CDFW_WL-Watch List, USFWS_BCC-Birds of Conservation Concern	Chaparral, Coastal scrub
Aspidoscelis hyperythra	orange-throated whiptail	Reptiles	ARACJ02060	369	3	None	None	G5	S2S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Athene cunicularia	burrowing owl	Birds	ABNSB10010	1989	34	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland

											Conservation Concern	
Batrachoseps gabrieli	San Gabriel slender salamander	Amphibians	AAAAD02110	8	1	None	None	G2G3	S2S3	null	IUCN_DD-Data Deficient, USFS_S-Sensitive	Talus slope
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	234	5	None	Candidate Endangered	G3G4	S1S2	null	null	null
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2518	1	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
Calochortus plummerae	Plummer's mariposa-lily	Monocots	PMLIL0D150	230	16	None	None	G4	S4	4.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley & foothill grassland
Catostomus santaanae	Santa Ana sucker	Fish	AFCJC02190	28	5	Threatened	None	G1	S1	null	AFS_TH-Threatened, IUCN_VU-Vulnerable	Aquatic, South coast flowing waters
Centromadia pungens ssp. laevis	smooth tarplant	Dicots	PDAST4R0R4	126	1	None	None	G3G4T2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Riparian woodland, Valley & foothill grassland, Wetland
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	Mammals	AMAFD05031	101	6	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	Mammals	AMAFD05032	79	1	None	None	G5T34	S3S4	null	CDFW_SSC-Species of Special Concern	Desert wash, Pinon & juniper woodlands, Sonoran desert scrub
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Dicots	PDSCR0J0C2	30	1	Endangered	Endangered	G4?T1	S1	1B.2	SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Marsh & swamp, Salt marsh, Wetland
Chorizanthe parryi var. parryi	Parry's spineflower	Dicots	PDPGN040J2	150	10	None	None	G3T2	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Chorizanthe xanti var. leucotheca	white-bracted spineflower	Dicots	PDPGN040Z1	59	4	None	None	G4T3	S3	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture, USFS_S-Sensitive	Coastal scrub, Mojavean desert scrub, Pinon & juniper woodlands
Cicindela tranquebarica viridissima	greenest tiger beetle	Insects	IICOL02201	1	1	None	None	G5T1	S1	null	null	Riparian woodland
Cladium californicum	California saw-grass	Monocots	PMCYP04010	13	1	None	None	G4	S2	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden,	Alkali marsh, Freshwater marsh, Meadow & seep, Wetland

											USFS_S-Sensitive	
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Birds	ABNRB02022	156	2	Threatened	Endangered	G5T2T3	S1	null	BLM_S-Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Riparian forest
Coleonyx variegatus abbotti	San Diego banded gecko	Reptiles	ARACD01031	8	1	None	None	G5T3T4	S1S2	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	1	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Meadow & seep
Crotalus ruber	red-diamond rattlesnake	Reptiles	ARADE02090	192	1	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Mojavean desert scrub, Sonoran desert scrub
Dipodomys merriami parvus	San Bernardino kangaroo rat	Mammals	AMAFD03143	81	29	Endangered	Candidate Endangered	G5T1	S1	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Dipodomys stephensi	Stephens' kangaroo rat	Mammals	AMAFD03100	220	4	Endangered	Threatened	G2	S2	null	IUCN_EN-Endangered	Coastal scrub, Valley & foothill grassland
Dodecahema leptoceras	slender-horned spineflower	Dicots	PDPGN0V010	41	4	Endangered	Endangered	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub
Dudleya multicaulis	many-stemmed dudleya	Dicots	PDCRA040H0	154	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Empidonax traillii extimus	southwestern willow flycatcher	Birds	ABPAE33043	70	3	Endangered	Endangered	G5T2	S1	null	NABCI_RWL-Red Watch List	Riparian woodland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1385	1	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Dicots	PDPLM03035	31	8	Endangered	Endangered	G4T1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	2	None	None	G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of	Chaparral, Cismontane woodland, Coastal scrub,

											Special Concern, WBWG_H-High Priority	Valley & foothill grassland
Gila orcuttii	arroyo chub	Fish	AFCJB13120	49	2	None	None	G2	S2	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Horkelia cuneata var. puberula	mesa horkelia	Dicots	PDROS0W045	103	5	None	None	G4T1	S1	1B.1	USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Icteria virens	yellow-breasted chat	Birds	ABPBX24010	100	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Lasiurus xanthinus	western yellow bat	Mammals	AMACC05070	58	4	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Desert wash
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	1	None	Threatened	G3G4T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Dicots	PDBRA1M114	142	3	None	None	G5T3	S3	4.3	null	Chaparral, Coastal scrub
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Mammals	AMAEB03051	103	3	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Lilium parryi	lemon lily	Monocots	PMLIL1A0J0	160	1	None	None	G3	S3	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Lower montane coniferous forest, Meadow & seep, Riparian forest, Upper montane coniferous forest, Wetland
Lycium parishii	Parish's desert-thorn	Dicots	PDSOL0G0D0	21	1	None	None	G4	S1	2B.3	null	Coastal scrub, Sonoran desert scrub
Malacothamnus parishii	Parish's bush-mallow	Dicots	PDMAL0Q0C0	1	1	None	None	GXQ	SX	1A	null	Chaparral, Coastal scrub
Monardella pringlei	Pringle's monardella	Dicots	PDLAM180J0	2	1	None	None	GX	SX	1A	null	Coastal scrub
Muhlenbergia californica	California muhly	Monocots	PMPOA480A0	5	1	None	None	G4	S4	4.3	null	Chaparral, Coastal scrub, Lower montane coniferous forest, Meadow & seep
Muhlenbergia utilis	aparejo grass	Monocots	PMPOA481X0	14	1	None	None	G4	S2S3	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Marsh & swamp, Meadow & seep, Ultramafic
Navarretia prostrata	prostrate vernal pool navarretia	Dicots	PDPLM0C0Q0	60	1	None	None	G2	S2	1B.2	null	Coastal scrub, Meadow & seep, Valley & foothill grassland,

												Vernal pool, Wetland
Neotoma lepida intermedia	San Diego desert woodrat	Mammals	AMAFF08041	132	2	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	2	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Joshua tree woodland, Pinon & juniper woodlands, Riparian scrub, Sonoran desert scrub
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Fish	AFCHA0209J	20	1	Endangered	None	G5T1Q	S1	null	AFS_EN-Endangered	Aquatic, South coast flowing waters
Opuntia basilaris var. brachyclada	short-joint beavertail	Dicots	PDCAC0D053	199	1	None	None	G5T3	S3	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Joshua tree woodland, Mojavean desert scrub, Pinon & juniper woodlands
Perognathus longimembris brevinasus	Los Angeles pocket mouse	Mammals	AMAFD01041	70	5	None	None	G5T1T2	S1S2	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Phacelia stellaris	Brand's star phacelia	Dicots	PDHYD0C510	15	1	None	None	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes, Coastal scrub
Phrynosoma blainvillii	coast horned lizard	Reptiles	ARACF12100	784	14	None	None	G3G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland
Polioptila californica californica	coastal California gnatcatcher	Birds	ABPBJ08081	846	13	Threatened	None	G4G5T2Q	S2	null	CDFW_SSC-Species of Special Concern, NABCI_YWL-Yellow Watch List	Coastal bluff scrub, Coastal scrub
Pseudognaphalium leucocephalum	white rabbit-tobacco	Dicots	PDAST440C0	62	1	None	None	G4	S2	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland
Rana muscosa	southern mountain yellow-legged frog	Amphibians	AAABH01330	186	1	Endangered	Endangered	G1	S1	null	CDFW_WL-Watch List, IUCN_EN-Endangered, USFS_S-Sensitive	Aquatic
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Insects	IIDIP05021	36	18	Endangered	None	G1T1	S1	null	null	Interior dunes
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	Fish	AFCJB3705K	13	2	None	None	G5T1	S1	null	AFS_TH-Threatened, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub	Scrub	CTT32720CA	30	3	None	None	G1	S1.1	null	null	Coastal scrub
Senecio aphanactis	chaparral ragwort	Dicots	PDAST8H060	98	1	None	None	G3	S2	2B.2	SB_RSABG-Rancho Santa	Chaparral, Cismontane

											Ana Botanic Garden	woodland, Coastal scrub
Setophaga petechia	yellow warbler	Birds	ABPBX03010	78	1	None	None	G5	S3S4	null	CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Riparian forest, Riparian scrub, Riparian woodland
Southern California Arroyo Chub/Santa Ana Sucker Stream	Southern California Arroyo Chub/Santa Ana Sucker Stream	Inland Waters	CARE2330CA	4	1	None	None	GNR	SNR	null	null	null
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	Riparian	CTT61330CA	111	1	None	None	G3	S3.2	null	null	Riparian forest
Southern Riparian Forest	Southern Riparian Forest	Riparian	CTT61300CA	20	1	None	None	G4	S4	null	null	Riparian forest
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	Riparian	CTT62400CA	230	5	None	None	G4	S4	null	null	Riparian woodland
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1213	1	None	None	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Sphenopholis obtusata	prairie wedge grass	Monocots	PMPOA5T030	19	1	None	None	G5	S2	2B.2	null	Cismontane woodland, Meadow & seep, Wetland
Streptanthus bernardinus	Laguna Mountains jewelflower	Dicots	PDBRA2G060	22	1	None	None	G3G4	S3S4	4.3	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest
Symphyotrichum defoliatum	San Bernardino aster	Dicots	PDASTE80C0	102	2	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Valley & foothill grassland
Vireo bellii pusillus	least Bell's vireo	Birds	ABPBW01114	503	10	Endangered	Endangered	G5T2	S2	null	IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List	Riparian forest, Riparian scrub, Riparian woodland

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: January 07, 2020
Consultation Code: 08ECAR00-2020-SLI-0428
Event Code: 08ECAR00-2020-E-01022
Project Name: OBMP PEIR Update MZ3

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2020-SLI-0428

Event Code: 08ECAR00-2020-E-01022

Project Name: OBMP PEIR Update MZ3

Project Type: WATER SUPPLY / DELIVERY

Project Description: Optimum Basin Management Plan PEIR Update - MZ3

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/34.039474964500045N117.52218800533493W

Counties: Riverside, CA | San Bernardino, CA

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2060	Endangered
Stephens' Kangaroo Rat *Dipodomys stephensi (incl. D. cascus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad *Anaxyrus californicus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3762	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae* Population: 3 CA river basins There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3785	Threatened

Insects

NAME	STATUS
Delhi Sands Flower-loving Fly *Rhaphiomidas terminatus abdominalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1540	Endangered

Flowering Plants

NAME	STATUS
Gambel's Watercress *Rorippa gambellii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4201	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
Santa Ana River Woolly-star *Eriastrum densifolium ssp. sanctorum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6575	Endangered
Slender-horned Spineflower *Dodecahema leptoceras* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4007	Endangered
Thread-leaved Brodiaea *Brodiaea filifolia* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* https://ecos.fws.gov/ecp/species/8178#crithab	Final

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

Management Zone 4
CNDDB and IPaC Lists

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

OBMPU Management Zone 4

Query Summary:
Quad IS (Guasti (3411715) OR Fontana (3411714) OR Riverside West (3311784) OR Corona North (3311785))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Abronia villosa var. aurita	chaparral sand-verbena	Dicots	PDNYC010P1	98	1	None	None	G5T2?	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert dunes
Accipiter cooperii	Cooper's hawk	Birds	ABNKC12040	118	1	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	5	None	Threatened	G2G3	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Birds	ABPBX91091	235	4	None	None	G5T3	S3	null	CDFW_WL-Watch List	Chaparral, Coastal scrub
Ambrosia pumila	San Diego ambrosia	Dicots	PDAST0C0M0	59	1	Endangered	None	G1	S1	1B.1	null	Chaparral, Coastal scrub, Valley & foothill grassland
Anniella stebbinsi	southern California legless lizard	Reptiles	ARACC01060	417	20	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Coastal dunes, Coastal scrub
Arenaria paludicola	marsh sandwort	Dicots	PDCAR040L0	16	1	Endangered	Endangered	G1	S1	1B.1	SB_SBBG-Santa Barbara Botanic Garden	Freshwater marsh, Marsh & swamp, Wetland
Arizona elegans occidentalis	California glossy snake	Reptiles	ARADB01017	260	5	None	None	G5T2	S2	null	CDFW_SSC-Species of Special Concern	null
Artemisiospiza belli belli	Bell's sage sparrow	Birds	ABPBX97021	61	2	None	None	G5T2T3	S3	null	CDFW_WL-Watch List, USFWS_BCC-Birds of Conservation Concern	Chaparral, Coastal scrub
Aspidoscelis hyperythra	orange-throated whiptail	Reptiles	ARACJ02060	369	7	None	None	G5	S2S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Aspidoscelis tigris stejnegeri	coastal whiptail	Reptiles	ARACJ02143	148	1	None	None	G5T5	S3	null	CDFW_SSC-Species of	null

											Special Concern	
Athene cunicularia	burrowing owl	Birds	ABNSB10010	1989	34	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	234	4	None	Candidate Endangered	G3G4	S1S2	null	null	null
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2518	2	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
Calochortus plummerae	Plummer's mariposa-lily	Monocots	PMLIL0D150	230	2	None	None	G4	S4	4.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley & foothill grassland
Carolella busckana	Busck's gallmoth	Insects	IILEM2X090	4	1	None	None	G1G3	SH	null	null	Coastal dunes, Coastal scrub
Catostomus santaanae	Santa Ana sucker	Fish	AFCJC02190	28	7	Threatened	None	G1	S1	null	AFS_TH-Threatened, IUCN_VU-Vulnerable	Aquatic, South coast flowing waters
Centromadia pungens ssp. laevis	smooth tarplant	Dicots	PDAST4R0R4	126	1	None	None	G3G4T2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Riparian woodland, Valley & foothill grassland, Wetland
Ceratochrysis longimala	Desert cuckoo wasp	Insects	IIHYM71040	2	1	None	None	G1	S1	null	null	null
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	Mammals	AMAFD05031	101	2	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Dicots	PDSCR0J0C2	30	1	Endangered	Endangered	G4?T1	S1	1B.2	SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Marsh & swamp, Salt marsh, Wetland
Chorizanthe parryi var. parryi	Parry's spineflower	Dicots	PDPGN040J2	150	2	None	None	G3T2	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Cicindela tranquebarica viridissima	greenest tiger beetle	Insects	IICOL02201	1	1	None	None	G5T1	S1	null	null	Riparian woodland
Cladium californicum	California saw-grass	Monocots	PMCYP04010	13	1	None	None	G4	S2	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Alkali marsh, Freshwater marsh, Meadow & seep, Wetland
Coccyzus	western	Birds	ABNRB02022	156	4	Threatened	Endangered	G5T2T3	S1	null	BLM_S-	Riparian forest

americanus occidentalis	yellow-billed cuckoo										Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	
Coleonyx variegatus abbotti	San Diego banded gecko	Reptiles	ARACD01031	8	1	None	None	G5T3T4	S1S2	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	1	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Meadow & seep
Crotalus ruber	red-diamond rattlesnake	Reptiles	ARADE02090	192	4	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Mojavean desert scrub, Sonoran desert scrub
Dipodomys merriami parvus	San Bernardino kangaroo rat	Mammals	AMAFD03143	81	5	Endangered	Candidate Endangered	G5T1	S1	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Dipodomys stephensi	Stephens' kangaroo rat	Mammals	AMAFD03100	220	10	Endangered	Threatened	G2	S2	null	IUCN_EN-Endangered	Coastal scrub, Valley & foothill grassland
Dudleya multicaulis	many-stemmed dudleya	Dicots	PDCRA040H0	154	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Empidonax traillii extimus	southwestern willow flycatcher	Birds	ABPAE33043	70	3	Endangered	Endangered	G5T2	S1	null	NABCI_RWL-Red Watch List	Riparian woodland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1385	1	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Dicots	PDPLM03035	31	4	Endangered	Endangered	G4T1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	3	None	None	G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, WBWG_H-High Priority	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Euphydryas editha quino	quino checkerspot butterfly	Insects	IILEPK405L	127	1	Endangered	None	G5T1T2	S1S2	null	XERCES_CI-Critically Imperiled	Chaparral, Coastal scrub

Gila orcuttii	arroyo chub	Fish	AFCJB13120	49	4	None	None	G2	S2	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Horkelia cuneata var. puberula	mesa horkelia	Dicots	PDROS0W045	103	4	None	None	G4T1	S1	1B.1	USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Icteria virens	yellow-breasted chat	Birds	ABPBX24010	100	2	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Lasiurus xanthinus	western yellow bat	Mammals	AMACC05070	58	5	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Desert wash
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Dicots	PDAST5L0A1	111	1	None	None	G4T2	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Alkali playa, Marsh & swamp, Salt marsh, Vernal pool, Wetland
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	2	None	Threatened	G3G4T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Dicots	PDBRA1M114	142	3	None	None	G5T3	S3	4.3	null	Chaparral, Coastal scrub
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Mammals	AMAEB03051	103	3	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Lycium parishii	Parish's desert-thorn	Dicots	PDSOL0G0D0	21	1	None	None	G4	S1	2B.3	null	Coastal scrub, Sonoran desert scrub
Malacothamnus parishii	Parish's bush-mallow	Dicots	PDMAL0Q0C0	1	1	None	None	GXQ	SX	1A	null	Chaparral, Coastal scrub
Monardella pringlei	Pringle's monardella	Dicots	PDLAM180J0	2	1	None	None	GX	SX	1A	null	Coastal scrub
Muhlenbergia californica	California muhly	Monocots	PMPOA480A0	5	1	None	None	G4	S4	4.3	null	Chaparral, Coastal scrub, Lower montane coniferous forest, Meadow & seep
Muhlenbergia utilis	aparejo grass	Monocots	PMPOA481X0	14	1	None	None	G4	S2S3	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Marsh & swamp, Meadow & seep, Ultramafic
Navarretia prostrata	prostrate vernal pool navarretia	Dicots	PDPLM0C0Q0	60	1	None	None	G2	S2	1B.2	null	Coastal scrub, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Neotoma lepida	San Diego	Mammals	AMAFF08041	132	2	None	None	G5T3T4	S3S4	null	CDFW_SSC-	Coastal scrub

intermedia	desert woodrat										Species of Special Concern	
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	3	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_M-Medium Priority	Joshua tree woodland, Pinon & juniper woodlands, Riparian scrub, Sonoran desert scrub
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Fish	AFCHA0209J	20	1	Endangered	None	G5T1Q	S1	null	AFS_EN-Endangered	Aquatic, South coast flowing waters
Perognathus longimembris brevinasus	Los Angeles pocket mouse	Mammals	AMAFD01041	70	4	None	None	G5T1T2	S1S2	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Phacelia stellaris	Brand's star phacelia	Dicots	PDHYD0C510	15	2	None	None	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes, Coastal scrub
Phrynosoma blainvillii	coast horned lizard	Reptiles	ARACF12100	784	8	None	None	G3G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland
Polioptila californica californica	coastal California gnatcatcher	Birds	ABPBJ08081	846	18	Threatened	None	G4G5T2Q	S2	null	CDFW_SSC-Species of Special Concern, NABCI_YWL-Yellow Watch List	Coastal bluff scrub, Coastal scrub
Pseudognaphalium leucocephalum	white rabbit-tobacco	Dicots	PDAST440C0	62	1	None	None	G4	S2	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Insects	IIDIP05021	36	18	Endangered	None	G1T1	S1	null	null	Interior dunes
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	Fish	AFCJB3705K	13	1	None	None	G5T1	S1	null	AFS_TH-Threatened, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Riversidian Alluvial Fan Sage Scrub	Riversidian Alluvial Fan Sage Scrub	Scrub	CTT32720CA	30	1	None	None	G1	S1.1	null	null	Coastal scrub
Senecio aphanactis	chaparral ragwort	Dicots	PDAST8H060	98	1	None	None	G3	S2	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub
Setophaga petechia	yellow warbler	Birds	ABPBX03010	78	2	None	None	G5	S3S4	null	CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Riparian forest, Riparian scrub, Riparian woodland
Southern California Arroyo Chub/Santa Ana Sucker Stream	Southern California Arroyo Chub/Santa Ana Sucker Stream	Inland Waters	CARE2330CA	4	1	None	None	GNR	SNR	null	null	null
Southern Cottonwood Willow	Southern Cottonwood	Riparian	CTT61330CA	111	4	None	None	G3	S3.2	null	null	Riparian forest

Riparian Forest	Willow Riparian Forest											
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	Riparian	CTT62400CA	230	1	None	None	G4	S4	null	null	Riparian woodland
Southern Willow Scrub	Southern Willow Scrub	Riparian	CTT63320CA	45	1	None	None	G3	S2.1	null	null	Riparian scrub
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1213	1	None	None	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Sphenopholis obtusata	prairie wedge grass	Monocots	PMPOA5T030	19	1	None	None	G5	S2	2B.2	null	Cismontane woodland, Meadow & seep, Wetland
Spinus lawrencei	Lawrence's goldfinch	Birds	ABPBY06100	4	1	None	None	G3G4	S3S4	null	IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Chaparral, Pinon & juniper woodlands, Riparian woodland
Symphyotrichum defoliatum	San Bernardino aster	Dicots	PDASTE80C0	102	2	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Valley & foothill grassland
Vireo bellii pusillus	least Bell's vireo	Birds	ABPBW01114	503	14	Endangered	Endangered	G5T2	S2	null	IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List	Riparian forest, Riparian scrub, Riparian woodland

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: January 07, 2020
Consultation Code: 08ECAR00-2020-SLI-0429
Event Code: 08ECAR00-2020-E-01024
Project Name: OBMP PEIR Update MZ4

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2020-SLI-0429

Event Code: 08ECAR00-2020-E-01024

Project Name: OBMP PEIR Update MZ4

Project Type: WATER SUPPLY / DELIVERY

Project Description: Optimum Basin Management Plan PEIR Update - MZ4

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/34.003541719000054N117.48346827371635W

Counties: Riverside, CA

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2060	Endangered
Stephens' Kangaroo Rat *Dipodomys stephensi (incl. D. cascus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae* Population: 3 CA river basins There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3785	Threatened

Insects

NAME	STATUS
Delhi Sands Flower-loving Fly *Rhaphiomidas terminatus abdominalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1540	Endangered

Flowering Plants

NAME	STATUS
Nevin's Barberry *Berberis nevinii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8025	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
Santa Ana River Woolly-star *Eriastrum densifolium ssp. sanctorum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6575	Endangered
Thread-leaved Brodiaea *Brodiaea filifolia* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* https://ecos.fws.gov/ecp/species/8178#crithab	Final

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

Management Zone 5
CNDDB and IPaC Lists

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

OBMPU Management Zone 5

Query Summary:
Quad IS (Corona North (3311785) OR Riverside West (3311784) OR Prado Dam (3311786))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Abronia villosa var. aurita	chaparral sand-verbena	Dicots	PDNYC010P1	98	2	None	None	G5T2?	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Desert dunes
Accipiter cooperii	Cooper's hawk	Birds	ABNKC12040	118	2	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	7	None	Threatened	G2G3	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Birds	ABPBX91091	235	5	None	None	G5T3	S3	null	CDFW_WL-Watch List	Chaparral, Coastal scrub
Ambrosia pumila	San Diego ambrosia	Dicots	PDAST0C0M0	59	1	Endangered	None	G1	S1	1B.1	null	Chaparral, Coastal scrub, Valley & foothill grassland
Ammodramus savannarum	grasshopper sparrow	Birds	ABPBXA0020	27	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Valley & foothill grassland
Anniella stebbinsi	southern California legless lizard	Reptiles	ARACC01060	417	11	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Coastal dunes, Coastal scrub
Aquila chrysaetos	golden eagle	Birds	ABNKC22010	321	3	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland
Arizona elegans	California	Reptiles	ARADB01017	260	2	None	None	G5T2	S2	null	CDFW_SSC-	null

occidentalis	glossy snake										Species of Special Concern	
Artemisiospiza belli belli	Bell's sage sparrow	Birds	ABPBX97021	61	2	None	None	G5T2T3	S3	null	CDFW_WL-Watch List, USFWS_BCC-Birds of Conservation Concern	Chaparral, Coastal scrub
Asio otus	long-eared owl	Birds	ABNSB13010	48	1	None	None	G5	S3?	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Cismontane woodland, Great Basin scrub, Riparian forest, Riparian woodland, Upper montane coniferous forest
Aspidoscelis hyperythra	orange-throated whiptail	Reptiles	ARACJ02060	369	9	None	None	G5	S2S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Aspidoscelis tigris stejnegeri	coastal whiptail	Reptiles	ARACJ02143	148	1	None	None	G5T5	S3	null	CDFW_SSC-Species of Special Concern	null
Astragalus brauntonii	Braunton's milk-vetch	Dicots	PDFAB0F1G0	44	1	Endangered	None	G2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Chaparral, Coastal scrub, Limestone, Valley & foothill grassland
Athene cunicularia	burrowing owl	Birds	ABNSB10010	1989	28	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Atriplex coulteri	Coulter's saltbush	Dicots	PDCHE040E0	121	1	None	None	G3	S1S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley & foothill grassland
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	234	2	None	Candidate Endangered	G3G4	S1S2	null	null	null
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2518	2	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
California Walnut Woodland	California Walnut Woodland	Woodland	CTT71210CA	76	9	None	None	G2	S2.1	null	null	Cismontane woodland
Calochortus weedii var. intermedius	intermediate mariposa-lily	Monocots	PMLIL0D1J1	140	4	None	None	G3G4T2	S2	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Calystegia felix	lucky morning-glory	Dicots	PDCON040P0	10	6	None	None	G1Q	S1	1B.1	null	Meadow & seep, Riparian scrub
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	Birds	ABPBG02095	156	1	None	None	G5T3Q	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Coastal scrub

Carolella busckana	Busck's gallmoth	Insects	IILEM2X090	4	1	None	None	G1G3	SH	null	null	Coastal dunes, Coastal scrub
Catostomus santaanae	Santa Ana sucker	Fish	AFCJC02190	28	7	Threatened	None	G1	S1	null	AFS_TH-Threatened, IUCN_VU-Vulnerable	Aquatic, South coast flowing waters
Centromadia pungens ssp. laevis	smooth tarplant	Dicots	PDAST4R0R4	126	2	None	None	G3G4T2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Riparian woodland, Valley & foothill grassland, Wetland
Ceratochrysis longimala	Desert cuckoo wasp	Insects	IIHYM71040	2	1	None	None	G1	S1	null	null	null
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Birds	ABNRB02022	156	6	Threatened	Endangered	G5T2T3	S1	null	BLM_S-Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Riparian forest
Coleonyx variegatus abbotti	San Diego banded gecko	Reptiles	ARACD01031	8	1	None	None	G5T3T4	S1S2	null	CDFW_SSC-Species of Special Concern	Chaparral, Coastal scrub
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	1	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Meadow & seep
Crotalus ruber	red-diamond rattlesnake	Reptiles	ARADE02090	192	6	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Mojavean desert scrub, Sonoran desert scrub
Dipodomys merriami parvus	San Bernardino kangaroo rat	Mammals	AMAFD03143	81	1	Endangered	Candidate Endangered	G5T1	S1	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Dipodomys stephensi	Stephens' kangaroo rat	Mammals	AMAFD03100	220	10	Endangered	Threatened	G2	S2	null	IUCN_EN-Endangered	Coastal scrub, Valley & foothill grassland
Dudleya multicaulis	many-stemmed dudleya	Dicots	PDCRA040H0	154	4	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Chaparral, Coastal scrub, Valley & foothill grassland
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	180	3	None	None	G5	S3S4	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern	Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland
Empidonax traillii extimus	southwestern willow flycatcher	Birds	ABPAE33043	70	3	Endangered	Endangered	G5T2	S1	null	NABCI_RWL-Red Watch List	Riparian woodland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1385	3	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San

												Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Dicots	PDPLM03035	31	3	Endangered	Endangered	G4T1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub
Eumops perotis californicus	western mastiff bat	Mammals	AMACD02011	296	3	None	None	G5T4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, WBWG_H-High Priority	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Euphydryas editha quino	quino checkerspot butterfly	Insects	IILEPK405L	127	1	Endangered	None	G5T1T2	S1S2	null	XERCES_CI-Critically Imperiled	Chaparral, Coastal scrub
Gila orcuttii	arroyo chub	Fish	AFCJB13120	49	3	None	None	G2	S2	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Icteria virens	yellow-breasted chat	Birds	ABPBX24010	100	2	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Lasiurus xanthinus	western yellow bat	Mammals	AMACC05070	58	3	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Desert wash
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Dicots	PDAST5L0A1	111	1	None	None	G4T2	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Alkali playa, Marsh & swamp, Salt marsh, Vernal pool, Wetland
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	2	None	Threatened	G3G4T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Dicots	PDBRA1M114	142	3	None	None	G5T3	S3	4.3	null	Chaparral, Coastal scrub
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Mammals	AMAEB03051	103	2	None	None	G5T3T4	S3S4	null	CDFW_SSC-Species of Special Concern	Coastal scrub
Monardella australis ssp. jokerstii	Jokerst's monardella	Dicots	PDLAM18112	3	1	None	None	G4T1?	S1?	1B.1	USFS_S-Sensitive	Chaparral, Lower montane coniferous forest
Nyctinomops femorosaccus	pocketed free-tailed bat	Mammals	AMACD04010	90	2	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern,	Joshua tree woodland, Pinon & juniper woodlands,

											IUCN_LC-Least Concern, WBWG_M-Medium Priority	Riparian scrub, Sonoran desert scrub
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Fish	AFCHA0209J	20	1	Endangered	None	G5T1Q	S1	null	AFS_EN-Endangered	Aquatic, South coast flowing waters
Phacelia stellaris	Brand's star phacelia	Dicots	PDHYD0C510	15	1	None	None	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes, Coastal scrub
Phrynosoma blainvillii	coast horned lizard	Reptiles	ARACF12100	784	3	None	None	G3G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland
Polioptila californica californica	coastal California gnatcatcher	Birds	ABPBJ08081	846	22	Threatened	None	G4G5T2Q	S2	null	CDFW_SSC-Species of Special Concern, NABCI_YWL-Yellow Watch List	Coastal bluff scrub, Coastal scrub
Pseudognaphalium leucocephalum	white rabbit-tobacco	Dicots	PDAST440C0	62	1	None	None	G4	S2	2B.2	null	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	Fish	AFCJB3705K	13	1	None	None	G5T1	S1	null	AFS_TH-Threatened, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Aquatic, South coast flowing waters
Setophaga petechia	yellow warbler	Birds	ABPBX03010	78	2	None	None	G5	S3S4	null	CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Riparian forest, Riparian scrub, Riparian woodland
Sidalcea neomexicana	salt spring checkerbloom	Dicots	PDMAL110J0	30	1	None	None	G4	S2	2B.2	USFS_S-Sensitive	Alkali playa, Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Wetland
Southern California Arroyo Chub/Santa Ana Sucker Stream	Southern California Arroyo Chub/Santa Ana Sucker Stream	Inland Waters	CARE2330CA	4	1	None	None	GNR	SNR	null	null	null
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	Riparian	CTT61330CA	111	6	None	None	G3	S3.2	null	null	Riparian forest
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	Riparian	CTT62400CA	230	5	None	None	G4	S4	null	null	Riparian woodland
Southern Willow Scrub	Southern Willow Scrub	Riparian	CTT63320CA	45	2	None	None	G3	S2.1	null	null	Riparian scrub
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1213	4	None	None	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of	Cismontane woodland, Coastal scrub, Valley & foothill

											Special Concern, IUCN_NT-Near Threatened	grassland, Vernal pool, Wetland
Spinus lawrencei	Lawrence's goldfinch	Birds	ABPBY06100	4	1	None	None	G3G4	S3S4	null	IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Chaparral, Pinon & juniper woodlands, Riparian woodland
Symphyotrichum defoliatum	San Bernardino aster	Dicots	PDASTE80C0	102	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Valley & foothill grassland
Vireo bellii pusillus	least Bell's vireo	Birds	ABPBW01114	503	26	Endangered	Endangered	G5T2	S2	null	IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List	Riparian forest, Riparian scrub, Riparian woodland

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
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In Reply Refer To: January 07, 2020
Consultation Code: 08ECAR00-2020-SLI-0430
Event Code: 08ECAR00-2020-E-01026
Project Name: OBMP PEIR Update MZ5

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2020-SLI-0430

Event Code: 08ECAR00-2020-E-01026

Project Name: OBMP PEIR Update MZ5

Project Type: WATER SUPPLY / DELIVERY

Project Description: Optimum Basin Management Plan PEIR Update - MZ5

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/33.949007230000035N117.5593827708134W

Counties: Riverside, CA | San Bernardino, CA

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Stephens' Kangaroo Rat *Dipodomys stephensi (incl. D. cascus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae* Population: 3 CA river basins There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3785	Threatened

Insects

NAME	STATUS
Delhi Sands Flower-loving Fly *Rhaphiomidas terminatus abdominalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1540	Endangered

Flowering Plants

NAME	STATUS
Nevin's Barberry *Berberis nevinii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8025	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
Santa Ana River Woolly-star *Eriastrum densifolium ssp. sanctorum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6575	Endangered
Thread-leaved Brodiaea *Brodiaea filifolia* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

There are 4 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Least Bell's Vireo *Vireo bellii pusillus* https://ecos.fws.gov/ecp/species/5945#crithab	Final
Santa Ana Sucker *Catostomus santaanae* https://ecos.fws.gov/ecp/species/3785#crithab	Final
Southwestern Willow Flycatcher *Empidonax traillii extimus*	Final

NAME STATUS

https://ecos.fws.gov/ecp/species/6749#crithab

Yellow-billed Cuckoo *Coccyzus americanus* Proposed

For information on why this critical habitat appears for your project, even though Yellow-billed Cuckoo is not on the list of potentially affected species at this location, contact the local field office.
https://ecos.fws.gov/ecp/species/3911#crithab

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

USFWS Critical Habitat
Overview


Legend
Google Earth

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

USFWS Critical Habitat
Management Zone 1


Legend
Google Earth

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

USFWS Critical Habitat
Management Zone 2


Legend
Google Earth

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

USFWS Critical Habitat
Management Zone 3


Legend

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

USFWS Critical Habitat
Management Zone 4


Legend
Google Earth

Program Natural Environment Study
Optimum Basin Management Program Update

Chino Basin Watermaster and Inland Empire Utilities Agency

USFWS Critical Habitat
Management Zone 5


Legend
Google Earth

HCP COVERED SPECIES

3.8.3 Covered Species Accounts

Slender-Horned Spineflower (*Dodecahema leptoceras*)

Current Status and Distribution

The slender-horned spineflower (*Dodecahema leptoceras*) is Federally listed as endangered, California listed as endangered, and is on the California Rare Plant Rank list. This species is found in 27 known extant occurrences throughout coastal foothill drainages of Riverside, San Bernardino, and Los Angeles Counties, ranging from the Temecula area northwestwards to Santa Clarita. One historic record was collected near Palm Springs (CNPS 2020, CCH 2014).

Within the Planning Area the known occurrences are concentrated east of San Bernardino along the Santa Ana River and along the southern portion of Cajon Creek. Smaller populations are known at the south end of the Planning Area near Lake Elsinore, at the western boundary of the Planning Area near Rancho Cucamonga, and near Yucaipa (ICF 2014).

Habitat Affinities

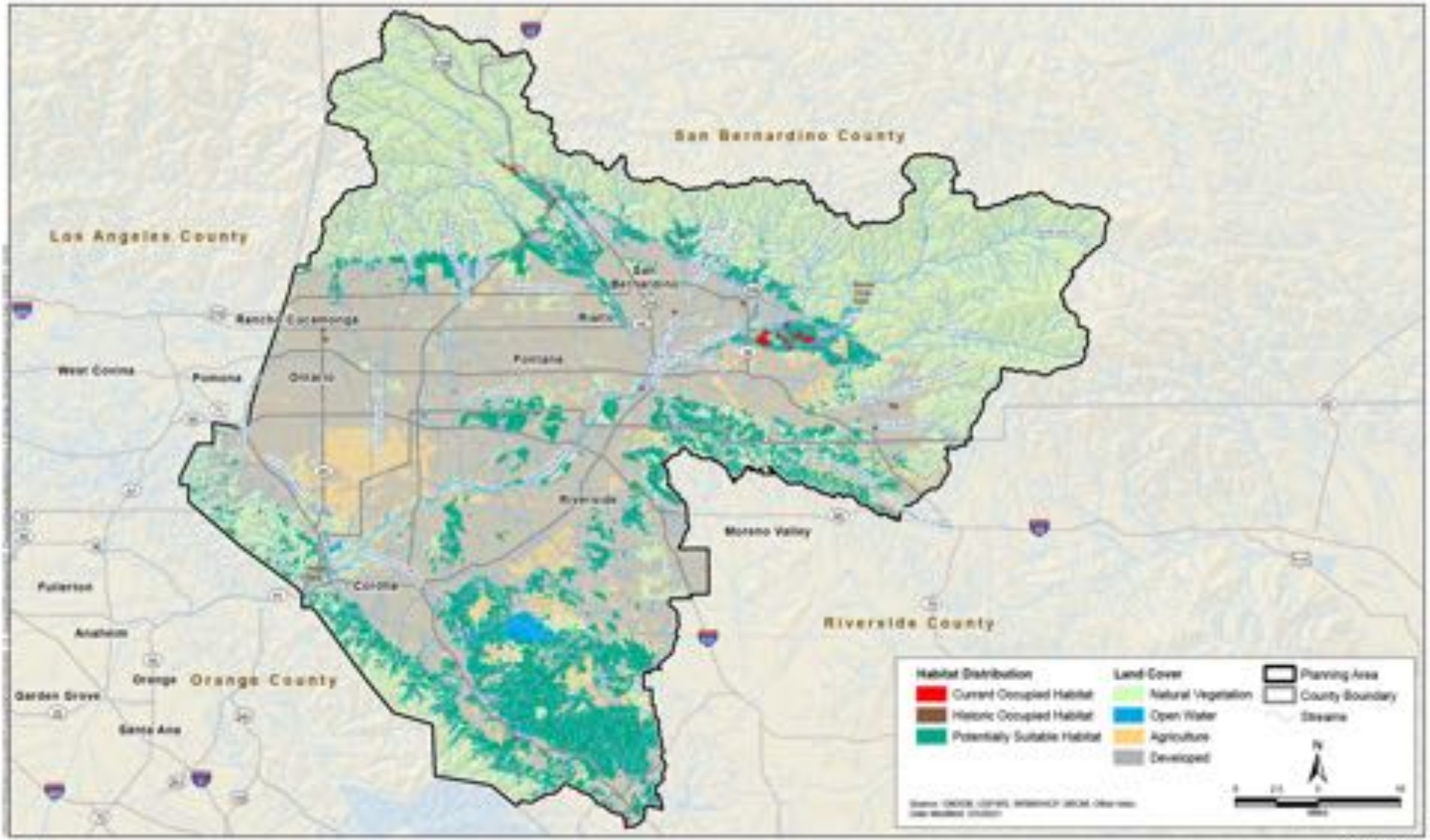
Slender-horned spineflower occurs on stable older alluvium away from active channels in areas with little flooding disturbance and infrequent surface flows between 656 and 2,493 feet in elevation (CNPS 2020). This species occurs in slightly acidic silt soil with low salinity, little organic matter, and low nutrient content, in silt-filled shallow depressions on relatively flat surfaces (Allen 1996). Its preferred habitat is transient in nature and a mid to late successional stage that requires disturbance to maintain over a larger scale. Some populations are known in denser woody habitats that are thought to arise from successional changes from past alluvial flow (USFWS 2010a).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of modeled slender-horned spineflower habitat and documented occurrences in the Planning Area are illustrated on Figure 3-26 and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat:

- **Land Cover**: California Chaparral (Chamise), California Coastal Scrub, California Coastal Scrub (Black Sage), California Coastal Scrub (Brittle Bush), California Coastal Scrub (Brittlebush), California Coastal Scrub (Bush Penstemon), California Coastal Scrub (Bush Poppy), California Coastal Scrub (California buckwheat), California Coastal Scrub (California Juniper), California Coastal Scrub (California sagebrush), California Coastal Scrub (Chamise), California Coastal Scrub (Deerweed), California Coastal Scrub (Laurel Sumac), California Coastal Scrub (Prickly Pear), California Coastal Scrub (Toyon), California Coastal Scrub (White Sage), California Coastal Scrub (Yerba Santa), Great Basin-Intermountain Xeric-Riparian Scrub, and North American Warm-Desert Xeric-Riparian Scrub; **AND**
- **Elevation**: 700–2,500 feet.



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-26
Slender-horned spineflower, *Dodecahema leptoceras*
Potential Habitat Distribution and Known Occurrence Records

Current Occupied Habitat (modeled)

- Current Occupied Habitat was modeled by including areas within a 100-foot buffer around known current occurrences within Potentially Suitable Habitat. This model category highlights the potentially suitable habitat where the species has been recently documented (post-2005). Where this category of modeled Current Occupied Habitat occurs, it replaces the Potentially Suitable Habitat or Historic Occupied Habitat (below) such that there is not overlap between the model categories.

Historic Occupied Habitat (modeled)

- Historic Occupied Habitat was modeled by including areas within a 100-foot buffer around known historic occurrences, outside of Current Occupied Habitat, within Potentially Suitable Habitat. This model category highlights the potentially suitable habitat where the species has been historically documented (pre-2005) but has not recently been documented. Where this category of modeled Historic Occupied Habitat occurs, it replaces the Potentially Suitable Habitat such that there is not overlap between the model categories.

Taxonomy and Genetics

This species was first described as *Centrostegia leptoceras* in 1870 and was then published as *Chorizanthe leptoceras* in 1877. The original name is the name under which the species was listed by State and Federal agencies. Taxonomists changed the name to the current name *Dodecahema leptoceras* in 1989 based on its morphological and phylogenetic distinctiveness (IPNI 2014, USFWS 2010a). Genetic diversity is high for the entire population; however, this is due to the population in Los Angeles, which is genetically distinct from populations in Riverside and San Bernardino Counties (USFWS 2010a). Despite differences in population sizes between locations, Ferguson and Ellstrand (1999) found that there was no evidence of lack of genetic diversity or homozygosity within locations. Plants are mostly outcrossing but are also self-fertile.

Life History and Demography

This spineflower is an annual herb. The involucre number per individual varies and depends on climactic and genetic factors and has been observed to range from 1 to 169 involucres (USFWS 2010a). The typical arrangement is three flowers per involucre, one fruit per flower, and one seed per fruit (Reveal 2005).

Pollination and Seed Dispersal

Information and studies about pollination are limited on this species. Spineflower is thought to be pollinated by various small insects (USFWS 2010a). The single-seeded fruits are located in involucres with hooked spines that may attach to wildlife for dispersal. Seeds are glabrous with no dispersal mechanisms of their own (Reveal 2005).

Seasonal Phenology

This species typically germinates with a 6 to 52% survival rate in February (USFWS 2010a, Ferguson and Ellstrand 1999). The blooming period generally occurs between April and June (CNPS 2020) (Table 3-17). Seed banks are known to occur with this species and are relatively long-lasting, which helps maintain demographics and genetic diversity of the species in dry years (Ferguson and

Ellstrand 1999). Within each population there are often wide fluctuations in population size due to seasonal rainfall (USFWS 2010a).

Table 3-17. Phenology of Slender-Horned Spineflower

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Blooming												
Fruiting												

Sources: CNPS 2014, USFWS 2010a

Threats and Special Management Considerations

The primary threat is habitat modification or destruction from development, mining, proposed flood control measures and other hydrologic alteration, off-highway vehicles, illegal dumping, and nonnative invasive species. The USFWS also cites inadequacy of state and local plans to fully protect this species, specifically attributing this to discretionary impacts that are allowed by state and local laws, and to the fact that most populations of this species do not occur on protected or otherwise conserved lands. Other general threats include climate change, sand and gravel mining, off-highway vehicles, nonnative invasive plants, herbivory, and the small population size present at each location (CNPS 2020, USFWS 2010a). The slender-horned spineflower is also affected by groundwater management and merits consideration by Groundwater Sustainability Agencies under the Sustainable Groundwater Management Act; however, specific threats to this species from groundwater changes have not been assessed (Rohde et al. 2019).

Due to the potential presence of long-lived propagules in the seed bank, the areas of the model indicated current or historic occurrences will be avoided and/or impacts minimized associated with implementation of Covered Activities. When possible, restoration, rehabilitation, and/or research of modeled Historic Occupied Habitat areas will be prioritized to benefit slender-horned spineflower.

Santa Ana River Woolly-Star (*Eriastrum densifolium* ssp. *sanctorum*)

Current Status and Distribution

The Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*) is Federally listed as endangered, California listed as endangered, and on the California Rare Plant Rank list. All 27 known occurrences are highly restricted to the Santa Ana River complex, occurring along the Santa Ana River, Mill Creek, Lytle Creek, Plunge Creek, and Cajon Creek. Most known occurrences are in San Bernardino County, and the remaining extant occurrences are in Riverside County (USFWS 2010b, CNPS 2014). All known occurrences are within the Planning Area.

Habitat Affinities

This species is found on the alluvial terraces of open floodplains in chaparral or coastal scrub with intermittent flooding, light surface disturbance, on south- to west- facing aspects, and relatively low cover of annuals or perennials in areas with nutrient-poor sands between 885 and 2,625 feet in elevation (CNPS 2020, DeGroot 2016). It is most competitive in early stage habitats with 97% or greater sand particles, but can also compete with other species in moderate stage habitats with 90–97% sand particles. Woolly-star is a pioneer plant that is often outcompeted in more stable shrubby

ecosystems (USFWS 2010b). This habitat type is transient in nature and is an early to mid-successional stage, which requires disturbance to maintain over a large scale.

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of Santa Ana River woolly-star modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-27 and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat

- **Land Cover**: Californian Coastal Scrub, Great Basin-Intermountain Xeric-Riparian Scrub, North American Warm-Desert Xeric-Riparian Scrub, and Water – Seasonal (except within existing groundwater recharge basins); **AND**
- **Soil Texture**: sand, loamy sand, coarse sand, and loamy fine sand, **AND**
- **Elevation**: 0–2,100 feet.
- **Post-processing**: Excludes existing groundwater recharge basins and areas of the Devil's Creek, Etiwanda Fan, and Jurupa Hills that are known to be out of the species range.

Taxonomy and Genetics

This taxon was originally described as *Hugelia densiflorum* and changed to *Eriastrum* in 1945. Currently five total subspecies are described for this species (IPNI 2014). This species is also thought to hybridize with other subspecies, namely the subspecies *elongatum* around Cajon Creek and Lytle Creek, and the subspecies *austromontanum* in Lytle Creek and La Cadeña Drive (USFWS 2010b).

Life History and Demography

This species is a perennial subshrub that typically lives for 5 years, but some individuals are known to live for 10 years (USFWS 2010b). Each head typically produces 4 to 30 flowers, each flower has 1 fruit (a capsule), and each fruit has 6 to 33 seeds (De Groot 2014). Seeds germinate with the first major fall rainfall, and few seeds remain in the seed bank (USFWS 2010b).

Pollination and Seed Dispersal

Santa Ana River woolly-star is self-incompatible and an obligate outcrosser. Primary pollinators vary with location and include the giant flower-loving fly (*Rhaphiomidas acton* ssp. *acton*), the sphinx moth (*Hyles lineata*), two bee species (*Micranthophora flavocinata* and *Bombus californicus*) and two hummingbirds (black-chinned hummingbird [*Archilochus alexandri*] and Anna's hummingbird [*Calypte anna*]). Seeds have a smooth surface morphology with a coating that becomes mucilaginous on contact with water and attaches the seed to the soil. Most seeds drop within a foot of the plant, but some stay in the capsule, which can remain on the plant for several years. Seeds and capsules can be transported longer distances by floodwater (USFWS 2010b).

Seasonal Phenology

Blooming typically occurs between April and September but is most heavy in June (CNPS 2014) (Table 3-18). Fruiting typically occurs between mid-July and mid-October (USFWS 2010b).

Table 3-18. Phenology of Santa Ana River Woolly-Star

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Blooming												
Fruiting												

Sources: CNPS 2014, USFWS 2010b

Threats and Special Management Considerations

The primary threat to Santa Ana River woolly-star is habitat alteration resulting from development, mining, hydrologic changes (specifically those resulting from operation of the Seven Oaks Dam), grading for flood control, and off-highway vehicle activity. USFWS cites the inadequacy of state and local plans to fully protect this species, specifically in that discretionary impacts are allowed by state and local laws, and most occurrences are not on conserved lands. More broadly, climate change and hybridization at one-third of the known locations could threaten this species (USFWS 2010b). The Santa Ana River woolly-star is also affected by groundwater management and merits consideration by Groundwater Sustainability Agencies under the Sustainable Groundwater Management Act; however, specific threats to this species from groundwater changes have not been assessed (Rohde et al. 2019).

Delhi Sands Flower-Loving Fly (*Rhaphiomidas terminatus abdominalis*)

Current Status and Distribution

The Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) is Federally listed as endangered. It is a subspecies endemic to the Colton Dunes Ecosystem of Southern California and is only known to occur in Riverside and San Bernardino Counties, with most of the occupied habitat located within a limited area of southwestern San Bernardino County (USFWS 2008).

Habitat Requirements

The characteristic feature of this species' occupied habitat is fine wind-blown sandy soils, often wholly or partly within sand dunes stabilized by sparse native vegetation. Plant species in the Colton Dunes include California buckwheat, California croton, deerweed, telegraph weed, and California evening primrose. Adults do not appear to use areas of dense vegetation. The fly can utilize Delhi sands in moderately disturbed areas such as abandoned vineyards or grazed lands (USFWS 1997). Larvae can be found within relatively moist soil several feet below the soil surface (Osborne and Ballmer pers. comm).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of Delhi Sands flower-loving fly modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-28. The following modeled habitat types are used to

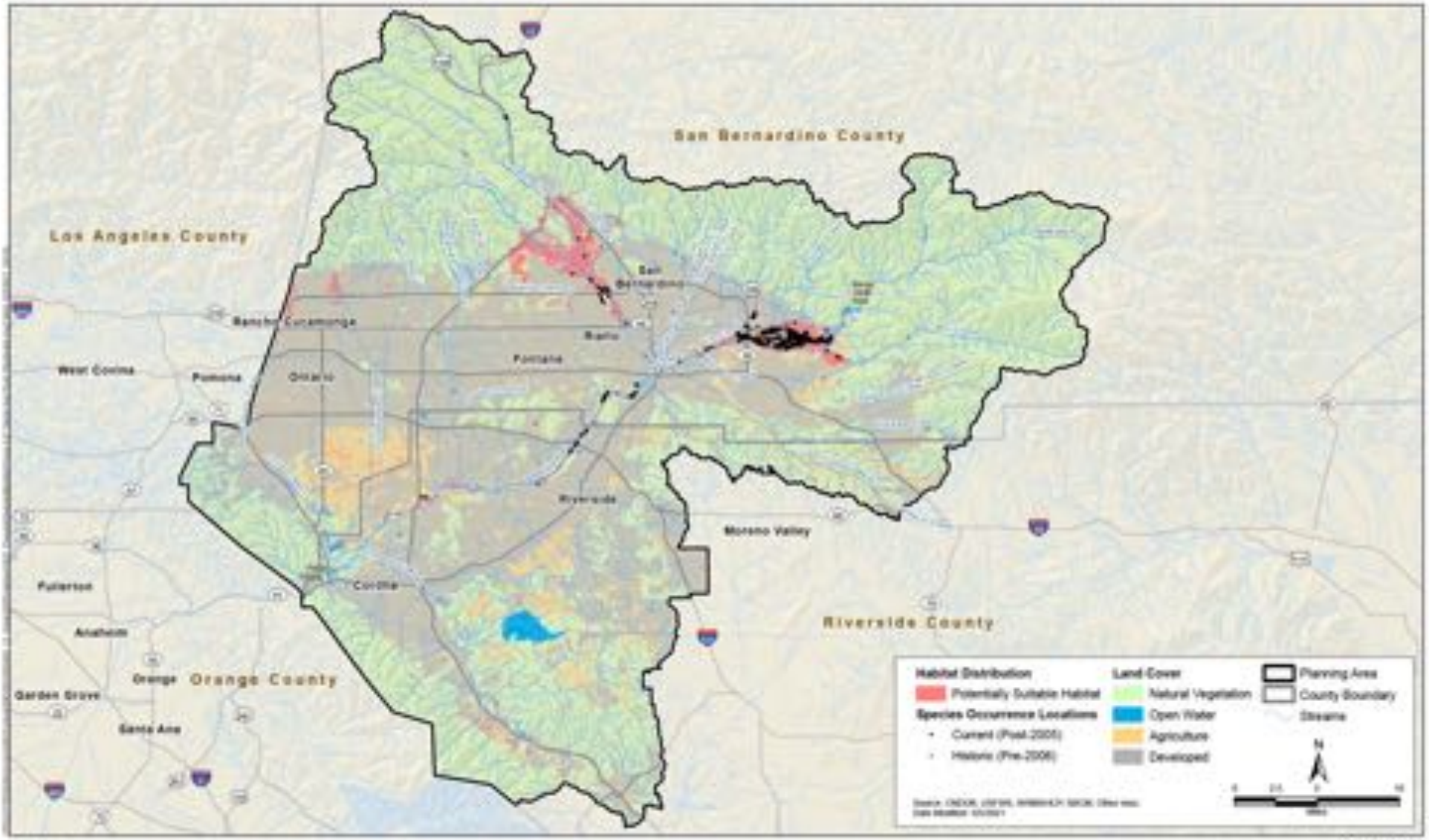


Figure 3-27
**Santa Ana River woolly-star, *Eriastrum densifolium* ssp. *sanctorum*
Potential Habitat Distribution and Known Occurrence Records**

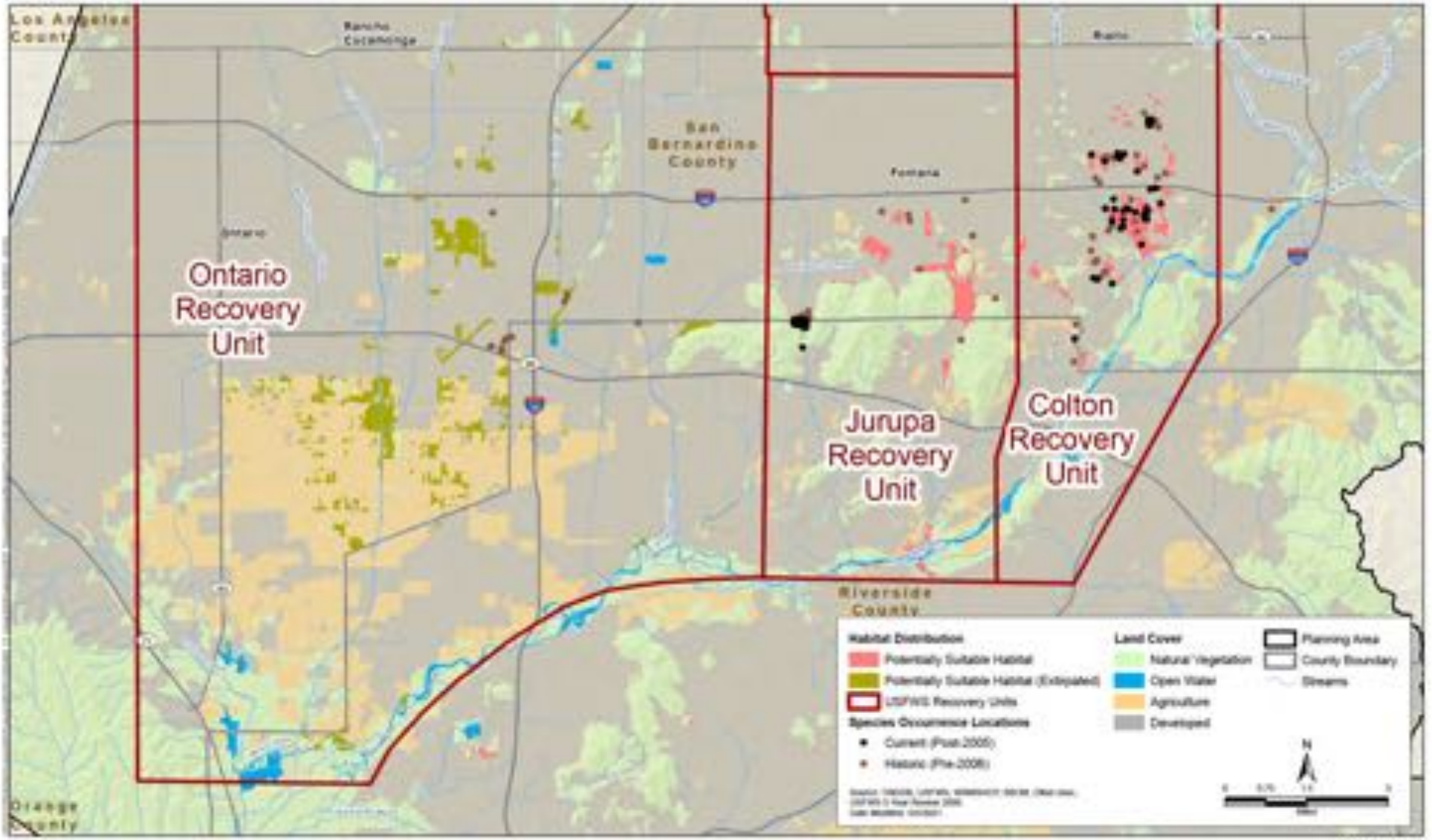


Figure 3-28
Delhi sands flower-loving fly, *Rhaphiomidas terminatus abdominalis* Potential Habitat Distribution and Known Occurrence Records

represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat

- **Land Cover**: All land cover types except Developed and Agriculture; **AND**
- **Soil Component Name**: Delhi Sands.

Potentially Suitable Habitat (Extirpated)

- Potentially suitable habitat that is within the USFWS Ontario Recovery Unit.

Taxonomy and Genetics

Taxonomic studies have shown that the genus Rhaphiomidas (giant flower-loving flies) belongs in the family Mydidae (no common name) (Cazier 1985), and, as a result, some researchers believe that the Delhi Sands flower-loving fly name should be changed to the Delhi Sands giant flower-loving fly (USFWS 2008).

Reproduction

Delhi Sands flower-loving fly undergoes a complete metamorphosis from egg to larva to pupa to adult. Oviposition (egg-laying) occurs within loose, sandy soils in the late summer (Kingsley 1996). Eggs are placed 1 to 2 inches beneath the surface of the sand (Rogers and Mattoni 1993). Larval stages develop completely underground and emerge as adults from July through September (Mattoni and Ballmer 1998).

Dispersal, Territoriality, and Home Range

Dispersal distances, territorial behavior, and home range sizes have not been documented.

Daily and Seasonal Activity

This species is very difficult to observe because only the adult/flying stage occurs above ground between July and September (Table 3-19). Adults are most active during the warmest sunniest parts of the day (USFWS 2008). Larvae are capable of indeterminate development, molting two to three times per year for at least 3 years prior to pupation (Osborne and Ballmer pers. comm).

Table 3-19. Seasonal Activity of Delhi Sands Flower-Loving Fly

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Adult Flight Season (breeding)												

Sources: USFWS 1997, USFWS 2008

Diet and Foraging

Both males and females extract nectar from California buckwheat and other plants. It is not clear if nectar feeding is essential for adult survival or reproduction (Kingsley 1996).

Threats and Special Management Considerations

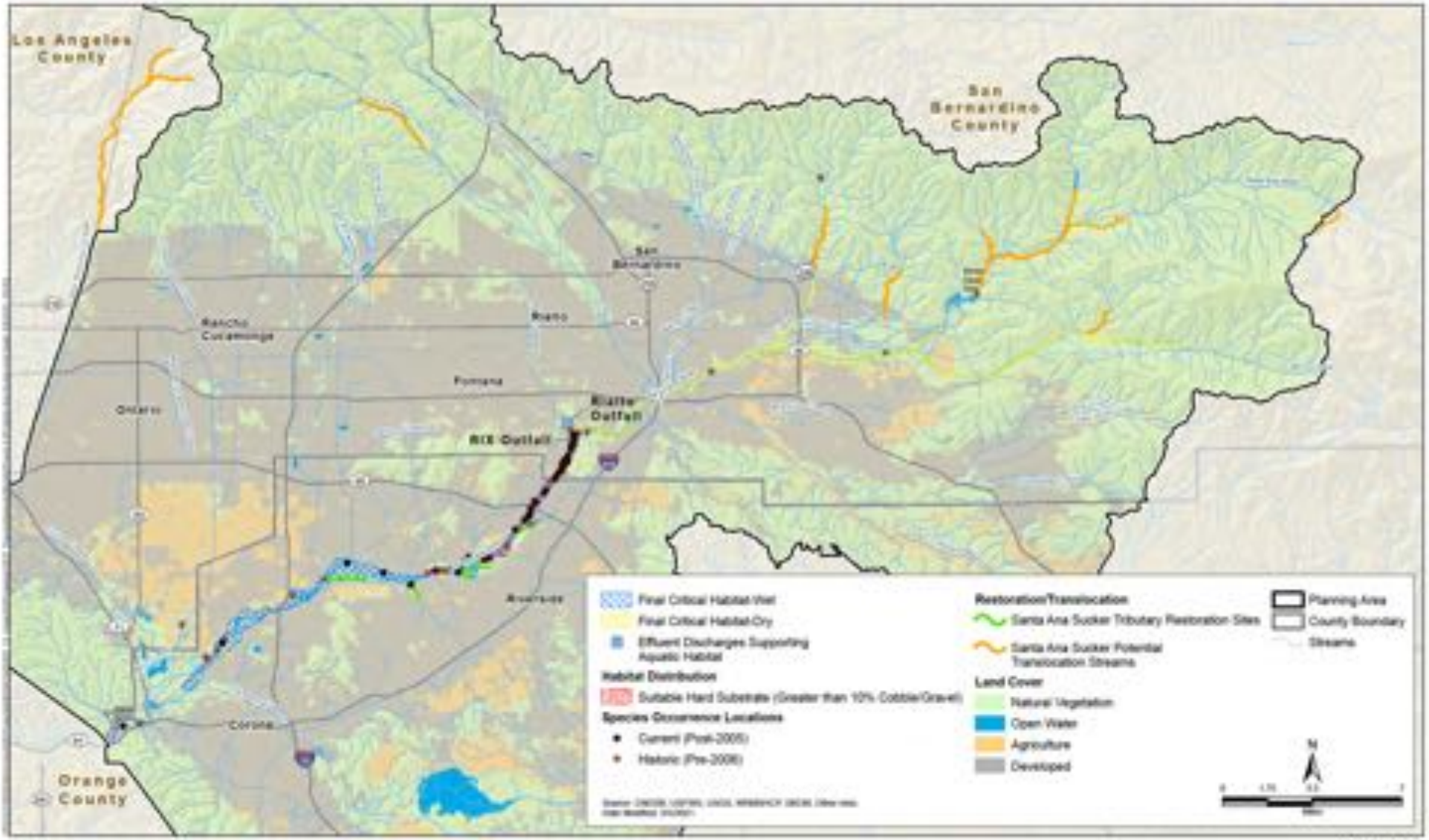
The primary threat to the Delhi Sands flower-loving fly is loss of habitat, habitat degradation, and habitat fragmentation (USFWS 2008). Activities that result in habitat degradation include grading, plowing, disking, and off-highway vehicle use. Occupied sites have become increasingly isolated by surrounding development. Nonnative invasive plants also degrade suitable habitat by increasing the vegetation cover or by altering soil conditions through dune stabilization and changes to soil moisture conditions (Western Riverside County MSHCP Biological Monitoring Program 2011).

Currently, there are only three known populations where management must be focused. The Slover/Pepper population is located east of Riverside Avenue, south of I-10, north of the Santa Ana River, and west of the cement plant. This population is partially protected through the establishment of the 7.5-acre Colton Transmission Facility Reserve and the 150-acre Vulcan Materials, Inc., Colton Dunes Conservation Bank. These conserved sites are surrounded by additional undeveloped Delhi Sands flower-loving fly habitats that are currently not protected but are needed to provide adequate protection for this population. A second population is located at Pepper Avenue adjacent to I-10 and the Pepper Avenue on- and off-ramps, which is an area partially protected within the Hospital Reserve; additional habitat in this area would need to be protected to sustain a robust population (Osborne 2016a, 2016b). The third population is the Jurupa Hills population located in the City of Jurupa Valley, north of SR-60 and south of I-10, which has been protected with conservation of 52 acres of Delhi Sands flower-loving fly habitat. There are no other conserved sites that are large enough and adequately managed to support a Delhi Sands flower-loving fly population. In 2005, USFWS estimated that approximately 2,826 acres of potential Delhi Sands flower-loving fly habitat remains (USFWS 2008).

Santa Ana Sucker (*Catostomus santaanae*)

Current Status and Distribution

The Santa Ana sucker (SAS; *Catostomus santaanae*) is Federally listed as threatened and is a California Species of Special Concern. Listed populations occur in the Santa Ana and San Gabriel Rivers and Big Tujunga Creek (USFWS 2009a). In the Santa Ana River, the species' range is officially from the Weir Canyon drop structure downstream of the Prado Dam all the way upstream to the La Cadena drop structure, and suitable habitat extends between Van Buren Boulevard in the Jurupa Valley upstream to the RIX outfall (Figure 3-29). Surveys conducted annually since 2015 by the USGS over a 5-mile stretch of the Santa Ana River noted that the highest abundance of Santa Ana sucker have recently been concentrated in the upper 1.25 miles of the perennial stream (484 [2018] to 4,983 [2015] fish per mile), from immediately downstream of the RIX facility discharge to approximately Riverside Avenue (Wulff et al. 2020). Over the USGS's approximately 5-mile survey area the mean density of SAS was stable from 2015 to 2017 (2015, 6,802 SAS; 2016, 7,208 SAS; 2017, 6,424 SAS) but the population dropped in 2018 (935 SAS) associated with several impacts on the river that occurred in late 2017 (stoppage of flow from the RIX facility). The cause of these impacts has since been alleviated by the City of San Bernardino in coordination with the USFWS, avoiding and/or minimizing future impacts on native fishes. A low-effect habitat conservation plan has been drafted by the City of San Bernardino for operation of the RIX facility to provide incidental take of Santa Ana sucker when future shutdowns of the RIX facility occur. This document is currently in review by the USFWS. It is anticipated that an ITP will be issued for this proposed low-effect HCP prior to issuance of the ITPs for the Upper SAR HCP.



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-29
Santa Ana sucker, Catostomus santaanae
Potential Habitat Distribution and Known Occurrence Records

Habitat Requirements

Santa Ana sucker is most abundant in unpolluted, clear water, at temperatures that are typically less than 72°F (Moyle 2002). Optimal stream conditions include coarse substrates (e.g., gravel, cobble, boulders), a combination of shallow riffles and deeper pools with algae present, and consistent flow (USFWS 2011, Palenscar 2014). Adults prefer deeper habitats such as pools and runs and utilize streams with gravelly substrates for spawning; juveniles occupy primarily riffle habitats (Haglund et al. 2010, Paramo et al. 2013). No sucker have been found in reaches with greater than 7% gradient (USFWS 2010c), and sucker rarely use habitat with less than 10% gravel and cobble substrate (USFWS 2010c, Thompson et al. 2010). In-stream or bank habitat with riparian vegetation providing shade is important for larvae and juveniles as are tributary habitat inflows that create refugia (USFWS 2011). Sucker tolerate reduced flows and elevated temperatures in the summer months, and turbid conditions associated with high flows that typically occur during winter months (Moyle 2002). The USFWS description of critical habitat *Physical and Biological Features* includes a functioning hydrological system that provides sources of water and coarse sediment necessary to maintain all life stages, including adults, juveniles, larvae, and eggs (Moyle 2002, USFWS 2010c).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The existing distribution of potentially occupied Santa Ana sucker habitat in the Planning Area is based on habitat suitability modeling, aquatic surveys for native fishes and other aquatic species (Wulff et al. 2020), USGS assessments of preferred microhabitats for Santa Ana sucker, and long-term surveys (citizen science) estimating the availability of Santa Ana sucker suitable habitats with hard river bottom substrates (surveys described below). The distribution of modeled suitable habitat and documented occurrences is shown on Figure 3-29, along with designated Critical Habitat. The Critical Habitat is designated over wetted portions of the river from the confluence with Rialto Channel downstream, and designated for generally dry portions of the river upstream from Rialto Channel to protect these areas as sediment sources for transport into occupied habitat during high storm flow events. Areas with known suitable hard river bottom substrates (>10% gravel and cobble) are shown in the figure. Occurrence data are from the sources listed in Table 3-12 above, including data from the USGS SAR Native Fishes Survey, conducted annually from 2015–2019 (Wulff et al. 2020). Habitat suitability modeling for Santa Ana sucker is described later in this section.

USGS Annual Fish Surveys

The San Bernardino Valley Municipal Water District has employed the services of the USGS to conduct native fish surveys in the Santa Ana River on an annual basis since 2015. The USGS also collects physical habitat data in the same reaches where native fish surveys are carried out. Physical habitat survey data collection includes information related to channel morphology, flow rate, substrate type, and streamside vegetation. The focus of the USGS effort is centered on the native fish census; therefore, the survey area is limited in geographic scope to areas where native fish are typically encountered. The survey area includes from the Rialto Channel, in the City of Colton, downstream along the mainstem of the Santa Ana River to just downstream of Mission Boulevard, in the City of Riverside. The downstream terminus of the survey reach is approximately 2.5 miles upstream of the confluence with Anza Creek. Results from the 2019 SAR Native Fishes Survey and draft results from the 2020 Survey suggest that the majority of the Santa Ana sucker in the Santa Ana River have shifted downstream. Future SAR Native Fishes Surveys will survey a longer reach of the river in order to better assess population size and distribution of native fishes.

Riverwalk Annual Channel Morphology Surveys (Citizen Science)

The Riverwalk is a volunteer based aquatic habitat survey that takes place on an annual basis along an 18-mile stretch of the Santa Ana River. The first Riverwalk occurred in 2006. Data are collected along permanent transects spaced at 300-meter intervals in the fall from the Rialto Channel confluence with the Santa Ana River downstream to I-15 in an effort to inform the quantity, quality, and distribution of suitable habitat for the Santa Ana sucker. Basic data on channel morphology, substrate, and streamside vegetation are collected at predetermined cross-section transects. The size and location of gravel bars are also noted wherever they are encountered along the river. The areas with suitable hard river bottom substrates (>10% gravel and cobble) are shown on Figure 2-29.

Santa Ana Sucker Designated Critical Habitat

There are 6,450 acres of designated critical habitat for Santa Ana sucker in the Planning Area. The upper reaches of the mainstem Santa Ana River (above Rialto Channel) and two of its tributaries, City Creek and Mill Creek, comprise approximately 2,108 acres of the total designated critical habitat for Santa Ana sucker (75 *Federal Register* 77962). The species is extirpated from these reaches due to historic manipulation of the floodplain and surface flow; however, these areas provide essential sources of new coarse sediment (gravel and cobble) needed to maintain the balance of sediment within the occupied lower reaches of the Santa Ana River. Channel maintenance flows are necessary to maintain the process of coarse sediment transport through the river system. Areas downstream of Rialto Channel provide live-in habitat for Santa Ana sucker. Approximately 4,342 acres of designated critical habitat occurs downstream of Rialto Channel within the Planning Area.

Preferred Habitat Criteria for Habitat Distribution Modeling

The amount of modeled preferred habitat for the Santa Ana sucker in occupied reaches of the Santa Ana River was predicted using an approach that incorporated components of the USFWS Instream Flow Incremental Methodology (IFIM) (Bovee et al. 1998) and Physical Habitat Simulation System (PHABSIM) (Milhous & Waddle 2012) methodologies. The approach described below was developed in coordination with a technical advisory committee that consisted of representatives from resource agencies, nongovernmental organizations, and academic institutions. A detailed description of the approach and results are available in *Santa Ana Sucker Habitat Suitability Analysis* (Appendix E).

The Santa Ana sucker habitat suitability model predicts the amount of potentially occupied (preferred) habitat available at various flows. Three variables were used to define and quantify Santa Ana sucker preferred habitat along approximately 21 miles of the Santa Ana River between the Rialto Channel and Prado Dam: water velocity, water depth, and presence of cobble and/or gravel substrate (Table 3-20 and Figure 3-29). The area is considered preferred habitat if it meets the depth and velocity conditions, and has an average of 10% or greater cover of coarse substrate (cobble and/or gravel) as indicated by previous research on Santa Ana sucker habitat preference (Thompson et al. 2010). The sum of all the predicted preferred habitat meeting these criteria over the 21.1-mile-long study reach is 2.15 acres. Although additional portions of the stream are anticipated to be used by this species at any time, the focus of this analysis was on those habitats that meet the water depth, velocity, and substrate criteria for preferred habitat. These criteria are discussed further below.

Water velocity was collected within Santa Ana sucker use areas during native fish surveys (fall season). The minimum velocity found correlated to Santa Ana sucker use, 1.3 feet per second (Table 3-20), approximates the minimum velocity needed to transport sand (1.2 feet per second); therefore, the minimum water velocity preferred by Santa Ana sucker indicates a selection for substrates with exposed substrates larger than sand (fine gravel or larger). In fall months (typical survey period) these habitats can be rare but are vital for providing higher quality substrates for foraging. During periods of limited rainfall (drought) the exposure and/or turning of existing coarse substrate is limited. During these times, baseflow, derived from discharged wastewater, provides the majority of the foraging (year-round) and spawning (primarily late winter and spring) habitats for Santa Ana sucker in the Santa Ana River.

Water depths of habitat commonly used by Santa Ana sucker were also measured during native fish surveys (minimum, 1.3 feet, Table 3-20). Commonly, Santa Ana sucker were found to use deeper portions of the channel created by a stream width constriction or scour pool (e.g., presence of large woody debris), a vegetated stream margin with emergent vegetation or undercut bank, or the outer margin of a meander where the greatest water velocity and depth co-occur. The availability of coarse substrates in these areas and greater water depth provides forage (most commonly various algal species) and added protection from non-aquatic predators, respectively. During the spawning season, exposed coarse substrate (small to medium sized gravel) on the margins of high velocity flow areas (e.g., riffles or runs) or at the downstream end of scour pools (i.e., glide) provides opportunities for reproduction. The extended spawning period observed for Santa Ana sucker (protracted spawning) combined with the production of thousands of eggs, allows a greater opportunity for female fish to search and find multiple appropriate spawning areas throughout the spawning season. This adaptation is well-suited for successful reproduction and recruitment in an ever-changing alluvial stream like the Santa Ana River.

Channel bottom data (substrate) was collected during Riverwalk surveys as described above. Estimates of exposed coarse substrate, presented as average percent cover, were made at each of 109 transects, placed at 300-meter intervals, over approximately 14 miles of potentially occupied stream (Rialto Channel to River Road Bridge), Figure 3-29. This dataset was used to estimate the portions of the stream that consistently were found to have greater than 10% exposed coarse substrate (sum of boulder, cobble, and gravel) over the majority of the collection period of the Riverwalk, including 13 years of data from 2006 to 2018.

While there are other elements of the sucker habitat that could have been included to predict the distribution of preferred habitat (e.g., riparian cover type and amount), the depth and flow velocity are the habitat features most easily measured and integrated into a hydrology model in the context of the IFIM/PHABSIM approach, and amount of coarse substrate has been annually surveyed since 2006. Furthermore, many of the Covered Activities evaluated by this HCP directly affect flow velocity and depth such that these effects can be included in the model to analyze the effects of these Covered Activities (see Chapter 4).

Habitat use data were derived from intensive surveys conducted by USGS on the Upper Santa Ana River. Wulff et al. (2018) provided raw suitability scores for depth and water velocity. These suitability scores were based on direct observations of Santa Ana sucker habitat use over two field seasons in the Santa Ana River in the Planning Area. For this habitat distribution model the suitability scores for Santa Ana sucker habitat preferences (depth and velocity) from 2 years of data collection were combined and the higher of the values for each year was used. When calculating depth suitability, maximum values presented an appropriate use curve (Figure 3-30). However, the

data on velocity values were noisy and varied between field seasons. For the purposes of estimating an appropriate velocity suitability curve, maximum values were selected for peaks and median values were inferred for valleys (Figure 3-31). The smoothing of the curve provides a conservative estimate of the preferred habitat use areas for Santa Ana sucker during the periods of sampling. Sampling was confined to daylight hours during the fall when only large young-of-the-year (YOY, 60- to 100-millimeter fork length) and adult Santa Ana sucker were present in the stream. The cohorts of Santa Ana sucker present during the fall season are generally found to overlap in use areas, with adult and YOY fish foraging side by side.

A habitat suitability matrix for water depth and velocity was created by multiplying the velocity suitability scores by the depth suitability scores derived from Wulff et al. (2018). Combined suitability scores greater than 0.50 were considered to represent habitat with suitable velocity and depth, while scores less than 0.50 represent unsuitable habitat, as is consistent with the IFIM/PHABSIM approach (Table 3-20). An assumption supporting these criteria is that flow velocities greater than 1.2 feet per second result in decreased sand deposition and the maintenance of coarser substrates on which the Santa Ana sucker is dependent (based on field observations of reaches of the Santa Ana River occupied by Santa Ana sucker; ESA 2015).

Table 3-20. Santa Ana Sucker Depth by Velocity Habitat Suitability Matrix

	Velocity (feet/second)	**0.66**	**1.31**	**1.97**	**2.62**	**3.28**	**3.94**	**4.59**	**5.25**	**5.91**
Depth (feet)	Habitat Suitability Index	0.09	0.62	0.81	1.00	0.96	0.93	0.90	0.03	0.00
0.33	0.08	0.01	0.05	0.06	0.08	0.08	0.07	0.07	0.00	0.00
0.66	0.09	0.01	0.06	0.07	0.09	0.09	0.08	0.08	0.00	0.00
0.98	0.26	0.02	0.16	0.21	0.26	0.25	0.24	0.23	0.01	0.00
1.31	0.74	0.07	0.46	**0.60**	**0.74**	**0.71**	**0.69**	**0.67**	0.02	0.00
1.64	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00
1.97	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00
2.30	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00
2.62	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00
2.95	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00
3.28	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00
3.61	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00
3.94	1.00	0.09	**0.62**	**0.81**	**1.00**	**0.96**	**0.93**	**0.90**	0.03	0.00

Combined Suitability Index Range	**Combined Depth and Velocity**
0–.49	Not Suitable
0.50–1.00	**Suitable**

ft/s = feet per second

Modeling the Distribution of Suitable Habitat

The modeling of depth and velocity conditions was performed at seven different assessment sites by applying the Santa Ana sucker habitat suitability criteria to the flow depths and flow velocities

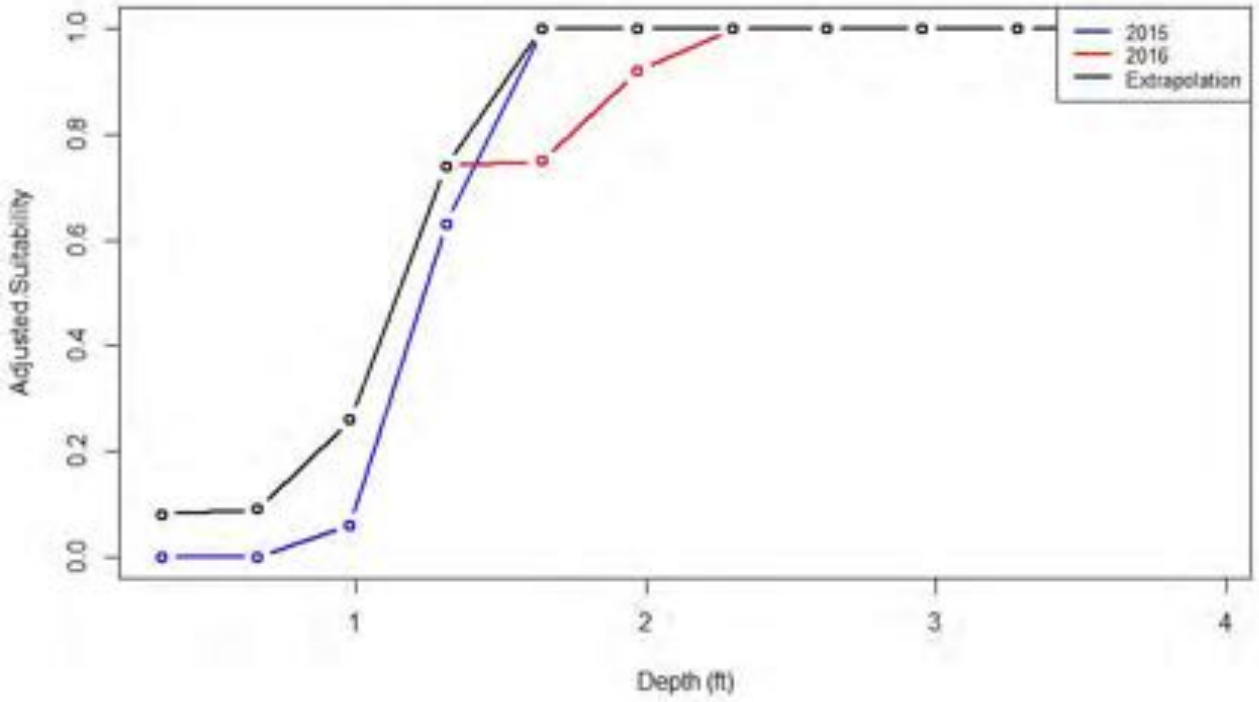


Figure 3-30
Sucker Habitat Flow Depth Suitability Curve
Upper Santa Ana River Habitat Conservation Plan

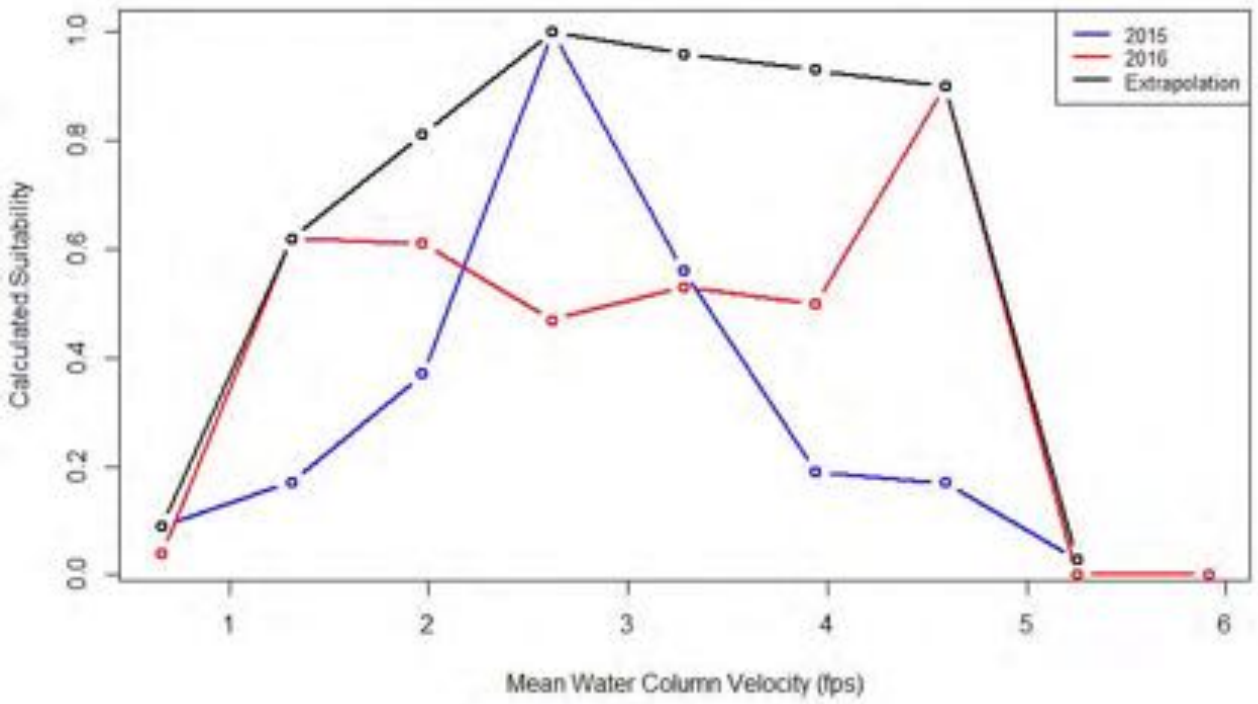


Figure 3-31
Sucker Habitat Flow Velocity Suitability Curve
Upper Santa Ana River Habitat Conservation Plan

modeled in a Two-Dimensional Sedimentation and River Hydraulics model (2D hydraulic model) that was developed for the HCP. Six of the sites are located on the Santa Ana River, from just downstream of the RIX discharge outfall (ESA Upper Reach) to the downstream site (3A) located near Prado Basin Park downstream of I-15. One site is located on the Rialto Channel downstream of the Rialto discharge outfall (see mapped locations on Figure 3-32). The total assessed channel length from the Rialto Channel to the downstream end of the Santa Ana River near Prado is 21.1 miles.

The 2D hydraulic model requires an elevation surface of channel and floodplain elevations. Elevations outside of the low-flow channel were obtained from 2015 LiDAR. All of the assessment sites have perennial flow and thus require bathymetric data of the low-flow channel to supplement the 2015 LiDAR data because LiDAR does not capture underwater elevations. Bathymetry data was available for four of the sites from studies conducted in 2015 (ESA Upper Reach, ESA Middle Reach, ESA Lower Reach, and USGS Reach 9) (ESA 2015, Wright and Minear 2019). New bathymetry surveys were conducted at Reach 3, Reach 3A, and Rialto Reach in 2017. Model elevation surfaces made from the combined bathymetry and LiDAR sources have nodes spaced typically around 3 feet from each other.

A series of flows were modeled for each site that span the range of low flows that typically occur at the sites. The model output for each model node along the continuous 2D modeling surface was queried to assess the combination of depth and velocity at each node. For each modeled flow, calculations were performed to determine the percentage of wetted area in which the combination of depth and velocity values are within the sucker habitat "preferred" range shown in the combined habitat suitability matrix in Table 3-20.

Table 3-21 summarizes the amount of preferred habitat (contains both suitable depth and velocity) determined for all seven of the 2D hydraulic model assessment sites. The table lists the August through October 95% exceedance flow (i.e., base flow conditions, or statistically the flow in the channel is equal to or greater than this magnitude 95% of the time from August through October) for the existing hydrology condition (also shown on Figure 3-33). The months of August through October were selected because this time of year typically has the lowest base flow and conversely the least amount of modeled preferred habitat (foraging habitat) for the year. Habitat quality during the spawning season is maintained by high flow events (storm flow) when sediment is re-activated and larger sediments (gravel and cobble) are turned in the active channel, creating interstitial voids. During periods of drought, storm flow is reduced and limited maintenance of spawning habitat occurs. Spawning during these periods is reliant on baseflow to winnow fine sands off of coarser substrates, exposing appropriate spawning substrates, yet spawning sediments are typically embedded with fine sediment throughout the year. USGS data suggests an increase in recruitment of sucker during years with greater precipitation. The 2015 precipitation year was lower than 2016 (USGS https://waterwatch.usgs.gov, precipitation data not presented) and the Santa Ana sucker population was found to increase from 6,802 to 7,208 fish. Draft data collected by the USFWS in cooperation with the Riverside-Corona Resource Conservation District found a large increase in larval and juvenile Santa Ana sucker in 2016 following high flow storm flow events that turned coarse sediment in active channel. Figures 3-34 through 3-40, show the resulting mapping of suitable depth and velocity for each of the seven assessment sites.

Table 3-21. Summary of Hydrologic Model Characteristics by Santa Ana Sucker Habitat Modeling Site (Upstream to Downstream)

Hydrologic Model Characteristic	Rialto Channel	ESA Upper	USGS Reach 9	ESA Middle	ESA Lower	SAR Site 3	SAR Site 3a
Low Flow Channel Length (feet)	507	1,132	975	1,195	1,048	1,032	1,099
Reach Average Bed Slope (percent)	0.77	0.32	0.39	0.36	0.38	0.25	0.24
Existing Condition Aug–Oct 95% Exceedance Flow (cfs)	9.2	49.0	49.0	31.1	31.1	87.4	63.6
Average Modeled Wetted Channel Width under Existing Condition Aug–Oct 95% Exceedance Flow (feet)	14	26	35	24	40	84	81
Area of Suitable Depth and Velocity under Existing Condition Aug–Oct 95% Exceedance Flow (acres)	0.006	0.202	0.110	0.071	0.012	0.107	0.045
Unit Area of Suitable Depth and Velocity under Existing Condition Aug–Oct 95% Exceedance Flow (acres/1,000 feet of channel length)	0.011	0.179	0.112	0.059	0.011	0.103	0.041
Suitable Depth and Velocity as percent of Total Channel Wetted Area under Existing Condition Aug–Oct 95% Exceedance Flow (percent)	3.3	30.3	14.2	11.0	1.2	5.3	2.2

cfs = cubic feet per second

The process for using the results from the individual assessment sites to interpolate suitability for the entire 21.1-mile long study reach (starting at the Rialto Outfall and extending down the Rialto Channel and then down the Santa Ana River to Prado) is described in Appendix E. The acreage of habitat with suitable depth and velocity, in acres per 1,000 feet of channel length, over the 21.1-mile long study reach is illustrated on Figure 3-41.

There are 110 transects along this 21.1-mile portion of the river that have been surveyed annually from 2006 to 2018 to quantify the amount of coarse substrate (gravel and cobble) along with several other habitat features. The mean percent of gravel and cobble over this 12-year period was calculated. When multiple transects occurred between model nodes the average of the means was taken. Areas were determined to be suitable habitat when the depth and velocity was suitable and the proportion of cobble and gravel substrate was greater than 10% (USFWS 2010c). Table 3-22 shows the acres in each reach meeting all three criteria (depth, velocity, and substrate). The sum of all the predicted preferred habitat meeting these criteria over the 21.1-mile long study reach is 2.15 acres. The reach of river that generally provides suitable habitat for Santa Ana sucker (10% or greater cover of coarse substrate) over the 21.1-mile-long study reach is approximately 6 miles of stream (Rialto channel to Tequesquite Arroyo).

Upper Santa Ana River
Habitat Conservation Plan

Figure 3-32
Santa Ana River Hydraulic & Habitat Modeling Reaches Downstream of Rialto

Upper Santa Ana River
Habitat Conservation Plan

Figure 3-33
Average August-October 95% Exceedance Flow (cfs) for the Existing Condition

ICF

Figure 3-34
Santa Ana Sucker Suitable Depth and Velocity
Rialto Reach - Modeled Flow of 9.0 cfs
Upper Santa Ana River Habitat Conservation Plan

ICF

Figure 3-35
Santa Ana Sucker Suitable Depth and Velocity
ESA Upper Reach - Downstream of RIX - Modeled Flow of 51.5 cfs
Upper Santa Ana River Habitat Conservation Plan

ICF

Figure 3-36
Santa Ana Sucker Suitable Depth and Velocity
USGS Reach 9 - Downstream of RIX - Modeled Flow of 51.5 cfs
Upper Santa Ana River Habitat Conservation Plan

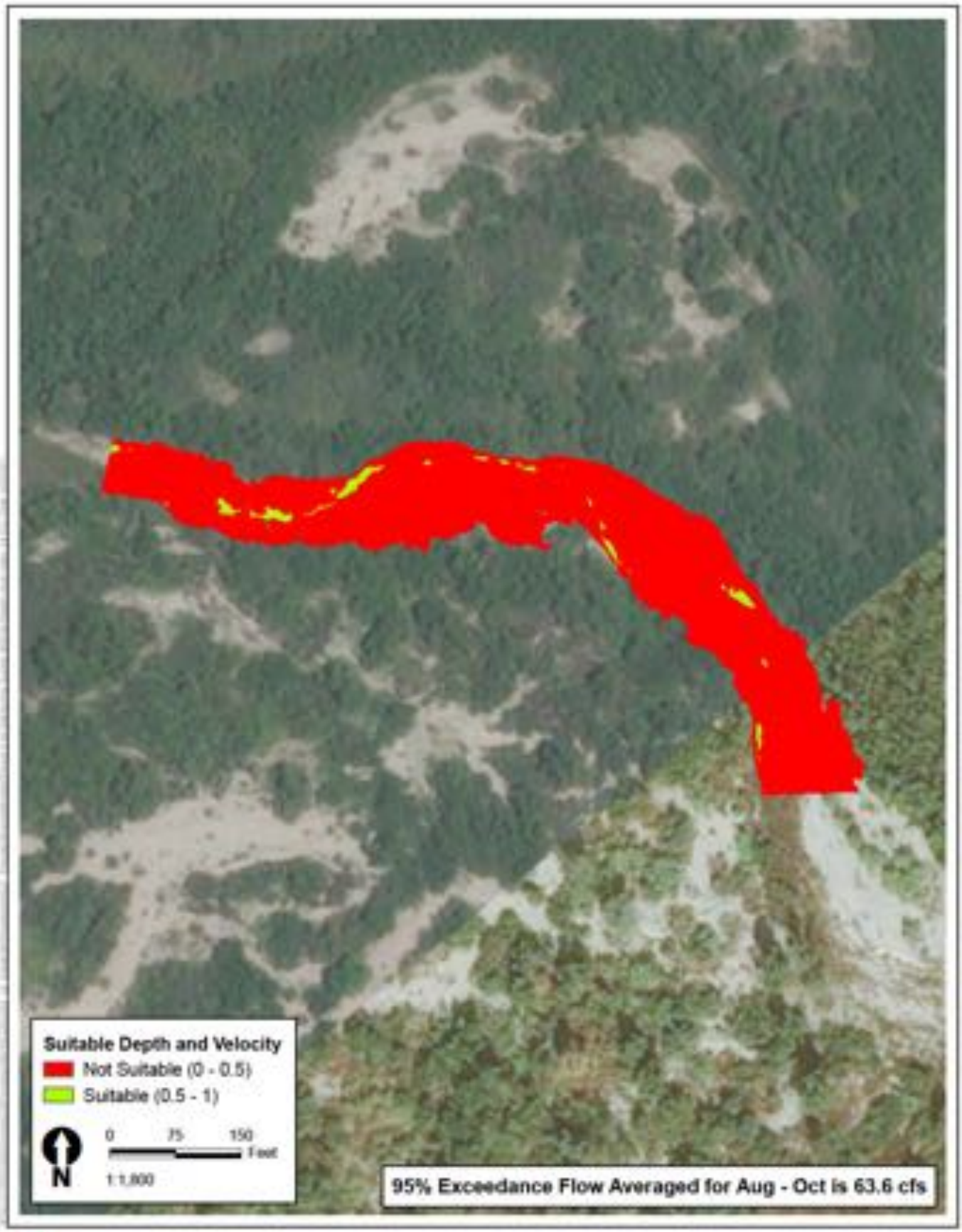
ICF

Figure 3-37
Santa Ana Sucker Suitable Depth and Velocity
ESA Middle Reach - Downstream of RIX - Modeled Flow of 32.4 cfs
Upper Santa Ana River Habitat Conservation Plan

ICF

Figure 3-38
Santa Ana Sucker Suitable Depth and Velocity
ESA Lower Reach - Downstream of RIX - Modeled Flow of 32.4 cfs
Upper Santa Ana River Habitat Conservation Plan

Figure 3-39
Santa Ana Sucker Suitable Depth and Velocity
Site 3 Reach - Downstream of RIX - Modeled Flow of 67.0 cfs
Upper Santa Ana River Habitat Conservation Plan



ICF

Figure 3-40
Santa Ana Sucker Suitable Depth and Velocity
Site 3a Reach - Downstream of RIX - Modeled Flow of 67.0 cfs
Upper Santa Ana River Habitat Conservation Plan

Upper Santa Ana River
Habitat Conservation Plan

Figure 3-41
Acres of Santa Ana Sucker Suitable Depth and Velocity per 1,000 ft of Channel Length under Existing Condition Average Aug-Oct 95% Exceedance Flow

Table 3-22. Acres of Existing Santa Ana Sucker Modeled Habitat in the Planning Area

Reach Description[1]	Hydro Model Node[1]	Reach Length (feet)	Acres of Area with Preferred Depth and Velocity per 1,000 feet	Acres of Area with Preferred Depth and Velocity	Suitable Habitat (>10% Gravel/Cobble Substrate per Riverwalk Surveys[2])
Reaches with Suitable Substrate (>10% Gravel/Cobble)					
Rialto Channel DS of Rialto outfall	NFRC-06	1,705	0.01	0.019	Suitable (55.2%)
SAR DS Rialto Channel & US RIX outfall	NSAR19	1,141	0.00	0.000	Suitable (51.1%)
SAR DS RIX outfall & US Riverside Ave (@ ESA Upper model site)	NSAR20	6,865	0.13	0.910	Suitable (67.6%)
SAR DS Riverside Ave & US node NSAR 22	NSAR21	3,242	0.09	0.279	Suitable (59.2%)
SAR DS node NSAR 22 & US Market St	NSAR22	5,624	0.08	0.425	Suitable (44.2%)
SAR DS Market St & US Hwy 60	NSAR23	1,576	0.06	0.093	Suitable (34.1%)
SAR DS Hwy 60 and US node NSAR 232	NSAR231	1,804	0.06	0.106	Suitable (27.8%)
SAR DS Hwy 60 & US Mission Blvd (@ ESA Middle model site)	NSAR232	4,000	0.06	0.236	Suitable (24.7%)
SAR DS Mission Blvd & US node NSAR 241 (@ ESA Lower model site)	NSAR24	5,679	0.01	0.064	Suitable (20.7%)
SAR DS node NSAR 241 & US node NSAR 242 (Tequesquite Arroyo reach)	NSAR241	7,883	0.00	0.016	Suitable (10.8%)
Total Preferred Habitat				**2.15**	
Reaches without Suitable Substrate (>90% Sand/Silt)					
SAR DS node NSAR 242 & US node NSAR 243	NSAR242	1,842	0.00	0.004	Not Suitable (7.0%)
SAR Anza Creek reach	NSAR243	1,826	0.00	0.004	Not Suitable (8.9%)
SAR DS of Anza Creek/railroad bridge & US pipeline crossing	NSAR244	3,703	0.00	0.008	Not Suitable (6.9%)
SAR DS of pipeline crossing & US RWQCP	NSAR25	4,700	0.02	0.114	Not Suitable (4.6%)
SAR DS of RWQCP & US of Van Buren Blvd	NSAR26	1,305	0.02	0.022	Not Suitable (5.3%)
SAR DS Van Buren Blvd (Hole Creek reach)	NSAR27	1,647	0.12	0.190	Not Suitable (9.2%)

Reach Description[1]	Hydro Model Node[1]	Reach Length (feet)	Acres of Area with Preferred Depth and Velocity per 1,000 feet	Acres of Area with Preferred Depth and Velocity	Suitable Habitat (>10% Gravel/Cobble Substrate per Riverwalk Surveys[2])
SAR DS node NSAR 28 & US node NSAR 29	NSAR28	1,777	0.11	0.197	Not Suitable (6.6%)
SAR DS node NSAR 29 & US node NSAR 30	NSAR29	1,010	0.11	0.107	Not Suitable (4.3%)
SAR DS node NSAR 30 & US node NSAR 301	NSAR30	2,990	0.10	0.306	Not Suitable (3.8%)
SAR DS node NSAR 301 & US node NSAR 31	NSAR301	7,793	0.10	0.741	Not Suitable (5.1%)
SAR DS node NSAR 31 & US node NSAR 311 (San Antonio Creek reach)	NSAR31	1,493	0.08	0.119	Not Suitable (3.9%)
SAR DS node NSAR 311 & US node NSAR 32	NSAR311	1,900	0.07	0.140	Not Suitable (4.3%)
SAR DS node NSAR 32 & US node NSAR 321	NSAR32	4,855	0.07	0.342	Not Suitable (2.4%)
SAR DS node NSAR 321 & US node NSAR 33 (Day Creek reach)	NSAR321	2,968	0.07	0.195	Not Suitable (1.1%)
SAR DS node NSAR 33 & US node NSAR 331	NSAR33	4,953	0.05	0.261	Not Suitable (1.6%)
SAR DS node NSAR 331 & US node NSAR 332	NSAR331	3,354	0.05	0.154	Not Suitable (0.9%)
SAR DS node NSAR 332 & US node NSAR 34 (I-15)	NSAR332	1,724	0.04	0.074	Not Suitable (0.1%)
SAR DS node NSAR 34 (I-15) & US node NSAR 35	NSAR34	1,388	0.04	0.058	Not Suitable (0.8%
SAR DS node NSAR 35 & US node NSAR 351	NSAR35	2,064	0.04	0.086	Not Suitable (0.8%)
SAR DS node NSAR 351 & US node NSAR 352	NSAR351	11,399	0.04	0.474	Not Suitable (0.7%)
SAR DS node NSAR 352 & US node NSAR 36 (entrance into Prado)	NSAR352	7,293	0.04	0.303	Not Suitable (0.0%)

[1] Defines upstream boundary of reach: DS=downstream, US=upstream; NSAR = node Santa Ana River, an identifier from the Wildermuth hydrology model; RWQCP = Regional Water Quality Control Plant.
[2] Average percent gravel/cobble substrate within reach.

Taxonomy and Genetics

Santa Ana sucker is closely related to mountain suckers. The species was originally described as *Pantosteus santaanae*. Subsequently, the genus was reduced to subgenus *Catostomus*. Santa Ana sucker exhibits higher variability in anatomical characteristics than other members of the subgenus *Pantosteus*. Santa Ana suckers hybridize with introduced Owens sucker (*Catostomus fumeiventris*) in Santa Clara River (Moyle 2002). Richmond et al. (2017) studied the metapopulation structure in

Santa Ana sucker using microsatellites and mitochondrial DNA sequence data, finding that only the population on the Santa Clara River upstream of Piru Gap is free of genetic input from *C. fumeiventris*.

Reproduction

Santa Ana sucker become reproductively mature by the first year and spawn during the first and second years (Moyle et al. 1995). Spawning takes place over gravelly riffles (Moyle 2002). Eggs are demersal and adhesive and hatch in 15 days at 55°F (Moyle 2002). Fecundity is high for a small sucker species and increases with size (Greenfield et al. 1970, Moyle 2002). Sucker are able to recolonize suitable habitat rapidly due to high reproductive rates from short generation time, high fecundity, and long spawning period (Moyle 2002, Moyle et al. 1995).

Dispersal, Territoriality, and Home Range

Santa Ana sucker is limited by dams or other impassable structures that preclude further upstream dispersal or migration (i.e., Prado Dam and La Cadena drop structure) in the Santa Ana River (USFWS 2011). The species is highly adaptable to periodic flooding that occurs in Southern California; high reproductive rates allow for recolonization of suitable habitat (Moyle 2002). Territoriality and home range are undocumented.

Daily and Seasonal Activity

Santa Ana sucker spawning typically occurs mid-February to early July, with peak activity in April (Moyle 2002) (Table 3-23).

Table 3-23. Seasonal Spawning Activity of Santa Ana Sucker

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Spawning												

Source: Moyle 2002, amended to include February.

Diet and Foraging

Algae, diatoms, and detritus make up 98% of the diet of Santa Ana sucker, scraped from coarse substrate with a subterminal mouth. Aquatic insects are also prey as size increases (Greenfield et al. 1970). The Riverside-Corona Resource Conservation District has observed large adults taking insects from the surface on occasion.

Threats and Special Management Considerations

The primary threat to Santa Ana sucker is modification, fragmentation, and loss of habitat through hydrologic modifications (USFWS 2017b). Additional threats include ongoing negative trends in water quantity and quality through reduced availability of surface water; modification to stream processes through reduced flows inhibiting downstream transport of coarse sediments needed for habitat; spread of nonnative giant reed (*Arundo donax*) and other nonnative invasive plant species resulting in negative modification of habitat; and predation by nonnative fishes (bass, sunfish, carp, catfish, tilapia) (USFWS 2017b). Ongoing drought conditions in the Santa Ana basin are exacerbating these threats. In addition, habitat degradation through the spread of the invasive nonnative algae

Compsopogon coeruleus is a recent threat because it forms dense mats, reducing foraging opportunities for the fish (Palenscar 2014). Re-appropriation of treated water that currently provides much of the available water supply for the species is a future threat (USFWS 2011).

Habitat availability has been greatly reduced in the Santa Ana River over the last 200 years because of ongoing (1) channelization, urban runoff, and other undocumented non-point source discharges negatively affecting water quality; and (2) water abstraction for human use reducing or eliminating in-stream flows (USFWS 2011). Habitat suitability in the Santa Ana River within currently occupied reaches is declining because of modified hydrologic processes that may have reduced coarse sediment transport to downstream occupied areas (Moyle 2002). Suitable habitat upstream of Seven Oaks Dam in the upper Santa Ana River, Plunge Creek, and City Creek are being assessed as potential reintroduction sites.

Other Relevant Information

In the Planning Area, suckers concentrate in tributaries or in sections of river that are fed by high-quality effluent from sewage treatment plants (Moyle 2002). Discharged treated effluent makes up the majority of the water present in the mainstem of the Santa Ana River during the dry summer months (USFWS 2011). Santa Ana sucker abundance is predominantly concentrated around the Regional Tertiary Treatment RIX discharge location to approximately Riverside Avenue. Concentrations of all age classes are at times present in the Rialto Drain, although habitat conditions are degraded due to multiple variables such as high summer water temperatures and high abundance of aquatic predator species. Critical habitat in the Planning Area is designated in the Santa Ana River from the Orange-San Bernardino County line to Greenspot Road, City Creek from its confluence with the Santa Ana River to the East-West City Creek fork, and Mill Creek from its confluence with the Santa Ana River to Valley of the Falls Drive.

Changes in flood flows below Seven Oaks Dam result in changes to sediment transport within the Santa Ana River Wash and reaches farther downstream. The operation of Seven Oaks Dam modifies the historic flow regime of the upper Santa Ana River. The reduction in peak flows has reduced both the amount and size of sediment that is transported downstream (USACE 2000), affecting the prevalence of coarse sediment as Santa Ana sucker habitat. Furthermore, the dam creates a discontinuity in sediment transport because it traps the bedload that is transported into Seven Oaks Reservoir, resulting in a reduction in sediment supply downstream.

Arroyo Chub (*Gila orcutti*)

Current Status and Distribution

The arroyo chub (*Gila orcutti*) is a California Species of Special Concern that is native to the streams and rivers of the Los Angeles basin, including the Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita Rivers (Moyle 2002). Distribution in the Santa Ana River is from Prado Dam upstream past Riverside Avenue, to the RIX and Rialto outflows, where surveys for Santa Ana sucker have documented incidental occurrences (Western Riverside County MSHCP 2012a). A number of tributary streams to the Santa Ana River are also occupied at times, dependent upon flow conditions and water quality, primarily in the Riverside area. This species is scarce in its native range because it does best in lower gradient streams that have largely disappeared due to the degradation of urbanized streams near the Los Angeles metropolitan area (Swift et al. 1993).

Habitat Requirements

Arroyo chub is most common in slow-flowing or backwater areas within warm to cool (50–75°F) streams with sand or mud substrates and a depth greater than 15 inches (Moyle et al. 1995, Swift et al. 1993). This species also occurs in fairly fast-moving streams with velocities over 31 inches per second or more, and in streams with coarse bottoms (CDFG 2010, Moyle 2002, Greenfield and Deckert 1973). The species can also tolerate stream flow intermittency and is adapted to survive in fluctuating streams and shift between fast-moving turbid streams in winter and clear intermittent streams in summer. Arroyo chub can also survive in hypoxic (low oxygen) conditions and in fluctuating temperatures (Western Riverside County MSHCP 2012a).

Distribution of Modeled Preferred Habitat and Documented Occurrences in the Planning Area

Distribution of arroyo chub modeled preferred habitat and documented occurrences in the Planning Area are illustrated on Figure 3-42 and quantified in Table 3-15. The known occupied habitat was mapped directly by species experts based upon habitat preference criteria, documented occurrences, and existing conditions in the Planning Area. This species was found to occupy various habitat types, including fine and coarse substrates within the Santa Ana River (Wulff et al. 2020).

Preferred habitat was modeled for arroyo chub along the same 21.1-mile-long study reach using similar methodology as described for Santa Ana sucker (Appendix E), with the exceptions of water velocity and coarse substrate. Modeled preferred habitat for arroyo chub employed one variable: water depth (greater than 15 inches). The sum of modeled preferred habitat meeting this criterion is 3.7 acres. Although additional portions of the stream are anticipated to be used by this species at any time, the focus of this analysis was on those habitats that meet the water depth criterion for preferred habitat during the dry season low flow conditions.

Taxonomy and Genetics

Arroyo chub readily hybridize with California roach and Mojave tui chubs (Moyle 2002). This species is closely related to other Gila chub from the Southwest, including those found in the Colorado River (Simons and Mayden 1998). Arroyo chub shares the subgenus Temeculina with *Gila purpurea* from Mexico and southeastern Arizona (Western Riverside County MSHCP 2012a).

Reproduction

Females can reproduce at 1 year of age. Most spawning occurs in pools or in quiet edge water at temperatures of 57–72°F (Moyle et al. 1995). Spawning takes place in pools and edge habitat from February to August, with a peak in June and July (Moyle 2002). Eggs are adhesive and are preferentially deposited on available submerged vegetation (Western Riverside County MSHCP 2003). Eggs typically hatch in 4 days, and the fry stay on the substrate for a few days before rising to the surface to stay among plants or other cover for approximately 3 to 4 months (Moyle et al. 1995, Moyle 2002).

Dispersal, Territoriality, and Home Range

Dispersal of arroyo chub is typically up- or down-river and depends on habitat availability and connectivity. The species will disperse to downstream habitat from upstream or tributary spawning areas as it becomes available. On a broad scale, dispersal in the Santa Ana River is limited by Prado

Dam and La Cadena drop structure. On a fine scale, upstream dispersal can often be limited by natural and human-made barriers and drop structures (Western Riverside County MSHCP 2003). There is no documented information on this species' territorial behaviors or on home range size.

Daily and Seasonal Activity

Daily activity patterns are not documented widely for arroyo chub. Some behavior patterns have been documented in the Riverside-Corona Resource Conservation District captive population. Seasonally, spawning occurs from February through August (Table 3-24).

Table 3-24. Seasonal Activity of Arroyo Chub

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Spawning												

Source: Moyle 2002

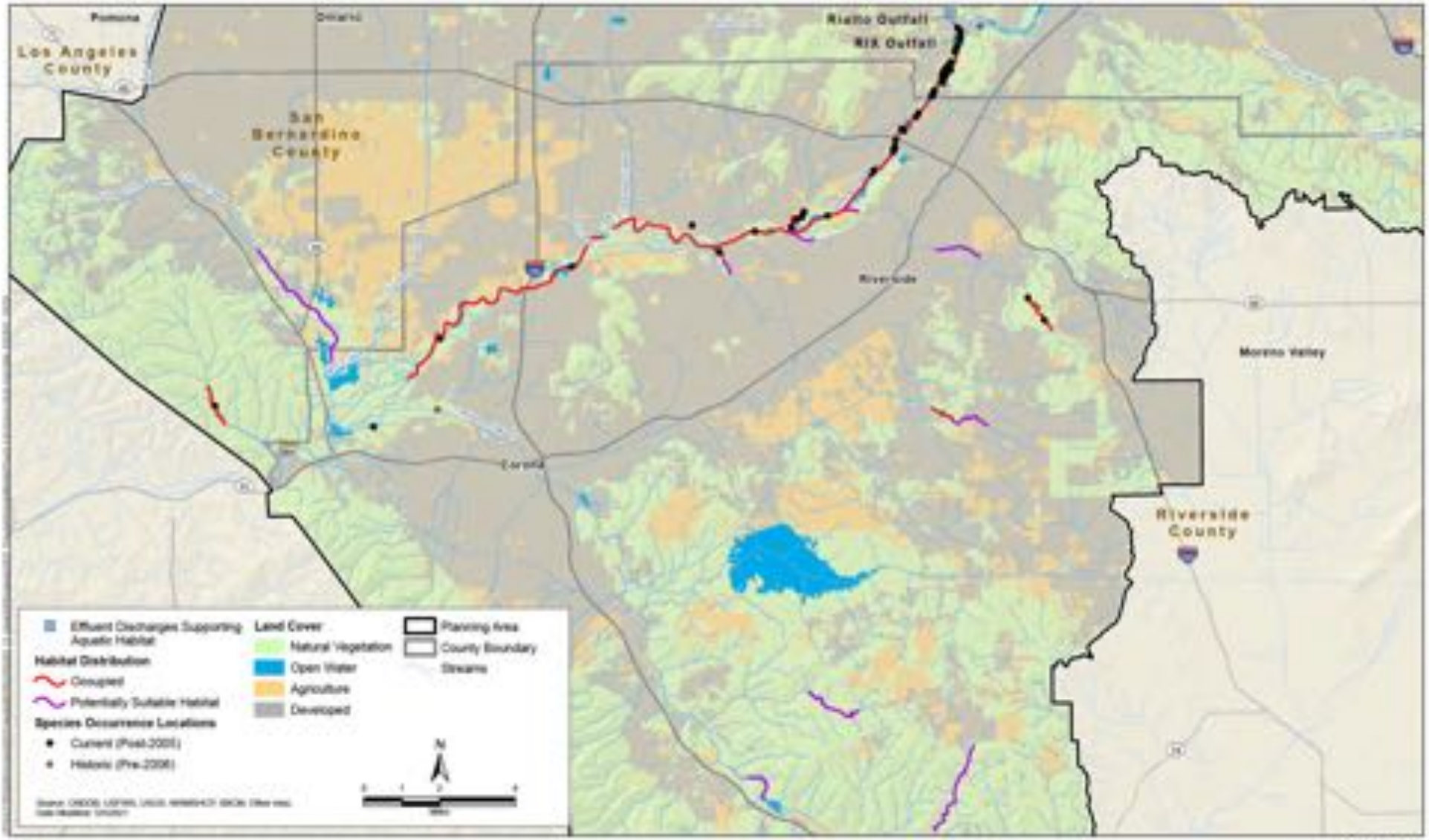
Diet and Foraging

Arroyo chub feed on plants such as algae and water fern (*Azolla* spp.), and on invertebrates including insects and mollusks, depending on the availability (Moyle 2002). Arroyo chub are typically benthic feeders; however, individuals may also forage on drifting invertebrates when they are prevalent in the water column (Krug et al. 2012).

Threats and Special Management Considerations

Arroyo chub are threatened by habitat degradation from channelization, hardbank stabilization, and flood control projects that alter hydrologic conditions (i.e., decrease flow rate or remove backwater areas). These activities may also block movement by introducing impassable barriers to upstream movement. The species is threatened by habitat degradation through the spread of invasive plant species including giant reed and tamarisk (*Tamarix* spp.) (Moyle 2002, Western Riverside County MSHCP 2003). Arroyo chub are also negatively affected by nonnative predators; for example, they can be displaced through competition with introduced nonnative species such as red shiners (*Cyprinella lutrensis*) (Moyle 2002). Water quality degradation from urban runoff and in-stream discharges also negatively affects habitat quality (Western Riverside County MSHCP 2003).

Conservation management should include maintenance of connectivity through intermediate creek stretches to facilitate exchange between populations. Population exchange and subsequent gene flow is important for long-term persistence of the species. Perennial stream refugia should be protected from nonnative invasive plant and animal species known to negatively impact chub populations. Drop structures or other barriers isolating populations from each other should be identified and assessed for possible removal. The species responds favorably to captive headstarting, and can easily be re-introduced to create new populations. Because of this, unoccupied habitat that is suitable for the species, especially above impassable drop structures, but currently unoccupied should be considered for reintroduction opportunities (Moyle 2002, Western Riverside County MSHCP 2012a).



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-42
Arroyo chub, *Gila orcuttii*
Potential Habitat Distribution and Known Occurrence Records

Santa Ana Speckled Dace (*Rhinichthys osculus*)

Current Status and Distribution

Santa Ana speckled dace (*Rhinichthys osculus*) is a California Species of Special Concern and historically occurred throughout the basin, foothill, and higher elevation portions of the Los Angeles, Santa Ana, and San Gabriel River systems, but currently only occurs in the headwaters of the Santa Ana and San Gabriel Rivers (Moyle et al. 1995). In the Planning Area this species is considered present in Lytle Creek, Cajon Creek, City Creek, and Plunge Creek (Pisces 2014). There are also occurrence records for Mill Creek and Strawberry Creek; however, Santa Ana speckled dace is now assumed to be extirpated from these streams (ICF International 2014, Pisces 2014). After significant winter flows, this species has been found in the mainstem Santa Ana River at the confluence of Warm Springs Creek and below the drop structure at La Cadena Drive; however, these sites do not represent suitable habitat for the species due to higher water temperatures (ICF International 2014, Russell pers. comm).

Habitat Requirements

Santa Ana speckled dace is found primarily in small perennial streams fed by cool springs that maintain summer water temperature below 68°F (Moyle 2002). This species can thrive in shallow (less than 24 inches), rocky riffles and runs with gravel and cobble substrates, which is optimal foraging habitat (Moyle 2002, Moyle et al. 1995). Numbers of dace may actually increase in streams that have been channelized or reduced in flow, providing more preferred riffle habitat (Moyle 2002). Overhanging vegetation is important for cover (Moyle et al. 1995). This species is often most abundant in streams where nonnative sculpins are absent, which compete for habitat and prey (Moyle 2002).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The distribution of the Santa Ana speckled dace in the Planning Area is defined via miles of occupied reaches, and documented occurrences (Figure 3-43). The known occupied habitat and modeled suitable habitat was mapped directly by species experts based upon habitat preference criteria, documented occurrences, and existing conditions in the Planning Area. This species is expected to be present in Fredabla Creek, downstream of the Plunge Creek confluence, Hemlock Creek, Lytle Creek, and Waterman Creek. Potential habitat exists in Strawberry Creek, East Twin Creek, and possibly Horsethief Creek (Pisces 2014, Russell pers. comm.).

Predicted Wetted Area as a Measure of Aquatic Habitat

Wetted area as a measure of aquatic habitat was estimated for Santa Ana speckled dace using the methodology described in Section 3.6.4. Less than 1 acre (0.01 acre) of modeled suitable habitat was found to co-occur with predicted wetted area acreage downstream of Covered Activities.

Taxonomy and Genetics

The genus *Rhinicthys* is distributed throughout North America and has eight recognized species. Species are highly variable and may encompass complexes of unrecognized species or subspecies. This species has not been formally described as a subspecies, but studies indicate that it is genetically distinct (Moyle 2002).

Reproduction

Santa Ana speckled dace spawn throughout the summer with peaks in activity in June and July, likely induced by rising water temperatures. Reproduction rates have not been measured, but are probably high due to the species' ability to recolonize or repopulate areas over a few seasons, when suitable habitat exists (Moyle 2002).

Dispersal, Territoriality, and Home Range

Santa Ana speckled dace has the ability to recolonize or repopulate areas if conditions become too extreme and local populations are greatly depressed by floods, droughts, or winter freezing. Dispersal in the Planning Area is limited by available suitable habitat and by barriers to movement. Santa Ana speckled dace typically occurs in small groups while foraging and are seldom found singly; however, they avoid forming conspicuous shoals except during the breeding season (Moyle 2002).

Daily and Seasonal Activity

Santa Ana speckled dace may be active during the day or night, and activity may depend on vulnerability to avian predators. The species can be active year-round if the temperatures do not drop below 39°F, and spawning occurs March through July (Moyle 2002) (Table 3-25).

Table 3-25. Seasonal Activity of Santa Ana Speckled Dace

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Spawning												

Source: Moyle 2002

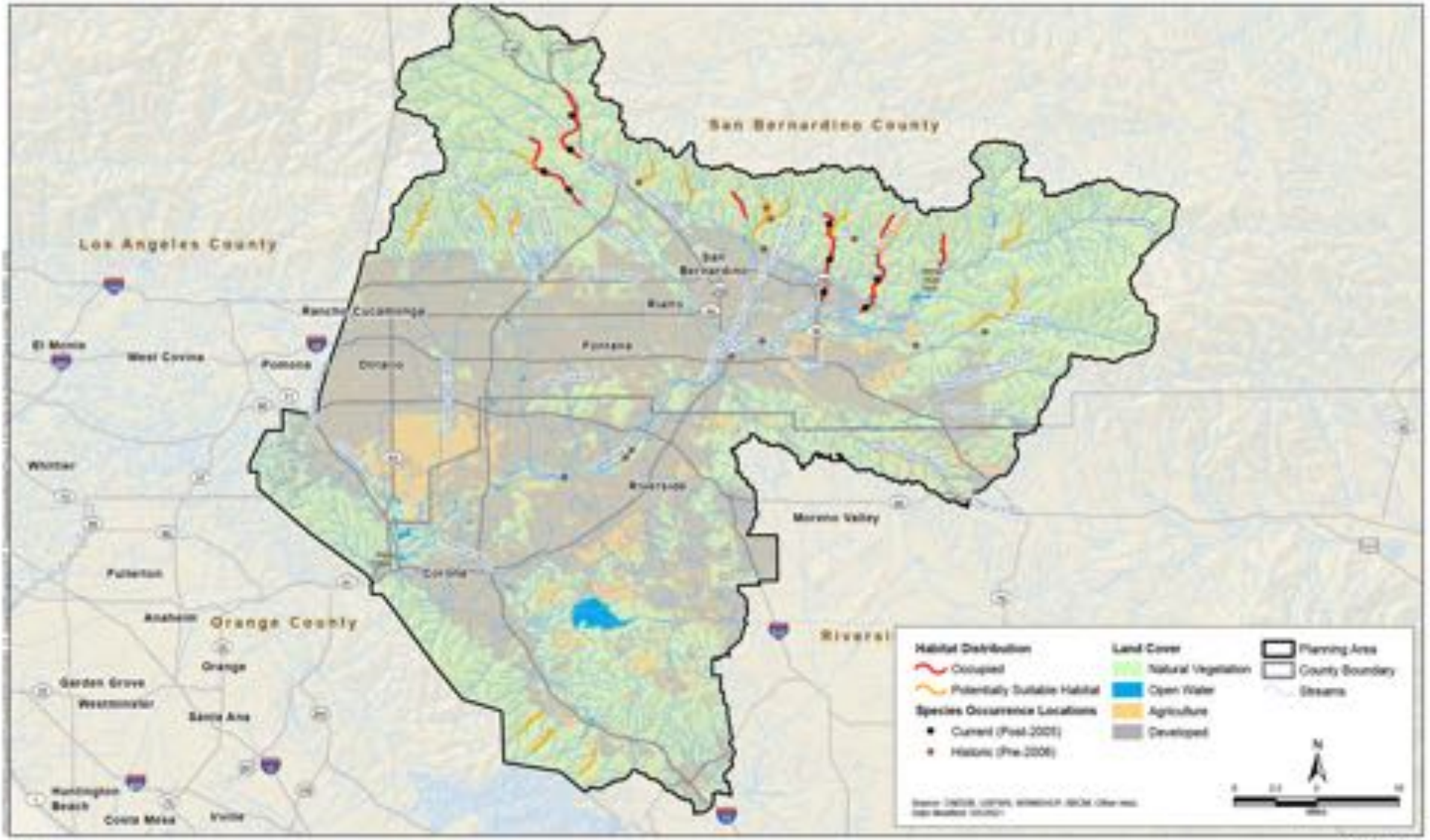
Diet and Foraging

In general, Santa Ana speckled dace forage as bottom-browsers on small invertebrates, especially those taxa found in riffles, such as insect larvae or nymphs (Moyle 2002, Pisces 2014). This species will also feed on filamentous algae (Pisces 2014). The species' diet varies with season and associated prey availability (Moyle 2002).

Threats and Special Management Considerations

Predominant threats to Santa Ana speckled dace include water diversion, urbanization of watersheds, introduction of nonnative species, habitat loss from wildfire, and habitat fragmentation. Where small populations do exist, this species is separated by dry washes most of the year and/or barriers that isolate them and make repopulation impossible. Other threats include recreational use that alters habitat or disturbs behavior, water quality degradation, and drought (Moyle et al. 1995).

Conservation management should include maintenance of connectivity through intermediate creek stretches to facilitate exchange between populations. Population exchange and subsequent gene flow is important for long-term persistence of the species. Perennial stream refugia should be protected from nonnative invasive plant and animal species known to negatively impact dace populations. Drop structures and other barriers isolating populations from each other should be identified and assessed for possible removal. The species responds favorably to captive headstarting and can easily be re-introduced to create new populations. Because of this, unoccupied habitat that is suitable for the species, especially above impassable drop structures, but currently unoccupied



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-43
Santa Ana speckled dace, *Rhinichthys oscolus ssp.*
Potential Habitat Distribution and Known Occurrence Records

should be considered for reintroduction opportunities. Surveys are needed to better understand population abundance and trends in the Santa Ana River watershed in the Planning Area. Water diversions that reduce in-stream flows and barriers to movement remain pervasive threats that isolate populations and threaten the species' existence (Moyle et al. 1995).

Arroyo Toad (*Anaxyrus californicus*)

Current Status and Distribution

The arroyo toad (*Anaxyrus* [*Bufo*] *californicus*) is Federally listed as endangered and is a California Species of Special Concern. The known range for the arroyo toad in the Planning Area is limited to San Bernardino County, where it occurs in the Upper Santa Ana River and Cajon Wash basins. It is also known to occur from the mouth of Cucamonga Canyon within and south of the San Bernardino National Forest (USFWS 2009b).

Habitat Requirements

Arroyo toad habitat includes shallow, slow-moving stream and riparian habitats that are naturally disturbed on a regular basis, primarily by flooding, including streams and washes with sandy banks free of dense vegetation with mature willow (*Salix* spp.) stands, cottonwoods (*Populus* spp.), western sycamore (*Platanus racemosa*), riparian habitats of semi-arid areas, and small cobble streambeds (USFWS 2009b). Areas of sandy or friable (readily crumbled) soils are the most important upland habitat for the species, and these soils can be interspersed with gravel or cobble deposits (USFWS 2005). USFWS description of critical habitat physical and biological features (PBFs) includes primary hydrologic regimes that supply water for space, food, and cover to maintain eggs, tadpoles, juveniles, and breeding adults, including low-gradient stream segments and alluvial streamside terraces. Groundwater conditions must support intermittent flows and persisting shallow pools into mid-summer; areas of open, sandy, and dynamic stream channels; and adjacent upland habitat (USFWS 2005, Rohde et al. 2019).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The distribution of arroyo toad modeled suitable habitat, documented occurrences, and designated critical habitat in the Planning Area are illustrated on Figure 3-44 and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Suitable Breeding Habitat

- An average width of 20 feet around specific selected streams mapped as breeding areas or within final critical habitat; **AND**
- **Land Cover**: Water – Intermittent (except within existing groundwater recharge basins); Water – Permanent (except within existing groundwater recharge basins); Water – Seasonal (except within existing groundwater recharge basins); Western North American Freshwater Aquatic Vegetation; Western North American Montane-Subalpine-Boreal Marsh, Wet Meadow, and Shrubland; Western North American Disturbed Marsh, Wet Meadow, and Shrubland; Western North American Temperate and Boreal Freshwater Marsh, Wet Meadow, and Shrubland; Great

Basin-Intermountain Xeric-Riparian Scrub; North American Warm-Desert Xeric-Riparian Scrub; Warm Desert Lowland Freshwater Marsh, Wet Meadow, and Shrubland; and Warm Southwest Riparian Forest.

Non-Breeding Upland Habitat

- Upland areas within a half-mile of Suitable Breeding Habitat (excluding developed, agriculture, disturbed).

Permeable Movement Area (Developed, Agriculture, Disturbed)

- Developed, agriculture, disturbed within a half-mile of Suitable Breeding Habitat.

Arroyo Toad Designated Critical Habitat

There are 1,777 acres of designated critical habitat for arroyo toad in the Planning Area (76 *Federal Register* 7245). The species has largely been extirpated as a result of urban development within the Planning Area and in other parts of the species range. Designated critical habitat within the Planning Area occurs within Cajon Creek, which supports a population of arroyo toad.

Taxonomy and Genetics

Arroyo toad was originally identified as part of the southwestern toad complex (*Bufo microscaphus*), and was considered a subspecies at original listing (*B. m. californicus*) (USFWS 1994). Recent genetic studies now place it in the genus *Anaxyrus* (Frost et al. 2008).

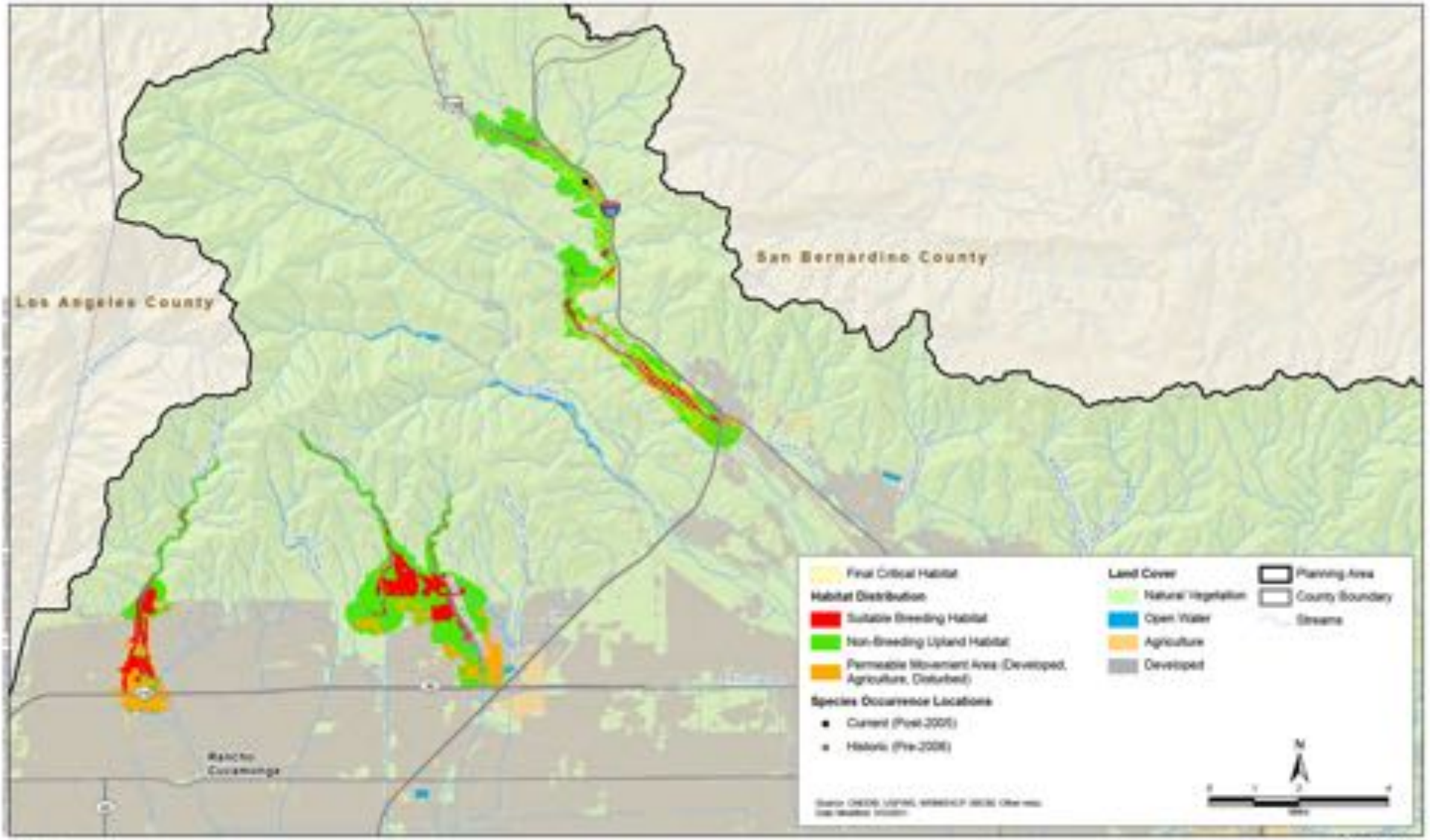
Reproduction

Arroyo toad breeding occurs from late January or February to early July, although it can be extended in some years depending on weather conditions (USFWS 1999). Breeding in mountainous habitats characteristic of the Planning Area populations may commence later (May–June) and last longer (to August) than in the coastal portion of the range. Breeding sites are typically adjacent to sandy terraces (USFWS 1994); at or near the edge of shallow pools, low-flow stream channels, and ox-bows; and along in-stream sand bars with minimal current (0–2 kilometers [1.24 miles] per hour) and have little or no emergent vegetation.

Dispersal, Territoriality, and Home Range

The arroyo toad is capable of moving 0.3 to 1.3 miles into suitable adjacent habitats and may not be constrained by topography (USFWS 1999). In a study using pitfall traps, this species was captured in upland habitats averaging more than 980 to 1,640 feet from two coastal streams; one was captured 3,940 feet beyond the edge of the riparian habitat bordering the stream (Holland and Sisk 2001). Four separate studies of inland populations (Ramirez 2002a, 2002b, 2002c, 2003) showed that this species burrowed no farther than 1,062 feet from the edge of a stream, with an overall average of 52 feet between burrow locations and the edge of the stream. These larger movements may be associated with dispersal, as additional work has shown arroyo toads to have high site fidelity, moving less than 300 feet during the breeding season (Mitrovich et al. 2011).

Home range is influenced by rainfall amounts, availability of surface water, width of streamside terraces and floodplains, vegetative cover, and topography (Griffin et al. 1999, Ramirez 2000a). Females have been documented to use riparian and upland habitats an average maximum distance of 443 feet with a maximum of more than 984 feet perpendicular to streams, while males move an



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-44
Arroyo toad, Anaxyrus californicus
Potential Habitat Distribution and Known Occurrence Records

average maximum distance of 240 feet from streams. Within-stream movement was documented up to 492 feet. Juvenile dispersal is shown to be 0.5 to 0.6 mile (Sweet 1993).

Daily and Seasonal Activity

Arroyo toad is primarily nocturnal, though activity of tadpoles often extends throughout the day. Adult activity begins after the onset of fall rains and continues through the typical breeding period (January–August) (Table 3-26). The species enters aestivation during the non-breeding season (August–January) (USFWS 1999).

Table 3-26. Seasonal Activity of Arroyo Toad

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding												

Source: USFWS 1999

Diet and Foraging

Tadpoles are highly specialized feeders on loose organic material such as detritus, interstitial algae, bacteria, and diatoms (Sweet 1992). Subadults and adults are opportunistic feeders, foraging on immediately available prey throughout both their breeding and upland habitats. Adults feed on a variety of invertebrates, including snails, Jerusalem crickets, beetles, ants, caterpillars, and moths.

Threats and Special Management Considerations

Historically, because habitats are favored sites for dams and reservoirs, roads, mining, agriculture, livestock grazing, urbanization, and recreational facilities (such as campgrounds and off-highway vehicle parks), many arroyo toad populations were reduced in size or extirpated due to extensive habitat loss that occurred from about 1920 to 1980 (USFWS 1999).

Introduced plants and predators (bullfrog, African clawed frog, crayfish, and green sunfish) have had substantial impacts on existing populations, and may have contributed to regional extirpation. Nonnative invasive plant species (e.g., tamarisk, giant reed, iceplant, pampas grass) degrade habitat by contributing to altered hydrology, eliminating sandbars and breeding pools, and restricting the quality and access to upland habitats. Active management of weeds may benefit arroyo toad populations by reducing weed cover of sandy soils that are essential refugia habitat for the species. Arroyo toads are highly vulnerable to habitat degradation resulting from changes in groundwater levels because they are so dependent on riparian vegetation for foraging and on perennial still pools for development and metamorphosis (i.e., the time it takes for this species to transform from a tadpole to frog) that span a minimum of two summer months (Rohde et al. 2019). Because native ants are a major food source for juveniles during the rapid growth stage in the weeks following metamorphosis, the spread of the nonnative Argentine ant into arroyo toad habitat may displace native ants and other macro invertebrates and thus negatively affect arroyo toad (Mitrovich et al. 2010, Stephenson and Calcarone 1999).

Other Relevant Information

The Upper Santa Ana River Basin/Cajon Wash Critical Habitat Unit (Unit 20) is the only critical habitat unit in the Planning Area, and supports a population that may represent some of the last

vestiges of a much greater population that historically existed along the upper Santa Ana River Basin. Improved conservation of this location is important to maintain the current geographic extent of the species. Unit 20 contains the PBFs that are essential to the conservation of the species, including aquatic habitat for breeding and non-breeding activities (PBFs 1, 2, and 3) and upland habitat for foraging and dispersal activities (PBF 4). This habitat has been disturbed and fragmented over time; therefore, the PBFs essential to the conservation of the species in this unit may require special management considerations or protection to address threats from recreational activities (USFWS 2005).

Mountain Yellow-Legged Frog (*Rana muscosa*)

Current Status and Distribution

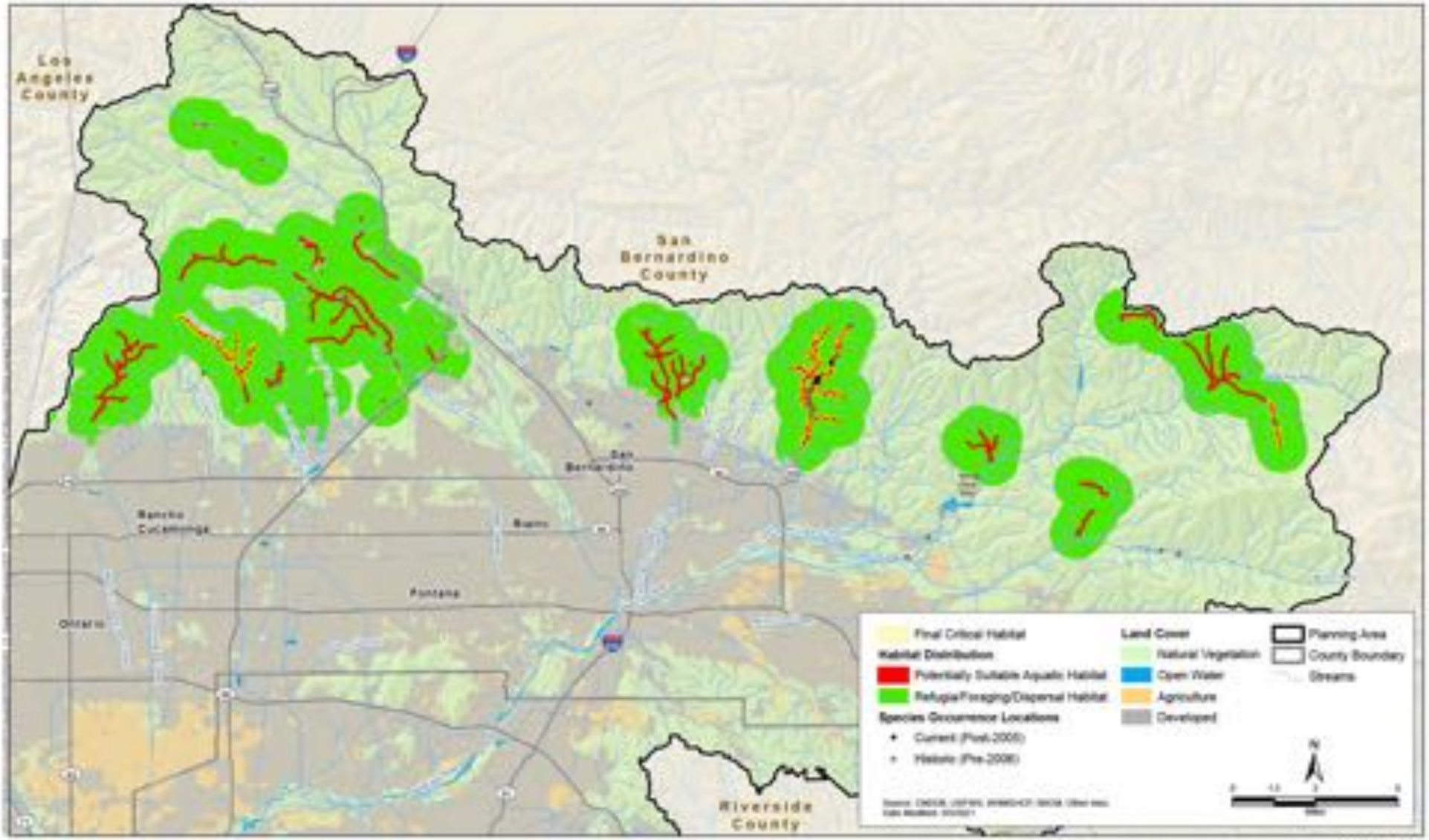
The mountain yellow-legged frog (*Rana muscosa*) is Federally and State listed as endangered and occurs in the San Gabriel, San Bernardino, and San Jacinto Mountain Ranges, in Los Angeles, Riverside, and San Bernardino Counties. In the San Gabriel Mountain Range, known populations occur in Devil's Canyon, Little Rock Creek, South Fork Big Rock Creek, Vincent Gulch, and Bear Gulch. In the San Jacinto Range, known populations occur in Fuller Mill Creek, Dark Canyon, and Tahquitz-Willow Creek (ICF 2014). The status of individuals that were previously salvaged, maintained in captivity, and then released in Indian Creek and Hall Canyon are unknown as of 2012. In the San Bernardino Mountain Range, the only known extant population occurs in East Fork City Creek. Populations occur from 370 to 2,290 meters (1,200 to 7,500 feet) in elevation (USFWS 2012).

Habitat Requirements

In Southern California, habitat typically consists of rocky and shaded streams with boulders or vegetation growing along the water's edge (USFWS 2012, Jennings and Hayes 1994) 3 feet away from water (Stebbins 2003). This species is found in creeks and streams with at least some portion with permanent water. Perennial flows are needed for reproduction, larval growth and survival, and hydration of juveniles and adults. The species is absent from the smallest creeks because these habitats lack the depth for aquatic refuge and overwintering (USFWS 2012, Jennings and Hayes 1994). Occupied habitat at City Creek consists of pools, rapids, and small waterfalls, with some structure that could function as refugia (cover from predators) such as bank overhangs, rocks, and downed logs, although aquatic vegetation is minimal (USFWS 2012). The USFWS description of critical habitat PBFs includes aquatic habitat with characteristics suitable for breeding, rearing, and non-breeding (over-wintering) as well adjacent upland areas providing feeding and movement habitat (USFWS 2006).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The distribution of mountain yellow-legged frog modeled suitable habitat, documented occurrences, and designated critical habitat in the Planning Area are illustrated on Figure 3-45, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-45
Mountain yellow-legged frog, *Rana muscosa*
Potential Habitat Distribution and Known Occurrence Records

Potentially Suitable Aquatic Habitat

- Within 100 feet of: National Hydrography Dataset perennial streams/waterbodies or National Wetlands Inventory (NWI) permanently flooded ponds or all streams within final critical habitat or all streams with documented or possibly extirpated occurrences – removed open water to retain perimeter of larger water bodies.

Refugia/Foraging/Dispersal Habitat

- **Landcover:** All landcover except Developed and Agriculture within 4,920 feet of Potentially Suitable Aquatic Habitat.

Mountain Yellow-Legged Frog Designated Critical Habitat

There are 2,216 acres of designated critical habitat for mountain yellow-legged frog in the Planning Area (81 *Federal Register* 59045). The species is extirpated across a majority of its range, including within the Planning Area. Critical habitat is located in Day Canyon in the San Gabriel Mountains, and the East and West Forks of City Creek.

Predicted Wetted Area as a Measure of Aquatic Habitat

Wetted area as a measure of aquatic habitat was also estimated for mountain yellow-legged frog using the methodology described in Section 3.6.4. Less than 1 acre (0.2 acre) of modeled suitable habitat was found to co-occur with predicted wetted area acreage downstream of Covered Activities (Table 3-16).

Taxonomy and Genetics

Mountain yellow-legged frogs were once considered one species, *Rana muscosa* throughout its range. Vrendenburg et al. (2007) clarified the taxonomy of mountain yellow-legged frog by analyzing the mitochondrial DNA, acoustic data, and morphological characteristics. His study showed two distinct species of mountain yellow-legged frogs: *R. sierra* in the northern and central Sierra Nevada and *R. muscosa* in the southern Sierra Nevada and Southern California. Within *R. muscosa*, three clades were identified (two in the southern Sierra Nevada and one in Southern California). The Southern California clade is disjunct from the clades in the Sierra Nevada and occurs in Los Angeles, Riverside, and San Bernardino Counties (USFWS 2012).

Reproduction

In Southern California, breeding occurs from March through August. Breeding commences as soon as aquatic habitat is free of snow and ice and when high waters subside (Stebbins 2003). Oviposition occurs in shallow water and egg masses are often clustered and are generally unattached in ponds and lakes, but may be attached to underwater structures in streams (Jennings and Hayes 1994). Metamorphosis is variable and dependent upon temperature (USFWS 2012), and can occur as quickly as one season at low elevations and up to three seasons at high elevation (Jennings and Hayes 1994). For southern populations, metamorphosis likely occurs at the end of the second summer when second year tadpoles are 1.5 years old. Hibernation and aestivation occur between November and January and between July and September, respectively (USFWS 2012). Breeding typically occurs between March and August (Jennings and Hayes 1994).

Dispersal, Territoriality, and Home Range

Dispersal often takes place along available aquatic habitat, but may occur through upland habitats as well. Dispersing individuals can travel long distances (up to 1,500 meters) in search of new territories or for breeding purposes (USFWS 2012). Longer dispersals generally occur soon after emerging from hibernation in the spring or before returning to hibernacula in the winter. Longer movements may occur due to drying of habitat (Matthews 2003).

Daily and Seasonal Activity

Larvae select warmer microclimates to keep relatively high body temperatures and often congregate in shallow waters during the day to increase body temperature. Adults are generally diurnal, and hibernate during winter months beneath ice-covered streams, lakes, and ponds. Adults emerge from hibernation immediately following snowmelt. During the active season, adults maximize their body temperatures at all times of the day by basking in the sun by moving between the warmer shallows along the shoreline and rocks on the shoreline (Jennings and Hayes 1994). Adults in Southern California will aestivate during the drier periods of late summer (Matthews 2003) (Table 3-27).

Table 3-27. Seasonal Activity of Mountain Yellow-Legged Frog

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernation												
Aestivation (in dry conditions)												
Breeding												

Sources: USFWS 2012, Jennings and Hayes 1994

Diet and Foraging

Adults feed opportunistically on other amphibians, beetles, flies, ants, bees, wasps, and true bugs (Jennings and Hayes 1994). Larvae feed on algae and diatoms located along the rocky bottoms of streams (Matthews 2003).

Threats and Special Management Considerations

The decline of mountain yellow-legged frog in Southern California is severe, with loss at approximately 99% of historical sites thought to be due to chytrid fungus, predation by introduced trout, habitat degradation due to mining, public dumping, and off-road vehicles, stream channelization, fire and post-fire debris flows, and pollution (CaliforniaHerps 2014, Morey 1988). Additionally, physical isolation has caused inbreeding, resulting in genetic isolation. Catastrophic natural events such as fires or flooding increase the likelihood of extirpation of small, isolated populations (USFWS 2012). Drought can also result in large mortality events if larval habitat evaporates. Mountain yellow-legged frogs depend on perennial water sources that do not fully freeze in winter. Changes in groundwater levels that reduce the necessary depth for overwintering tadpoles or increase oxygen depletion for overwintering adults may negatively affect this species (Rohde et al. 2019).

Translocation is often discussed as a possible management tool to reestablish threatened and endangered animals to areas where they have been extirpated. However, in the case of mountain yellow-legged frogs, one study found that because they are highly philopatric, translocated adult frogs can return to their capture site following short distance translocations and possibly from

longer distance translocations. Additionally, translocating adult frogs can cause stress on the animals resulting in the loss of body mass. Matthews (2003) suggests that translocation of egg masses or tadpoles may have greater success and less stress as the homing would presumably not be as developed. More information on the viability of re-introducing the species via egg masses or tadpoles is needed to assess this as a potential management tool (USFWS 2012). Trout removal in the headwaters of some systems appears to be a potential tool for expanding available habitat for the species. Additional information regarding potentially suitable reintroduction sites is needed, including the presence and distribution of perennial waters, chytrid fungus, and nonnative invasive fish species at any proposed sites (CDFG 2011).

The Southern California population is critically endangered. To increase this population, San Diego Zoo Global has a southern mountain yellow-legged frog recovery project that began approximately 13 years ago. The Los Angeles Zoo, Henry Doorly Zoo, CDFW, USFWS, USGS, and the U.S. Forest Service are also part of this collaborative effort to re-introduce captive-bred frogs in Southern California. This program has released froglets and tadpoles into the frog's historic range in Southern California. In June of 2018, San Diego Zoo Global released 250 froglets in the San Bernardino National Forest (U.S. Forest Service 2018).

Western Spadefoot (*Spea hammondii*)

Current Status and Distribution

The western spadefoot (*Spea hammondii*) is a California Species of Special Concern and is endemic to California and northern Baja California (Jennings and Hayes 1994). This species occurs in the Central Valley, Coast Ranges, and Southern California south of the Transverse Range and west of Peninsular Mountains from near sea level to around 4,500 feet above sea level (CaliforniaHerps 2014). Western spadefoot has been extirpated from much of Southern California but persists in coastal Orange, western Riverside, southwest San Bernardino, and inland San Diego Counties (Stebbins 2003). This species occurs in the central and southern portions of the Planning Area, along I-15 south of Corona, just east of I-215 near March Air Force Base, and in the Santa Ana River basin just downstream from and at scattered locations along the base of the San Bernardino Mountains (ICF 2014, Braden pers. comm).

Habitat Requirements

Western spadefoot occurs primarily in lowland areas including river floodplains, alluvial plains, playas, and alkali flats (Stebbins 2003). This species prefers habitats with sandy or gravely soils and requires slow-moving edges of rivers and streams or temporary rain pools with temperatures >48°F to <86°F in which to breed. Pools need to last at least 3 weeks to allow successful metamorphosis (CaliforniaHerps 2014, Jennings and Hayes 1994). Breeding habitat includes vernal pools and artificial impoundments such as stock ponds and pools that form at the bases of road and railroad grades, and pooled areas of ephemeral streams (Jennings and Hayes 1994). Suitable breeding habitat must be free of bullfrogs, crayfish, or fish (AmphibiaWeb 2014, CaliforniaHerps 2014). Upland habitats include grasslands, oak woodlands, coastal sage scrub, and chaparral in the vicinity of breeding pools, and the species prefers open areas with short grasses (AmphibiaWeb 2014, Stebbins 2003).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of western spadefoot modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-46, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat

- **Land Cover**: Californian Annual and Perennial Grassland, Warm Southwest Riparian Forest, North American Warm-Desert Xeric-Riparian Scrub, Californian Chaparral, and Californian Coastal Scrub; Barren; **AND**
- **NWI and SoCal Wetlands hydrology attribute modifier**: Seasonally Flooded, Temporarily Flooded, Artificially Flooded; Upper Santa Ana River Wash Plan recharge basin; NWI freshwater pond; and SoCal Wetlands pond, detention basin; **AND**
- **Soil Texture**: sand, sandy loam, coarse sand, coarse sandy loam, fine sand, fine sandy loam, loamy sand, loamy coarse sand, loamy fine sand, river wash, very fine sandy loam, clay, and loam; **AND**
- **Landform**: alluvial flats; alluvial fans; alluvial plains; channels; floodplains, foothills, terraces, and uplands; also drainageways regardless of land cover type; **AND**
- **Elevation**: 0–2,953 feet; **AND**
- **Slope**: 0–3%; **AND**
- Must be a 536-acre block of natural contiguous open space grouped using a maximum separation distance of 25 feet.
- **Post-processing:** Removed fragmented and isolated patches surrounded by development.

Predicted Wetted Area as a Measure of Aquatic Habitat

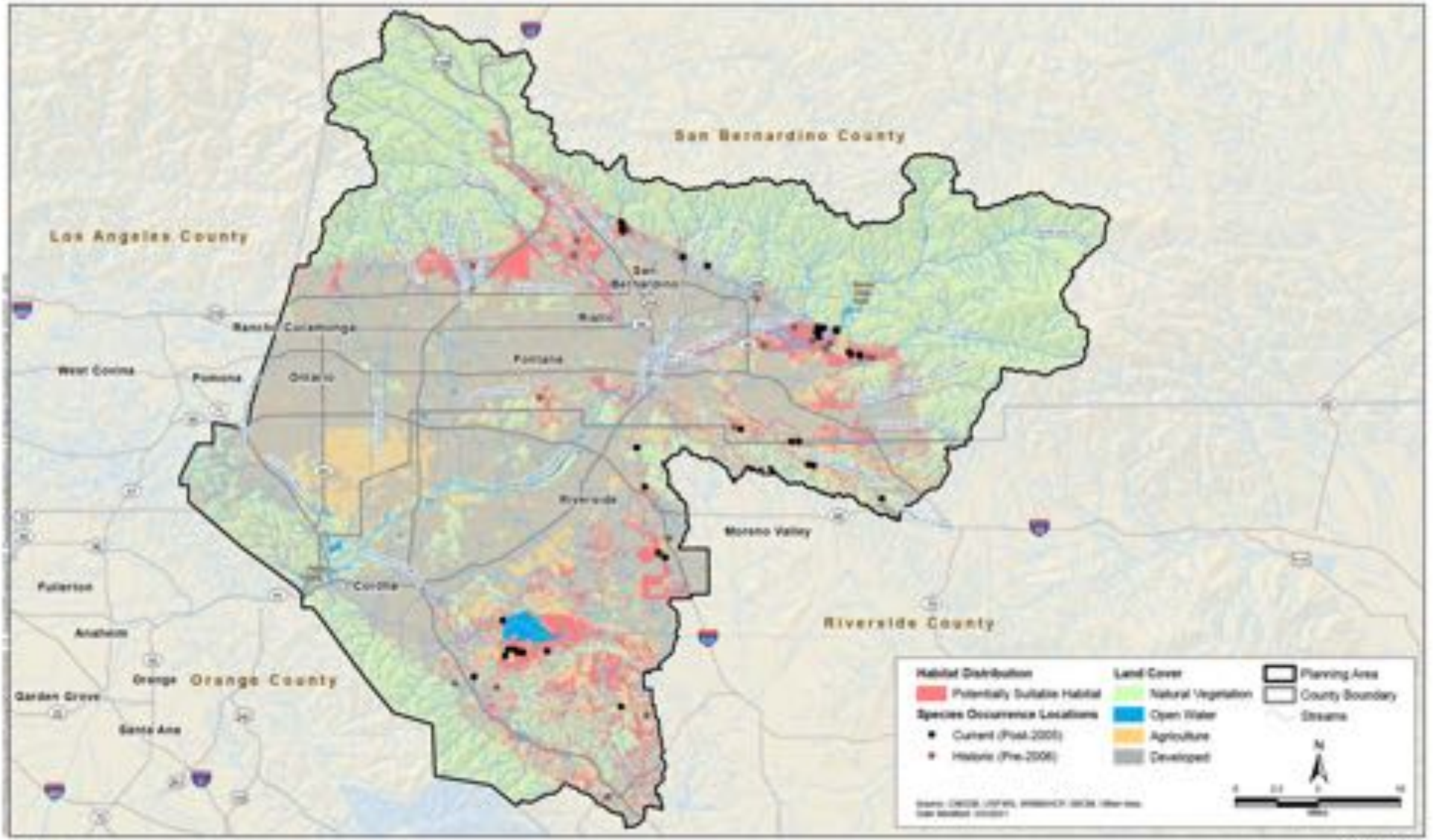
Wetted area as a measure of aquatic habitat was also estimated for western spadefoot using the methodology described in Section 3.6.4. Approximately 199 acres of modeled suitable habitat was found to co-occur with predicted wetted area acreage downstream of Covered Activities (Table 3-16).

Taxonomy and Genetics

Western spadefoot was once considered widespread through the southwestern U.S. and northern Mexico with the population in California being a subspecies, *S. hammondii hammondii* (CaliforniaHerps 2014). Past studies have proposed that populations east of California be recognized as Mexican spadefoot (*Spea multiplicata*) citing morphological differences and differences in mating calls and ecology. Since this work, *S. hammondii* has been applied to western spadefoot populations in California exclusively (Jennings and Hayes 1994, AmphibiaWeb 2014)

Reproduction

Breeding for western spadefoot is dependent on temperature and rainfall. Mating and egg laying generally occurs from late February to late May (Jennings and Hayes 1994). Females lay 300–500



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-46
Western spadefoot, *Spea hammondii*
Potential Habitat Distribution and Known Occurrence Records

eggs in small clusters of 10–42 eggs (CaliforniaHerps 2014). Egg masses are attached to submerged plant material or detritus (Jennings and Hayes 1994, CaliforniaHerps 2014). Eggs usually hatch in 3–4 days, and larval development lasts approximately 58 days, although development of larvae is flexible and positively correlated to pool duration. Larvae will delay metamorphosis in long-lasting pools with large food supply. Breeding may not occur during dry years because breeding pools may not fill (CaliforniaHerps 2014).

Dispersal, Territoriality, and Home Range

Little is known about how far individuals move to reach breeding sites (AmphibiaWeb 2014), but adults are known to travel a few meters on rainy nights. Following metamorphosis, juveniles migrate from the breeding pools. Little is known about how far the species disperses (Morey 1988). They are not territorial during most of the year; however, males keep individual space during chorusing (AmphibiaWeb 2014). Calling males do exhibit aggressive behaviors at breeding sites, suggesting some territoriality (Morey 1988).

Daily and Seasonal Activity

Western spadefoot is predominantly terrestrial, only enters the water to breed, and is rarely seen on the surface; it remains dormant for most of the year in subterranean refugia that it constructs or in mud cracks, under boards or other surface cover objects (Morey 1988). Spadefoots can dig their own burrows using the hardened spades on their hind feet. The species emerges from underground aestivation during periods of relatively warm rains from fall to early spring months, migrates to breeding pools, and emigrates from pools following breeding (Jennings and Hayes 1994, CaliforniaHerps 2014) (Table 3-28). Emergence and migration is generally synchronous (CaliforniaHerps 2014).

Table 3-28. Seasonal Activity of Western Spadefoot

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Emergence and Migration												
Breeding												

Sources: Jennings and Hayes 1994, CaliforniaHerps 2014

Diet and Foraging

Larvae primarily consume plankton and algae, but may also be carnivorous and feed on other tadpoles. Adults feed on invertebrates including worms and insects (Morey 1988). Adults require annual foraging opportunities to acquire enough food to survive through seasonal dormancy (Jennings and Hayes 1994).

Threats and Special Management Considerations

The primary threat to the western spadefoot is loss of habitat. In Southern California, more than 80% of habitat once known to sustain the species has been lost due to development or incompatible conversion (Jennings and Hayes 1994, CaliforniaHerps 2014, Stebbins 2003). Introduction of bullfrogs into breeding pools has had a negative impact on some populations, as has the introduction of mosquito fish (Jennings and Hayes 1994, CaliforniaHerps 2014).

Efforts should be undertaken to protect areas with temporary rain pools and surrounding habitat. The species will readily use human-made water sources to breed, and could be subsidized through the maintenance of temporary water sources in areas where adults are known to occur. Weed management, including removal or grazing control of nonnative invasive grasses, may also provide some benefit to the species (Marty 2005). In addition to conservation of existing habitat, creation of new vernal pool habitat and subsequent translocation of western spadefoot egg masses and larvae has shown success as a conservation mitigation strategy in Orange County, California, where persistence of the species and successful reproduction was observed at mitigation sites 10 years after establishment (Baumberger et al. 2020).

California Glossy Snake (*Arizona elegans occidentalis*)

Current Status and Distribution

California glossy snake (*Arizona elegans occidentalis*) is a California Species of Special Concern and is found from California's central San Joaquin Valley south to the U.S. Mexico border and east into the Mojave and Sonoran Desert region. The Planning Area encompasses the area of intergrade between the unrecognized California and desert subspecies (Stebbins 2003, Thompson et al. 2016). Occurrences are known around the Santa Ana River from the San Bernardino Airport east toward the Seven Oaks reservoir and to the north associated with Cajon Wash and Lytle Creek.

Habitat Requirements

California glossy snake prefers open areas in a variety of habitats including light shrubby to barren desert, grassland, chaparral, and coastal sage scrub (Stebbins 2003, Thompson et al. 2016).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of California glossy snake modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-47, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat

- **Land Cover**: Californian Annual and Perennial Grassland; California Chaparral; Cool Interior Chaparral; Warm Interior Chaparral; Californian Coastal Scrub; Californian Forest and Woodland; Great Basin-Intermountain Xeric-Riparian Scrub; Intermountain Singleleaf Pinyon-Utah Juniper-Western Juniper Woodland; North American Warm-Desert Xeric-Riparian Scrub; North American Warm Semi-Desert Cliff, Scree, and Rock Vegetation; Western North American Cliff, Scree, and Rock Vegetation; **AND**
- **Soil Texture**: sand, sandy loam, coarse sand, coarse sandy loam, fine sand, fine sandy loam, loam sand, loamy coarse sand, loamy fine sand, river wash, and very fine sandy loam; **AND**
- **Landform**: alluvial fans, alluvial flats, alluvial plains, channels, floodplains, foothills, terraces, uplands, and also drainageways regardless of land cover type; **AND**
- **Elevation**: 0–6,000 feet.

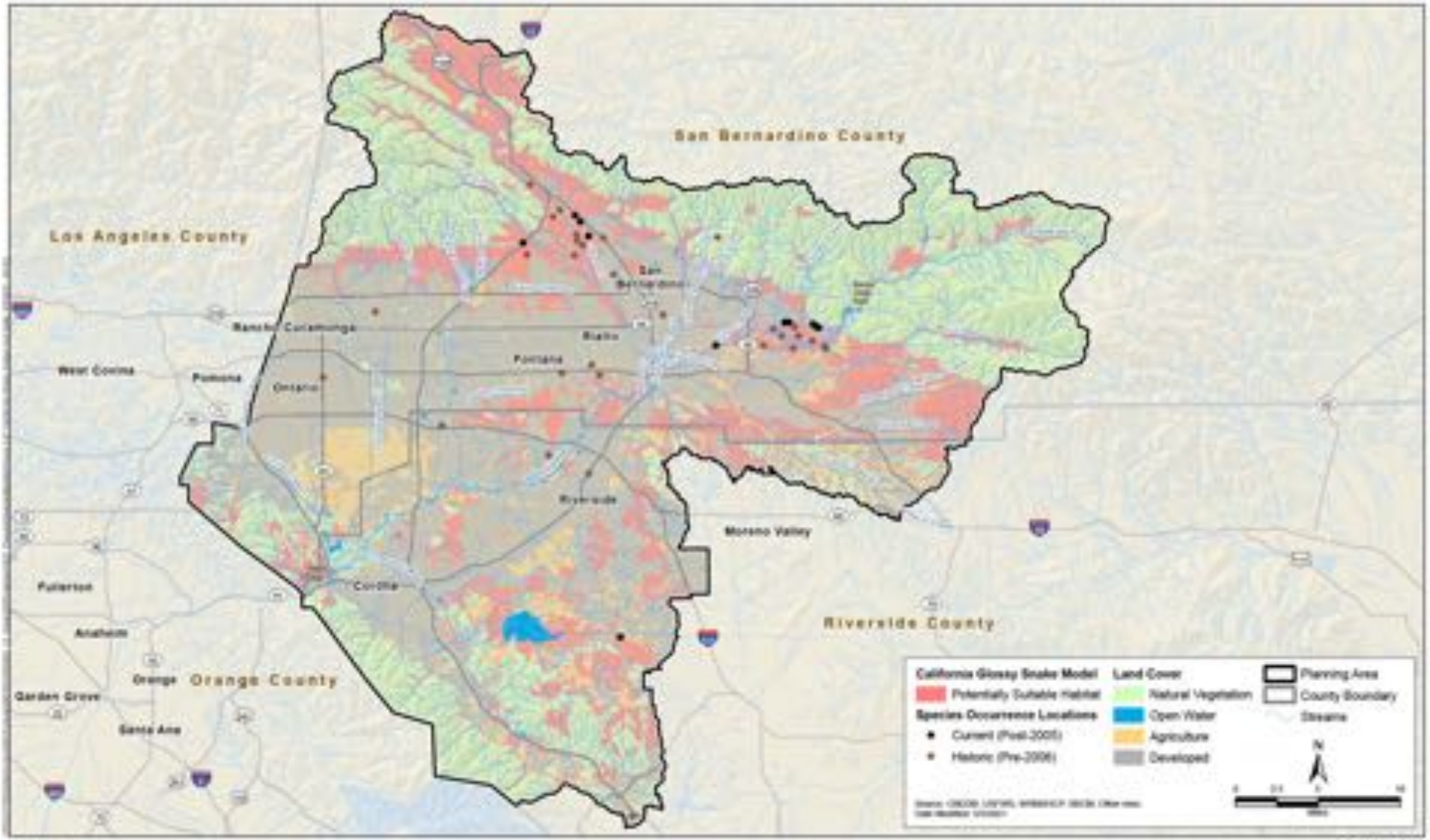


Figure 3-47
California glossy snake, *Arizona elegans occidentalis*
Potential Habitat Distribution and Known Occurrence Records

- **Post-processing**: Excludes very small isolated habitat fragments that would not be considered viable habitat and agricultural lands near the Prado Basin, Chino, and Ontario because the disturbance regime in these areas would not be compatible with this species occurrence.

Taxonomy and Genetics

Nine subspecies have been described within this monotypic genus (Aldridge 2001). The subspecies *occidentalis* was proposed as a western subspecies but this taxonomy has not been accepted (Hammerson et al. 2007).

Reproduction

California glossy snake is oviparous; mating season is restricted to the spring (Aldridge 2001); ovulation begins in June and eggs are laid in July with clutch size of 3–23 with an average of 8.5 (Stebbins 2003, Thompson et al. 2016). Neonates emerge in September (Thompson et al. 2016).

Dispersal, Territoriality, and Home Range

The sexual and seasonal distribution observed based on a mortality study found that the mating system is consistent with Prolonged Mate Searching Polygyny (Aldridge 2001). In this mating system, males search competitively for widely distributed, spatially unpredictable females. Data on territoriality and home range behavior are not currently available.

Daily and Seasonal Activity

California glossy snake is active primarily at night and remains underground during the day (Stebbins 2003). Seasonal activity is depicted in Table 3-29.

Table 3-29. Seasonal Activity of California Glossy Snake

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Egg Laying						■	■					
Neonate Emergence								■	■	■		

Source: CaliforniaHerps 2014

Diet and Foraging

California glossy snake feeds primarily on diurnal lizards, which it captures while they sleep, and nocturnal mammals, such as kangaroo rats, which it ambushes (Klauber 1946, Rodriguez-Robles et al. 1999). Larger specimens are also known to take small birds and other snakes (Rodriguez-Robles et al. 1999, Stebbins 2003, Thomson et al. 2016).

Threats and Special Management Considerations

Major threats to California glossy snake include primarily anthropogenic threats caused by direct mortality from development (agricultural, commercial, and residential) and road kill, as well as pressure from collectors (NatureServe 2014). Additional threats may include light pollution and increasing frequency and intensity of fires (Thomson et al. 2016).

Relatively little is known about the ecology of this species, which makes management difficult. California glossy snakes are thought to have relatively small range sizes and a moderate degree of

ecological specialization and endemism. Population declines have been documented across the species' range, caused largely by ongoing development. Habitat management is the primary management priority. Two research priorities will help inform habitat management objectives for this poorly studied species: (1) ecological studies to enhance the understanding of life history and existing population sizes, and (2) a species-wide phylogenetic study to determine whether there is intraspecific variation and to identify appropriate conservation needs (Thomson et al. 2016).

Other Relevant Information

The distribution of the California glossy snake has been reduced by 90% with only a handful of extant occurrences thought to remain in southwest San Bernardino County (Braden pers. comm.).

South Coast Garter Snake (*Thamnophis sirtalis* ssp.)

Current Status and Distribution

The south coast garter snake (*Thamnophis sirtalis* ssp.) is a Priority 1 California Species of Special Concern (Thomson et al. 2016) that is wide-ranging throughout the United States and Canada from the Pacific to the Atlantic (Stebbins 2003). Along the Southern California coast, this species has a restricted distribution from the Santa Clara River Valley (Ventura County) south coastally to the vicinity of San Pasqual (San Diego County). South coast garter snake occurs from near sea level to 2,730 feet and has been observed in the Lake Prado Basin in the Planning Area (Jennings and Hayes 1994, ICF 2014, Thomson et al. 2016).

Habitat Requirements

Essential habitat factors for south coast garter snake includes a permanent water source, low gradient topography, and dense multi-storied riparian vegetation (Ervin 2011). South coast garter snake is restricted to shallow freshwater aquatic habitats such as wetlands and marshes and upland riparian habitat near permanent waters (Jennings and Hayes 1994). This species is highly aquatic and needs open water for foraging; however, it generally avoids fast-flowing water (Morey 1988b, Rohde et al. 2019).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of south coast garter snake modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-48, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat

- **Land Cover:** Western North American Freshwater Aquatic Vegetation; Warm Southwest Riparian Forest; Western North American Temperate and Boreal Freshwater Marsh, Wet Meadow, and Shrubland; **AND**
- Elevation: 0–833 feet; **AND**
- Slope: 0–3%; **AND**

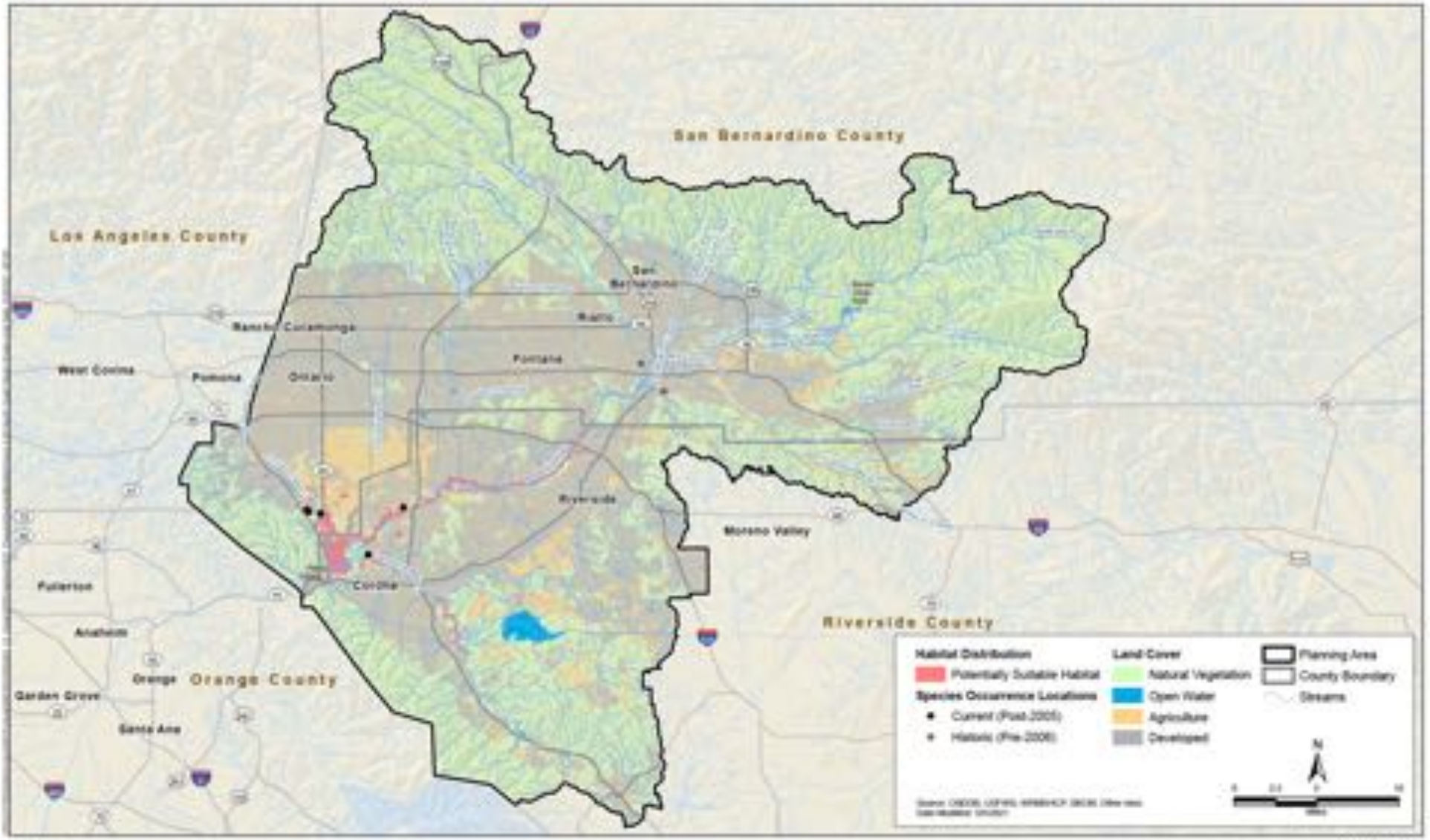


Figure 3-48
South coast garter snake, *Thamnophis sirtalis* ssp.
Potential Habitat Distribution and Known Occurrence Records

- Within 500 feet of selected land cover, elevation, and slope *except for* Developed and Agriculture.

Predicted Wetted Area as a Measure of Aquatic Habitat

Wetted area as a measure of aquatic habitat was also estimated for south coast garter snake using the methodology described in Section 3.6.4. Approximately 189 acres of modeled suitable habitat was found to co-occur with predicted wetted area acreage downstream of Covered Activities (Table 3-16).

Taxonomy and Genetics

Although south coast populations of *Thamnophis sirtalis* have not been formally described as a distinct taxon (Thomson et al. 2016), consistent with earlier findings (Jennings and Hayes 1994) garter snakes in this part of the range are considered Species of Special Concern (Thomson et al. 2016). Populations from Southern California were first described as California red-sided garter snake (*Thamnophis sirtalis infernalis*) by Henri Marie Ducrotay de Blainville in 1835 (CaliforniaHerps 2014). Barry (1998) and Stebbins (2003) support description of snakes from Southern California as *Thamnophis sirtalis infernalis*, while others (Boundy and Rossman 1995, Janzen at al. 2002) refer to them as red-spotted garter snakes (*Thamnophis sirtalis concinnus*). Morphological and genetic studies that will help to clarify the status of this taxon (*Thamnophis sirtalis* ssp.) are still pending (Thomson et al. 2016).

Reproduction

South coast garter snakes mate in the spring. Several males may often attempt to mate with a single female (Morey 1988b). This species is a live-bearing snake and generally gives birth to 12 to 18 young (Stebbins 2003). Young are generally born in August but gestation can extend into late summer and early fall (Jennings and Hayes 1994).

Dispersal, Territoriality, and Home Range

Data on movement ecology for this species are limited and the nature of its home range is not well known (Jennings and Hayes 1994, Morey 1988b). Individual home ranges probably overlap with others during the summer months. Individuals can be found close together in areas of favorable habitat. Many populations of common garter snakes aggregate in large numbers during the winter, especially in cold northern climates, though it is unknown if south coast garter snakes exhibit this behavior (Morey 1988b).

Daily and Seasonal Activity

South coast garter snake is an excellent swimmer and is often found near water (Jennings and Hayes 1994, Morey 1988a). The species is most active during the daytime, mainly during the morning and late afternoon most summer days and mainly during the afternoon in spring and fall. It may retreat to hibernacula during the winter months but may emerge to bask during warmer winter days (Morey 1988a). Seasonal activity is depicted in Table 3-30.

Table 3-30. Seasonal Activity of South Coast Garter Snake

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernation												
Breeding												

Sources: Morey 1988, Stebbins 2003, Jennings and Hayes 1994

Diet and Foraging

South coast garter snake is known to primarily feed on amphibians; however, fish and invertebrates are also targeted as prey (Jennings and Hayes 1994). This species is also known to prey on adult Pacific newts (*Taricha* sp.) without suffering the effects of poison secreted from the newt's body (Stebbins 2003).

Threats and Special Management Considerations

Loss of habitat is the principal threat to south coast garter snake. Urbanization and flood control projects have greatly affected suitable habitat. Of the 24 known historic localities, 18 sites (75%) no longer support the species. The introduction of nonnative aquatic predators also threatens existing populations. Destruction of suitable aquatic habitat is the biggest threat to populations, and the species is vulnerable to habitat degradation caused by reduced water levels and quality, which affects the availability of suitable vegetation and burrows (Jennings and Hayes 1994, Rohde et al. 2019). Wetland drying in the summer months and decreased hydrology due to water transfers or drought can also reduce suitable habitat. Substitution of groundwater for surface water can degrade habitat because groundwater has lower temperatures and may contain higher concentrations of contaminants (Rohde et al. 2019). Wide-spread surveys need to be undertaken in Southern California to determine where the species still exists and to evaluate the quality of the habitat where it does exist. Studies are also necessary to identify the importance of prey resources on recruitment and reproduction. Because seasonal movement patterns and recolonization abilities are not well understood, studies to identify these attributes should also be undertaken (Jennings and Hayes 1994).

Southwestern Pond Turtle (*Emys pallida*)

Current Status and Distribution

The southwestern pond turtle (*Emys pallida*) is a California Species of Special Concern and is currently under review for listing under the Federal Endangered Species Act (FESA) by USFWS. This species was formerly considered a subspecies of the western pond turtle (*Actinemys marmorota*); however, based on recent analyses the species has been split into two distinct, geographically non-overlapping species: *E. pallida* and *E. marmorota* (Spinks et al. 2014, 2016). The range for the southwestern pond turtle includes the southern and coastal portions of the overall range from northwestern Baja California del Sur to approximately San Francisco Bay. In the Planning Area, this species is known from Chino Hills State Park in Aliso Creek from Banie Canyon to the confluence with the Santa Ana River and in Soquel Canyon; Arnold Reservoir in Tonner Canyon; in a detention basin at the southern end of Walker Canyon north of Lake Elsinore, and within a section of the Santa Ana River in the Riverside area (Wulff et al. 2020).

Habitat Requirements

The southwestern pond turtle is an aquatic turtle that occurs in ponds, lakes, marshes, rivers, streams, and irrigation ditches. This species prefers habitats with emergent basking sites such as logs, rocks, and shorelines, and with underwater refugia (Stebbins 2003, Bury and Germano 2008). Southwestern pond turtle is most abundant in slow-moving portions of streams and rivers such as plunge pools because they lack swift currents and are deep enough to allow the turtle to retreat when threatened. Densities of this species in standing or slow-moving waters are often several times higher than in swifter-moving sections of streams and rivers. Southwestern pond turtle also utilizes upland habitats near aquatic habitat to reproduce, aestivate, and overwinter (Bury and Germano 2008). Hatchlings require shallow aquatic habitat with submerged vegetation on which to feed (Jennings and Hayes 1994).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of southwestern pond turtle modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-49, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Modeled Suitable Habitat:

Aquatic Habitat

- **Land Cover**: Water-Permanent (except within existing groundwater recharge basins) and Western North American Freshwater Aquatic Vegetation; **AND**
- **Elevation**: 0–1,800 feet.

Potentially Suitable Upland Habitat

- Areas that are within 1,640 feet of Aquatic Habitat (Reese and Welsh 1997); **AND**
- **Elevation:** 0–1,800 feet; **AND**
- Contiguous with Aquatic Habitat *except for* Developed; Agriculture; California Chaparral; and Cool Interior Chaparral, Western North American Cliff, Scree, and Rock Vegetation.
- **Post-processing**: Removed fragmented and isolated patches surrounded by development and upstream of RIX Discharge.

Predicted Wetted Area as a Measure of Aquatic Habitat

Wetted area as a measure of aquatic habitat was also estimated for southwestern pond turtle using the methodology described in Section 3.6.4. Approximately 192 acres of modeled suitable habitat was found to co-occur with predicted wetted area acreage downstream of Covered Activities (Table 3-16).

Taxonomy and Genetics

Since 2011, CDFW has identified one species throughout its range (*Actinemys marmorata*) (CDFG 2011). However, four distinct mitochondrial clades have been identified: Northern, San Joaquin

Valley, Santa Barbara, and Southern California (Spinks and Shaffer 2005, Spinks et al. 2010). Additionally, some studies recommend, based on genetic differences, that populations north of San Francisco and in the Central valley be identified as *E. marmorata,* and populations in the central Coast Range south of San Francisco be identified as *E. pallida* (Spinks et al. 2014). This implies that the Tehachapi Mountains/Transverse Range are major barriers to movement in Southern California northward (Spinks et al. 2010). The pond turtle species found within the Planning Area is *Emys pallida*.

Reproduction

Southwestern pond turtle nest in terrestrial habitat in sites that can be as far as 1,312 feet from aquatic habitat; however, most are within 656 feet of aquatic habitat (Reese and Welsh 1997, Jennings and Hayes 1994). Mating typically occurs in April and May. Females emigrate from the water to upland nest sites and deposit 3–14 eggs from April through August, with timing dependent on location (Stebbins 2003). Females are highly terrestrial while they are gravid and make multiple trips onto land and burrow themselves beneath leaf litter (Reese and Welsh 1997). Incubation time ranges from 94 to 122 or more days (Bury and Germano 2008). Hatchlings in the northern portion of the species' range generally overwinter in the nest and emerge in the spring (Reese and Welsh 1997). In Southern California, hatchlings may emerge from the nest in the fall (Jennings and Hayes 1994).

Dispersal, Territoriality, and Home Range

Home range size and dispersal distances are highly variable among individuals. Some individuals may only travel a few feet from aquatic habitat to nest, aestivate, or overwinter, while others may travel considerably farther. Southwestern pond turtle has been known to disperse farther than 1.2 miles if local aquatic habitat disappears or becomes inhospitable, and adults can tolerate at least 7 days without water. The dispersal habits of juveniles are unknown (Jennings and Hayes 1994).

Males have average home ranges of 2.4 acres, while females have average home ranges of 0.6 acre. Populations can reach densities of 215 per hectare in undisturbed stream habitats and even higher in undisturbed ponds (Buskirk 2002). As water levels drop in the summer months and during droughts, the species tends to aggregate in higher densities (Bury and Germano 2008). Basking pond turtles will engage in aggressive behaviors such as biting and ramming to ensure adequate spacing for basking (DOI 1999).

Daily and Seasonal Activity

The level of activity is greatly affected by temperature, especially when surface water temperature is above 59°F (Bury and Germano 2008). Along the southern coastal areas of California, southwestern pond turtles may be active year-round. At higher elevations and higher latitudes, pond turtles will overwinter in upland areas or in the water (Jennings and Hayes 1994). Overwintering turtles may travel up to 1,640 feet from aquatic habitat to terrestrial refuges. Some have been known to occur in terrestrial habitats up to 7 months out of the year (Reese and Welsh 1997). Seasonal activity is depicted in Table 3-31.

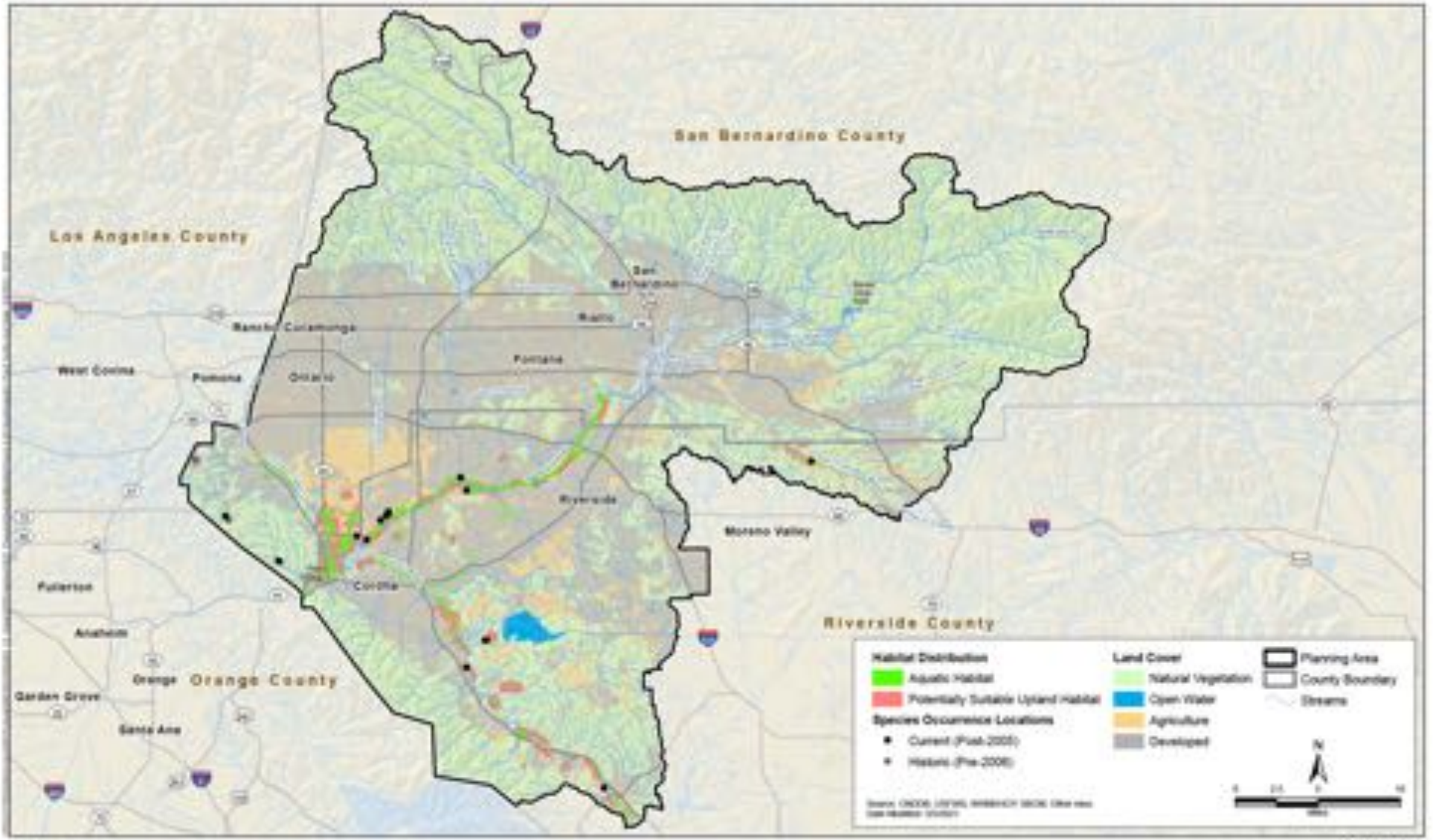


Figure 3-49
Southwestern pond turtle, *Emys pallida*
Potential Habitat Distribution and Known Occurrence Records

Table 3-31. Seasonal Activity of Southwestern Pond Turtle

Life Stage/Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernation	■	■										■
Breeding				■	■	■	■	■				
Hatchling Emergence									■	■	■	

Sources: Stebbins 2003, Jennings and Hayes 1994

Diet and Foraging

Southwestern pond turtles are omnivorous and dietary generalists (Bury and Germano 2008). Hatchlings and young juveniles feed primarily on zooplankton (Jennings and Hayes 1994). Adults feed on insect larvae, other aquatic invertebrates, fish, amphibian eggs and tadpoles, small fish, carrion, and aquatic plants (Stebbins 2003; DOI 1999).

Threats and Special Management Considerations

Overexploitation for food in the nineteenth and early twentieth centuries caused initial population declines throughout much of the southwestern pond turtle's range. Habitat destruction and alteration are now the primary threats (Bury and Germano 2008, Nicholson et al. 2020). Raccoons (*Procyon lotor*) and other native and introduced mammals may destroy nests and consume eggs and hatchlings. The introduction of largemouth bass (*Micropterus salmoides*) and bullfrogs (*Lithobates catesbeiana*) into aquatic habitats has been damaging to population recruitment (both species have been documented to eat hatchlings and juveniles) (Buskirk 2002, Nicholson et al. 2020), as has the introduction of red-eared sliders, which outcompete southwestern pond turtle for resources. Water diversions/reductions are also a threat to this species, reducing or completely drying suitable aquatic habitat.

Population declines may also be a result of female-biased mortality on roads, caused when gravid females leave aquatic habitats to nest in upland habitats (Nicholson et al. 2020). A recent study showed a strong correlational relationship between road proximity and density and increasing male population bias in this species (Nicholson et al. 2020).

Tricolored Blackbird (*Agelaius tricolor*)

Current Status and Distribution

Tricolored blackbird (*Agelaius tricolor*) is State listed as threatened. It is nearly endemic to California, with 95% of historic breeding range within the state (Western Riverside County MSHCP 2012a). Recent data shows breeding colonies occur sporadically within the Planning Area at the following locations (the most recent date and breeding colony size are given in parentheses)—San Bernardino County: pond adjacent to the Santa Ana River in Colton (2009; 100) (Feenstra 2009), wheat field near Euclid and Eucalyptus Avenues in Chino (2014; 100) (UC Davis 2014), a created wetland south of the Chino Airport (2014; 500) (UC Davis 2014), and the recently created Mill Creek Wetlands (2014; 1,000) (Pike pers. comm, eBird 2014). Breeding colonies have also been detected outside of the Planning Area within and adjacent to the San Jacinto Wildlife Area and along Salt Creek in western Riverside County.

Habitat Requirements

Habitat requirements for a tricolored blackbird breeding colony include open water; appropriate nesting substrate with cattails, bulrushes, willows, and forbs; and nearby foraging habitat (Beedy and Hamilton 1999). Foraging areas include grasslands, open fields, irrigated pasture, and agricultural areas (Beedy and Hamilton 1997, Shuford and Gardali 2008, Rohde et al. 2019). Alfalfa fields are the primary foraging area for the Mill Creek Wetlands colony (Pike pers. comm.) and is reported as the primary forage for several colonies in Riverside County (Western Riverside MSHCP 2012b). Sunflower is the only other crop known to support good foraging opportunities for this species (Meese pers. comm.). In addition to cattail/bulrush habitat, nest sites in the Planning Area have been documented in weedy areas, dominated by species such as bull thistle, mustard, nettle, and cheeseweed mallow (Western Riverside MSHCP 2012b).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of tricolored blackbird modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-50, and quantified in Table 3-15. Statewide mapping and monitoring of tricolored blackbird colony locations is coordinated through the UC Davis Tricolored Blackbird Portal. Colony locations are attributed with the habitat where the colony is located. Colonies were classified into categories based on the surrounding habitat.

- **Typical colony**: Colony located in naturally occurring emergent wetland habitats.
- **Atypical colony**: Colony located in nonnative or atypical natural habitats including: thistle or nettle colony, willow colony, agriculture colony, and urban park colony.

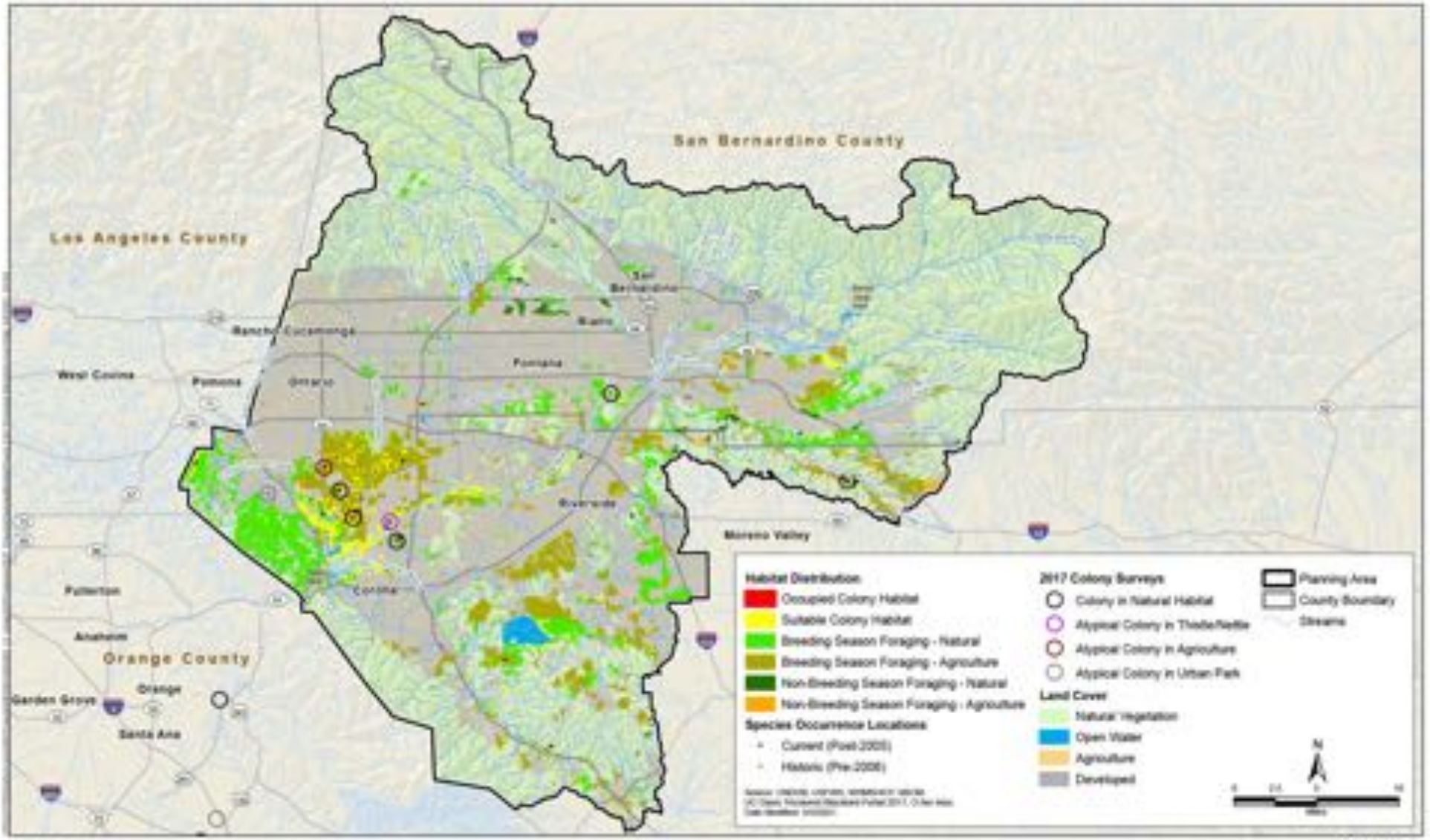
The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area, and include a listing of the data and/or parameters used to create each modeled habitat type.

Occupied Colony Habitat (suitable breeding habitat that allows colony establishment around known colony locations)

- Typical Colony Locations; **AND**
- **Land Cover:** Wetlands; **OR**
- Other natural habitats within 500 feet of atypical thistle, nettle, or willow colony locations (natural is defined as all landcover types except, agriculture, open water, and developed); **OR**
- Agricultural habitats within 500 feet of atypical agriculture colony locations (agriculture colonies are in a limited number of crop types, but all agriculture types are selected because crops are regularly rotated); **OR**
- Urban park colonies represented by the colony occurrence data alone.

Suitable Colony Habitat

- Wetlands within 500 feet of Occupied Colony Habitat.



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-50
Tricolored blackbird, *Agelaius tricolor*
Potential Habitat Distribution and Known Occurrence Records

Breeding Season Foraging – Natural

- Grasslands within 5 kilometers of Occupied Colony Habitat or Suitable Colony Habitat with a minimum patch size of 20 acres.

Breeding Season Foraging – Agriculture

- Agriculture within 5 kilometers of Occupied Colony Habitat or Suitable Colony Habitat with a minimum patch size of 20 acres.

Non-Breeding Season Foraging – Natural

- Grasslands with a minimum patch size of 20 acres.

Non-Breeding Season Foraging – Agriculture

- Agriculture with a minimum patch size of 20 acres.

Taxonomy and Genetics

There are two populations of tricolored blackbird within California: (1) Southern California population and (2) Central Valley population. Banding studies have not shown evidence of individuals mixing between the two populations (UC Davis 2014, Shuford and Gardali 2008).

Reproduction

Tricolored blackbirds are synchronized, colonial nesters (Beedy and Hamilton 1997). Reproduction starts in mid-March (UC Davis 2014, Hamilton 1998) and concludes in early August (Beedy and Hamilton 1997, Shuford and Gardali 2008). Females build deep cup nests composed of leaves and grasses in which they lay 3–4 eggs. Eggs are incubated solely by the female for 12–14 days, and chicks typically fledge 10–14 days after hatching (UC Davis 2014). Young within the colony fledge no more than a few days from each other (Western Riverside County MSHCP 2012b). Both male and female feed the young (Beedy and Hamilton 1997). Once the young have fledged, they will remain with the colony (either inside or along the perimeter of the colony) for a few days while still being fed by both parents (UC Davis 2014).

Dispersal, Territoriality, and Home Range

Tricolored blackbirds are regionally philopatric, so this species tends to remain within the region where it hatched, but studies show no strong evidence of site fidelity. Populations in California may move regionally in both winter and breeding months (Shuford and Gardali 2008, Hamilton 1998), but they do not migrate. Young will disperse from the breeding colony, sometimes being led away by the parents carrying food items (UC Davis 2014).

During the breeding season, territories are relatively small, averaging 2–6 meters between nesting sites (UC Davis 2014, Beedy and Hamilton 1999). Foraging areas generally occur up to 5 kilometers from the nest site (Beedy and Hamilton 1999) but have been documented up to 13 kilometers from the nest site (Beedy and Hamilton 1997). Itinerant breeders, capable of breeding twice a year in different locations within the same region (UC Davis 2014, Hamilton 1998).

Daily and Seasonal Activity

In the non-breeding season, tricolored blackbirds form large flocks, often with other species, such as red-winged blackbirds, for foraging and roosting (Shuford and Gardali 2008). Seasonal activity is depicted in Table 3-32.

Table 3-32. Seasonal Activity of Tricolored Blackbird

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wintering												
Breeding												

Sources: University of California-Davis 2014, Shuford and Gardali 2008

Diet and Foraging

Tricolored blackbirds are opportunistic feeders. This species is mainly granivorous, but will consume invertebrates, such as grasshoppers, beetles, and insect larvae, during the breeding season (UC Davis 2014, Shuford and Gardali 2008, Beedy and Hamilton 1997). Young are fed exclusive insect prey (Western Riverside County MSHCP 2012b).

Threats and Special Management Considerations

Loss of habitat and fragmentation of this species' habitat is largely attributed to human development, and land alteration is considered the most significant threat (Beedy and Hamilton 1999). These anthropogenic factors include water diversion and draining of wetlands, land conversion to agricultural uses, and development of land (UC Davis 2014). Timing of agricultural harvesting can also pose a significant threat to local colonies if harvesting occurs in nesting areas prior to fledging. Conversion of productive foraging habitat to perennial, woody crops including nut trees and vines also threaten this species (Rohde et al. 2019). Severe weather conditions, such as drought, can also contribute to population decline, as it can reduce insect prey populations and cause abandonment of colonies, low reproductive success, and failure to reproduce (Beedy and Hamilton 1999, Rohde et al. 2019).

Nesting habitat within the Planning Area for tricolored blackbird consists primarily of wetland- and marsh-type habitats, but also includes weedy habitats that may be found within or adjacent to crops such as wheat. The Mill Creek Wetlands Recreation and Restoration Demonstration Project provides a management example and shows how quickly this species can occupy newly created suitable nesting habitat (with adjacent suitable foraging habitat), as construction was initiated in early 2013 and occupied in spring 2014 (UC Davis 2014). Activities that alter potential nesting habitat, including vegetation removal and changes in water flow, will be important to consider for conservation of this species in the Planning Area. The conservation and management of suitable foraging habitat within 3 miles of a breeding colony may be an equally important consideration; in the Planning Area, the primary forage appears to be alfalfa fields. There are few areas within the Planning Area that have suitable nesting and foraging habitat and are being used by breeding tricolored blackbirds, and recently occupied sites and surroundings should be the primary consideration.

Other Relevant Information

The Planning Area is within the current range of this species, and, therefore, it is dependent on patchy and somewhat unpredictable breeding and foraging habitat. As a result, it is possible that additional tricolored blackbird colonies will be documented within the Planning Area in the future.

Burrowing Owl (*Athene cunicularia*)

Current Status and Distribution

Burrowing owl (*Athene cunicularia*) is a California Species of Special Concern that is widely distributed throughout California. Riverside and San Bernardino Counties have the largest remaining numbers in the Central and South Coast region (Gervais et al. 2008). Burrowing owl have generally been documented in the lower elevations and flat portions of the Planning Area. This species is known to occur in the Santa Ana River Basin at the San Bernardino International Airport, along City Creek, along the perimeter of several flood control basins, and scattered throughout suitable habitat north and northeast of the Prado Basin. Burrowing owls are also known to occur east of the Jurupa Mountains, at Lake Mathews, at Ayala Park in Chino, scattered throughout the dairy farms in east Chino and southern Ontario, and in the business parks along I-15 and I-10 (ICF 2014).

Habitat Requirements

Burrowing owl occurs primarily in grassland habitats with few shrubs on level to gently sloping topography and well-drained soils (Poulin et al. 2011). While low vegetation is favored, burrowing owl can be found among taller shrubs where the shrubs are rather sparse. This species can also be found in habitats that are highly altered by human activity, such as agricultural fields, golf courses, parks, airports, and vacant urban lots (Gervais et al. 2008, Klute et al. 2003). The most important habitat component is the presence of small mammal burrows for roosting and nesting, and relatively short vegetation (Gervais et al. 2008, Klute et al. 2003, Poulin et al. 2011). Fossorial species whose burrows are often used by burrowing owls include: California ground squirrels (*Spermophilus beecheyi*), American badger (*Taxidea taxus*), coyote (*Canis latrans*), and kit fox (*Vulpes macrotis*). The owl will also utilize non-natural burrows such as pipes and culverts as well as rock outcrops that offer suitable holes (Gervais et al. 2008).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of burrowing owl modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-51, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat

- **Land Cover**: Herbaceous Agricultural Vegetation; Californian Coastal Scrub; Californian Annual and Perennial Grassland; Californian Disturbed Grassland, Meadow, and Scrub; North American Warm-Desert Xeric-Riparian Scrub; and Great Basin-Intermountain Xeric-Riparian Scrub; **AND**
- **Elevation**: 0–2,000 feet; **AND**

- **Slope**: 0–20%.
- **Post-processing**: Removed patch sizes less than 100 acres.

Taxonomy and Genetics

In North America, burrowing owl is divided into two recognized subspecies; *Athene cunicularia hypugaea* in the west and *A. c. floridana* in Florida and the Bahamas (Poulin et al. 2011).

Reproduction

The breeding season for burrowing owl in California is generally March to August, but can begin in February and extend into December (Gervais et al. 2008), The peak of the breeding season occurs between April 15 and July 15, which is when most burrowing owls have active nests (eggs or young). Incubation lasts approximately 29 days, with young fledging approximately 44 days after hatching. Burrowing owl may change burrows several times during the breeding season, starting when the nestlings are about 3 weeks old (CDFG 2012). This species may attempt to re-nest if the first nest is destroyed early in the nesting season (Klute et al. 2003).

Dispersal, Territoriality, and Home Range

Dispersal distances for both juveniles (post fledging) and adults (post nesting) may be considerable, between 33 and 93 miles (Gervais et al. 2008). One study found that populations in California were indistinguishable, suggesting a high degree of dispersal and interconnectivity of populations (Klute et al. 2003).

Home range size is linked to the availability of food. Burrowing owl generally forage near a nest burrow during breeding, but have been recorded foraging up to 1.7 miles away from a burrow during the breeding season. In California, burrowing owl had a nest-site fidelity from year to year of 32–50% in areas with large expanses of grasslands and 57% in agricultural areas (Gervais et al. 2008). Wintering owls, unlike breeding owls, are not as dedicated to single burrows or a group of burrows. However, there is roost fidelity within and between winter seasons (Poulin et al. 2011).

Daily and Seasonal Activity

Many burrowing owls in California are year-round residents, often retreating from higher elevations in the winter. Migrants from other states may augment lowland populations in the winter throughout the state (Gervais et al. 2008). The species is primarily diurnal, with the greatest period of activity occurring during crepuscular hours. Seasonal activity is depicted in Table 3-33.

Table 3-33. Seasonal Activity of Burrowing Owl

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wintering	■	■									■	■
Breeding		■	■	■	■	■	■	■				
Migration		■	■	■	■			■	■	■	■	
Molt		■	■	■	■	■	■	■	■	■	■	

Source: Poulin et al. 2011

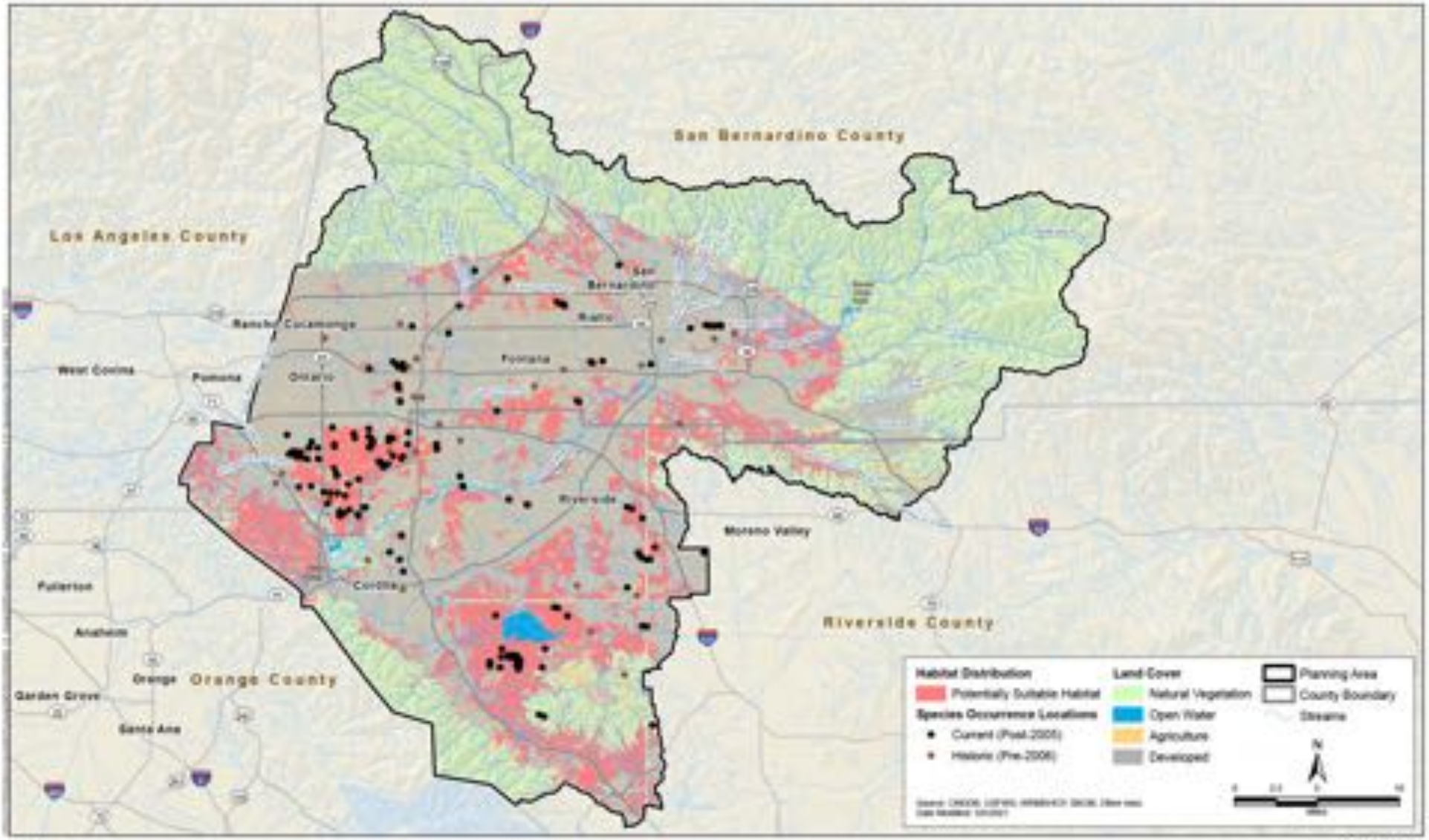


Figure 3-51
Burrowing owl, *Athene cunicularia*
Potential Habitat Distribution and Known Occurrence Records

Diet and Foraging

Burrowing owls are opportunistic foragers that will feed on a wide variety of prey depending on availability. This species readily preys upon insects such as crickets, beetles, and dragonflies. Other prey include small rodents such as voles, deer mice, harvest mice, pocket mice, and kangaroo mice. Less frequently, this species is known to consume birds such as horned larks (*Eremophila alpestris*), western meadowlarks (*Sturnella neglecta*), and shorebirds, as well as bat species (Hoetker and Gobalet 1999). Burrowing owl are generally crepuscular hunters and hunt either on the wing or by walking or hopping on the ground, and will often use elevated perches to spot prey (Poulin et al. 2011).

Threats and Special Management Considerations

Loss of habitat, degradation and fragmentation of remaining habitat, ongoing urbanization, and continuing eradication of ground squirrels are the main threats to burrowing owl in California (Gervais et al. 2008). The elimination of burrowing rodents through the use of rodenticides and other means has contributed to the decline of populations nationwide (Klute et al. 2003). The control of ground squirrels in California may affect local burrowing owl populations by reducing or eliminating ground squirrel burrows. Road and ditch maintenance and discing to control weeds in fallow fields may destroy burrows. Exposure to pesticides may also cause mortality to individuals (CDFG 2012).

Declines in Southern California have continued to occur. One study determined that the number of burrowing owl pairs in the inland portion of Southern California declined by 34% between 1993 and 2007 (Wilkerson and Siegel 2010). Retaining colonies of burrowing mammals is of upmost importance, as burrowing owls require their burrows for nesting and roosting. While burrowing owls appear to adapt fairly well to human disturbances in some cases (i.e., airport runways and other human modified open spaces), the continued presence of active mammal-created burrows is essential to its survival. Rodent eradication programs may reduce the consistent availability of high and moderate function habitat. Additionally, suitable foraging habitat near burrows is required to sustain viable populations (Gervais et al. 2008, Klute et al. 2003, Poulin et al. 2011, CDFG 2012). Because of high nest site fidelity, the disturbance of nest sites could have a dramatic impact on populations. Before artificial burrows are constructed and burrowing owls are relocated, it is important to consider the characteristics of the burrow sites previously used for nesting and mimic them as closely as possible (Botelho and Arrowood 1998). Additionally, because of high nest site fidelity, relocated nests should be installed close to the original nest burrow, ideally within 100 meters (Smith and Belthoff 2001).

Cactus Wren (*Campylorhynchus brunneicapillus*)

Current Status and Distribution

The cactus wren (*Campylorhynchus brunneicapillus*) is a California Species of Special Concern. It is found in California east to Texas, extending south through Baja California and mainland Mexico (Hamilton et al. 2011).

In the Planning Area, it occurs in southwestern San Bernardino County in washes and lower slopes flanking the urbanized area from Fontana east to Yucaipa, including the Santa Ana River, Lytle Creek, Cajon Creek, and Mill Creek. In western Riverside County occurrences are concentrated near Lake Mathews and the Santa Ana River, with small populations scattered in washes and lower hills

south to the Temecula area; a disjunct population also persists in the Wilson Valley/Aguanga area (ICF 2014).

Habitat Requirements

Cactus wren typically occupies native scrub with cholla (*Cylindropuntia*) or prickly-pear (*Opuntia*) (Hamilton et al. 2011). Suitable nest sites in and near the Planning Area also include California buckwheat (*Eriogonum fasciculatum*) and California sagebrush (*Artemisia californica*), yucca (*Yucca* spp.), chamise (*Adenostoma fasciculatum*), mountain mahogany (*Cercocarpus* spp.), and juniper (*Juniperus* spp.) (Hamilton et al. 2011, San Bernardino County Museum 2014).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of cactus wren modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-52, and quantified in Table 3-15. The following modeled habitat types are used to represent cactus wren habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Known Suitable Nesting

- **Existing data**: Historical breeding habitat dataset from Cactus Wren Working Group, as well as cactus mapping conducted as part of the Wash Plan HCP buffered by 213 feet (approximate coastal average nesting territory size); **AND**
- **Land Cover** (only within Known Suitable Nesting buffer): Californian Coastal Scrub; Californian Annual and Perennial Grassland; Californian Disturbed Grassland, Meadow, and Scrub; North American Warm-Desert Xeric-Riparian Scrub; Great Basin-Intermountain Xeric-Riparian Scrub; Californian Coastal Scrub (prickly pear).

Potential Nesting and Foraging Habitat:

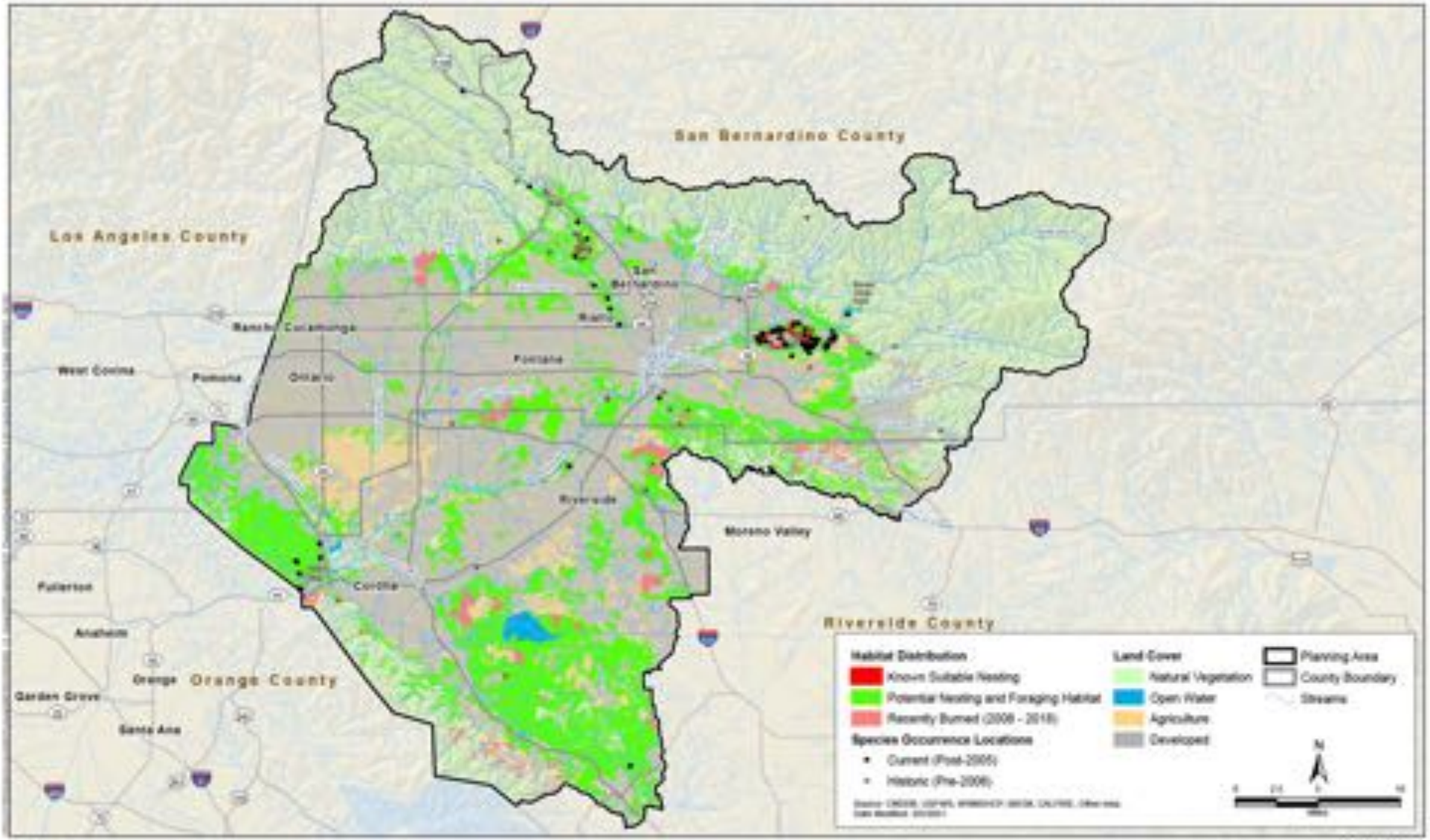
- **Land Cover**: Californian Coastal Scrub; Californian Annual and Perennial Grassland; Californian Disturbed Grassland, Meadow, and Scrub; North American Warm-Desert Xeric-Riparian Scrub; Great Basin-Intermountain Xeric-Riparian Scrub; Californian Coastal Scrub (prickly pear); **AND**
- **Elevation**: 0–2,500 feet; **AND**
- **Slope**: 0–40%.

Recently Burned (2008–2018):

- All Known Suitable Nesting and Potential Nesting and Foraging Habitat that has been burned within the last 10 years (CALFIRE 2018).

Taxonomy and Genetics

Of the eight subspecies of *Campylorhynchus brunneicapillus* (Hamilton et al. 2011), two occur within Southern California. *C. b. sandiegensis* is found in San Diego County and southern Orange County, whereas populations elsewhere on the coastal slope, which includes those within the Planning Area, are classified as *C. b. anthonyi* (Solek and Sziji 2004). Current molecular evidence does not support historical separation of gene lineages between *C. b. sandiegensis* and *C. b. anthonyi* populations



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-52
Cactus wren, *Campylorhynchus brunneicapillus* Potential Habitat Distribution and Known Occurrence Records

(Teutimez 2012), but does indicate recent genetic differentiation of subpopulations, presumably due to habitat fragmentation (Barr et al. 2013).

Reproduction

Cactus wrens nest almost entirely in prickly pear or cholla between 3 and 6 feet tall (Hamilton et al. 2011), and averaging 4 to 5 feet tall within Southern California (Solek and Sziji 2004). Both male and female build the nest (Hamilton et al. 2011, ebird 2014). The female lays 3–5 eggs per clutch (Solek and Sziji 2004). Only the female incubates, which lasts for 16–17 days, and eggs hatch asynchronously (Hamilton et al. 2011, Solek and Sziji 2004). Nestlings fledge 17–23 days after hatching (Hamilton et al. 2011).

Dispersal, Territoriality, and Home Range

Adults show site fidelity to breeding areas, returning to the same area each year (Solek and Sziji 2004). Adults will lead juveniles to old breeding nests for use as roost nests, and eventually stop responding to begging calls to break dependency (Hamilton et al. 2011). Juveniles may disperse to nearby areas, within an average distance of approximately 1 mile of the natal site, but the majority will stay within the site where they were hatched and establish territories (Preston and Kamada 2012). Juveniles typically complete only short-distance dispersal that can be negatively affected by fragmented habitat and non-cactus supporting lands (Teutimez 2012).

Adults may disperse short distances to foraging areas during the non-breeding season. Adults have been documented moving between 0.19 and 0.31 mile from breeding areas (Hamilton et al. 2011). Within Southern California, territories typically range from 1.2 to 4.9 acres (Solek and Sziji 2004). Larger territories have been recorded in drought conditions, when prey populations are depressed (Hamilton et al. 2011). Territories have been recorded as large as 16.6 acres (Hamilton et al. 2011).

Daily and Seasonal Activity

Cactus wren is a year-round, non-migratory resident of the Planning Area. Individuals typically do not make long distance seasonal movements (Hamilton et al. 2011, Solek and Sziji 2004). The breeding period is February to September (Table 3-34) (Hamilton et al. 2011, Simons and Martin 1990). However, adults build nests throughout the year for roosting (Solek and Sziji 2004).

Table 3-34. Seasonal Activity of Cactus Wren

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding												
Molt												

Sources: Hamilton et al. 2011, Solek and Sziji 2004

Diet and Foraging

Cactus wren forage on the ground or in low shrubs (Hamilton et al. 2011, Solek and Sziji 2004). Their diet consists mainly of insects, such as grasshoppers, ants, beetles, and wasps (Hamilton et al. 2011). As summarized in Solek and Sziji (2004), a stomach contents analysis concluded that vegetation may be important in the diet during months when insect prey is low.

Threats and Special Management Considerations

Habitat loss and fragmentation of habitat seem to have the largest impact on cactus wren (Solek and Sziji 2004, Preston and Kamada 2012). Development has removed large tracts of cactus and has fragmented what is left, which limits dispersal between patches of suitable habitat, creating isolated populations. Decreased gene flow could weaken a population's ability to adapt to changing environmental conditions and potentially lead to localized extinction (Hamilton et al. 2011, Preston and Kamada 2012). The species appears to be affected by edge-related habitat degradation, rather than aversion to the edge per se, which suggests that restoration of cactus scrub habitat along urban edges could be beneficial (Hamilton et al. 2011). Long recovery times for cactus after fire limit the species' ability to recolonize suitable habitat for long periods after fire; use of nest boxes may speed the process (Hamilton et al. 2011). Anthropogenic increase in cover of nonnative grasses and forbs in scrub understory may decrease foraging efficiency (Hamilton et al. 2011).

Habitat throughout the Planning Area consists as a patchy distribution of sage scrub habitat with extensive stands of cactus. Vegetation removal activities will reduce the amount of suitable habitat for this resident species, and it will be important to consider avoidance/restoration of cactus patches for conservation of this species in the Planning Area.

Yellow-Breasted Chat (*Icteria virens*)

Current Status and Distribution

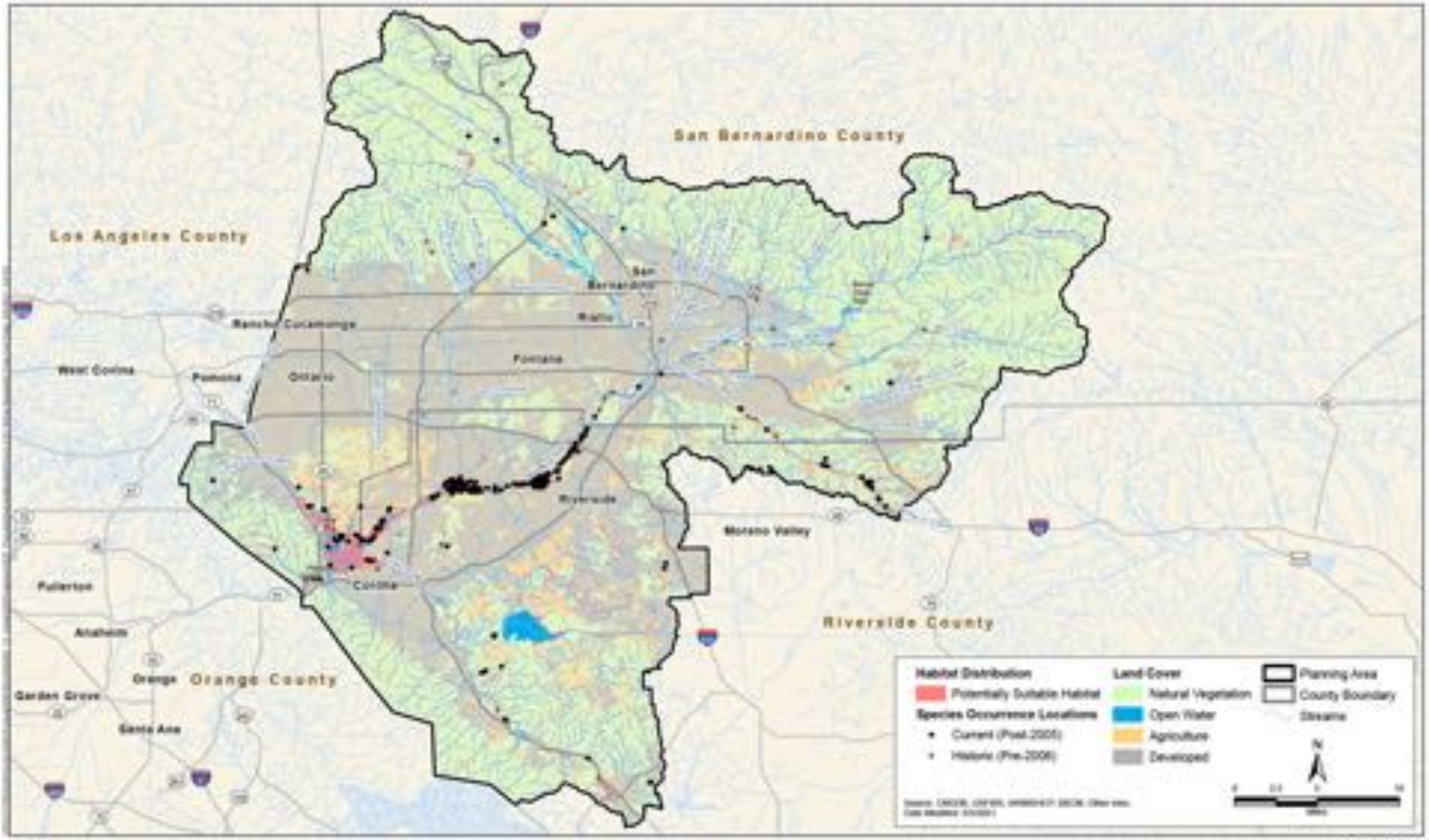
Yellow-breasted chat (*Icteria virens*) is a California Species of Special Concern. It breeds in western North America (from the Great Plains and western Texas toward the west) (Shuford and Gardali 2008, ICF International 2014) and winters in Baja California and southern Texas south through western Mexico to Guatemala (Eckerle and Thompson 2001). In Southern California, the species is known to occur during migration and summer months from the coast east to the Colorado River (Shuford and Gardali 2008). Within the Planning Area, the species occurs sporadically within Riverside and San Bernardino Counties where suitable riparian habitat is present. The largest population is present in the Santa Ana River riparian corridor.

Habitat Requirements

Yellow-breasted chat is found in early successional riparian habitats that have developed shrub layers and an open canopy (Shuford and Gardali 2008). These habitats include riparian woodland and forest, and scrub dominated by cottonwoods, mulefat, and willows (Myers n.d.). Dense thickets are required for nest placement. These often consist of shrubby willows, wild grape (Myers n.d.), and blackberry, tamarisk, and other species that form dense thickets (Shuford and Gardali 2008). Nests are usually built near waterways (Zeiner et al. 1990) along the borders of rivers, streams, and creeks (Shuford and Gardali 2008).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

Distribution of yellow-breasted chat modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-53, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-53
Yellow-breasted chat, *Icteria virens*
Potential Habitat Distribution and Known Occurrence Records

Potentially Suitable Habitat

- **Land Cover**: Western North American Disturbed Marsh, Wet Meadow, and Shrubland; Warm Southwest Riparian Forest; Warm Southwest Riparian Forest (Arroyo Willow); Warm Southwest Riparian Forest (Black Willow); Warm Southwest Riparian Forest (Elderberry); Warm Southwest Riparian Forest (Fremont Cottonwood); Warm Southwest Riparian Forest (Red Willow); Warm Southwest Riparian Forest (Sandbar Willow); Warm Southwest Riparian Forest (Shining Willow); Warm Southwest Riparian Forest (Sycamore); Warm Southwest Riparian Forest (White Alder); and Western North American Temperate and Boreal Freshwater Marsh, Wet Meadow, and Shrubland; **AND**
- **NWI and SoCal Wetlands hydrology attribute modifier**: Semi-permanently flooded (regardless of Land Cover type).

Taxonomy and Genetics

Two subspecies exists for *Icteria virens: I. v. virens* in eastern North America and *I. v. auricollis* in western North America.

Reproduction

Adults begin building nests in early to mid-May and chicks usually fledge by early August (Eckerle and Thompson 2001, Dudek and Associates 2003a). Females construct a cup nest between 3 and 6 feet from the ground (Myers n.d.). Females incubate a single clutch of 3–6 eggs (Myers n.d.) for 11–15 days (Zeiner et al. 1990). Young are altricial, hatching without down feathers and unable to nourish themselves, and are fed by both parents until they fledge at 8–11 days (Zeiner et al. 1990, McKibbin and Bishop 2012a).

Dispersal, Territoriality, and Home Range

Literature on juvenile dispersal, territoriality, and home range is limited. As summarized in Eckerle and Thompson. (2001), studies indicate a lack of strong fidelity to return to hatch site to breed. A study found that approximately half of banded nestlings returned to their natal site to breed (McKibbin and Bishop 2012a). For those that did not return to natal site, dispersal ranged from 2.5–15.6 kilometers for males and 2.3–2.6 kilometers for females (McKibbin and Bishop 2012a). The dispersal distance for adult males that did not return to their previous territory ranged from 6.4–42.9 kilometers (McKibbin and Bishop 2012a).

Territorial responses appear to decrease as pairs tend to congregate in an area as population densities increase (Eckerle and Thompson 2001). Studies in the eastern U.S., including Indiana, report the average territory size to be 0.3–3.1 acres (Eckerle and Thompson 2001). In British Columbia, breeding territories were on average 1.5 acres based on singing male locations, but averaged 2.9 acres based on radio telemetry (McKibbin and Bishop 2012b).

Daily and Seasonal Activity

During spring migration, yellow-breasted chat arrives in Southern California early to mid-April and departs for fall migration back to wintering areas in late August into early September (Eckerle and Thompson 2001). Table 3-35 summarizes seasonal activity.

Table 3-35. Seasonal Activity of Yellow-Breasted Chat

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wintering	■	■	■							■	■	■
Breeding					■	■	■	■				
Migration				■				■	■			
Molt							■	■	■			

Source: Eckerle and Thompson 2001.

Diet and Foraging

Yellow-breasted chat forages by gleaning (Zeiner et al. 1990), taking invertebrates from the surface of foliage or the ground. Diet consists primarily of insects and spiders. Fruits and berries, such as elderberries, blackberries, and wild grape, may also be eaten (Shuford and Gardali 2008, Eckerle and Thompson 2001, Myers n.d.). Invertebrate prey includes beetles, ants, weevils, bees, wasps, mayflies, and caterpillars (Eckerle and Thompson 2001, Myers n.d.). Young are fed soft-bodied invertebrates, including adult and larval insects (Eckerle and Thompson 2001, Myers n.d.).

Threats and Special Management Considerations

Habitat loss and habitat degradation are the primary threats to the species. Removal of vegetation for development, agriculture, or flood control maintenance are the driving forces behind habitat removal (Myers n.d.). Nest parasitism by brown-headed cowbirds is also a contributing factor to the decline of the species (Myers n.d., Zeiner et al. 1990).

Suitable habitat for the species is found throughout the Planning Area within riparian vegetation in and along rivers, creeks, and flood control basins. The most important limiting factor of populations appears to be habitat. Consequently, the maintenance of early successional shrub-scrub habitat is essential. Mature forests with a closed canopy preclude breeding by this species due to the lack of understory. It requires thick vegetation for nesting, and this should be considered when performing activities that alter habitat. Human activity in the vicinity of a nest can cause abandonment of the egg and nestlings by the adults.

Western Yellow-Billed Cuckoo (*Coccyzus americanus*)

Current Status and Distribution

Western yellow-billed cuckoo (*Coccyzus americanus*) is Federally listed as threatened and State-listed as endangered. In California, only three core areas support breeding yellow-billed cuckoo: the Sacramento River between Colusa and Red Bluff, the South Fork of the Kern River, and the lower Colorado River (McNeil and Tracy 2013). The most recent breeding record from the Planning Area was documented in Prado Basin in 1989 (ICF 2014). There are historical occurrences documented within the Santa Ana River (1930 and 1977) and San Timoteo Creek, with sporadic migrants recorded in San Bernardino and Riverside County (USFWS 2014, ICF 2014, Dudek & Associates. 2003a). In August 2014, USFWS proposed designating critical habitat within the Prado Flood Control Basin (Unit 6) in the Planning Area and revised this designation in 2020 (85 *Federal Register* 11458).

Habitat Requirements

Breeding habitat, especially along the Lower Colorado River, has been documented to include structurally complex mature riparian habitats with tall trees and a dense woody vegetative understory, typically near waterways dominated by willows and cottonwoods (Laymon 1998, Hughes 1999). However, recent habitat restoration projects at the Palos Verde Ecological Reserve, which is located on the Lower Colorado River, documented cuckoos favoring young, 2- to 3-year-old cottonwood-willow habitat (McNeil et al. 2011). Furthermore, other studies have documented a range of habitat preferences including monotypic salt cedar with no differentiated understory, linear strips of open and mixed native and nonnative habitat, small isolated patches of mature cottonwood/willow riparian, and very open habitat without understory and small clusters of mature cottonwoods. Canopy height typically ranges from 15 to 100 feet, and the understory ranges from 3 to 20 feet (Dudek & Associates 2003). USFWS description of critical habitat PBFs includes riparian woodlands, prey base consisting of large insect fauna and tree frogs, and dynamic riverine processes that encourage sediment movement and deposits to facilitate plant growth (USFWS 2014).

Distribution of Habitat and Occurrences in the Planning Area

Distribution of western yellow-billed cuckoo modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-54, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

High Value Breeding Habitat

- **Land Cover**: Interior Warm and Cool Desert Riparian Forest; **AND**
- Patches of the above selected vegetation must be at least 328 feet in width and *at least* 200 acres in size.

Other Potentially Suitable Breeding Habitat

- **Land Cover**: Interior Warm and Cool Desert Riparian Forest; **AND**
- Patches of the above selected vegetation must be at least 328 feet in width and *less than* 200 acres in size.

Taxonomy and Genetics

Recent research on yellow-billed cuckoo genetics did not indicate sufficient genetic differences between eastern and western yellow-billed cuckoos to support two separate subspecies (USFWS 2014). However, existing DNA studies show sufficient divergence to determine that cuckoos that nest in the western North America are a biologically distinct population segment (USFWS 2014).

Reproduction

Western yellow-billed cuckoo breeding occurs from June through August but may begin as early as May. Both male and female adults construct a flat, loose platform stick nest (Hughes 1999). Nests are built on horizontal branches. Nest height varies from 2–88 feet (Hughes 1999, Dudek & Associates 2003), and on the Santa Ana River varies from 4–30 feet (14-foot average) (Laymon 1998). Incubation is shared by both adults, which lasts 9–12 days. Nestlings are fed by both parents and

fledge 5–9 days after hatching (Laymon 1998, Hughes 1999). Cuckoos are an occasional nest parasite, and there is documentation of their laying eggs in other *C. americanus* nests (Hughes 1999).

Dispersal, Territoriality, and Home Range

Cuckoo adults show high breeding site fidelity and have been documented returning to the same site to breed for at least three consecutive seasons (McNeil et al. 2011, USFWS 2014). Two females dispersed 21 and 24 miles to other sites along the same reach of the Colorado River (USFWS 2014).

Home ranges are large, variable in size depending on seasonal food abundance, and overlap between neighboring pairs (McNeil and Tracy 2013). Recent radio telemetry has documented home ranges between 95 and 204 acres (McNeil and Tracy 2013).

Daily and Seasonal Activity

Western yellow-billed cuckoo migrates in the spring and arrives in California as early as mid to late May (Hughes 1999), but typically arrives in June (Laymon 1998). The species' non-breeding range is believed to be the western side of the Andes in South America
(Hughes 1999). Departure for fall migration begins in August, but peaks in September (Laymon 1998). Seasonal activity is depicted in Table 3-36.

Table 3-36. Seasonal Activity of Western Yellow-Billed Cuckoo

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wintering	■	■	■									■
Breeding						■	■	■				
Migration					■	■		■	■	■	■	
Molt	■	■	■						■	■	■	■

Source: Hughes 1999

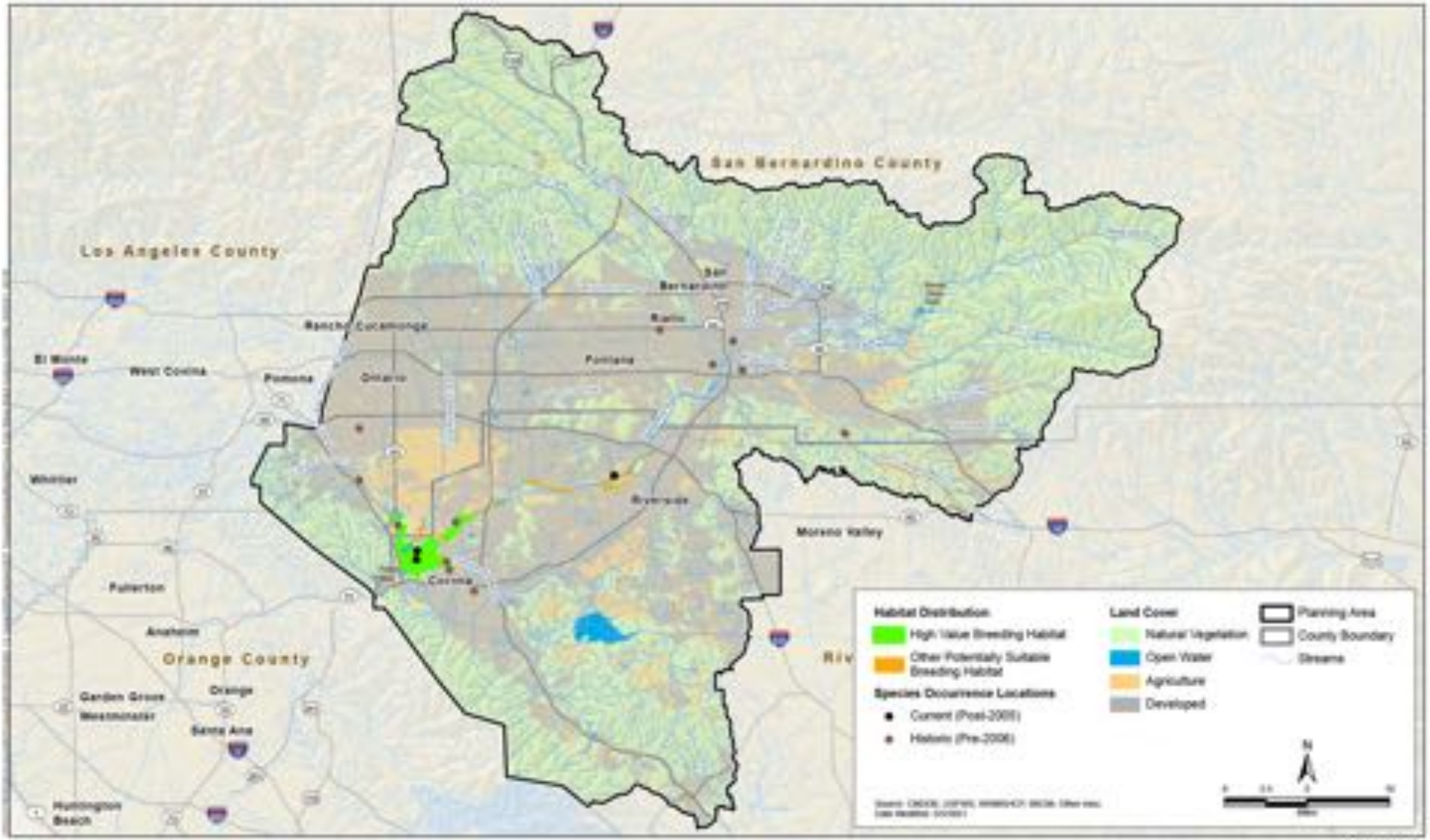
Diet and Foraging

Cuckoos are insectivorous and forage by gleaning, usually while perched (Dudek & Associates 2003, Laymon 1998), taking invertebrates from the surface of foliage. Their diet consists primarily of cicadas, katydids, grasshoppers, crickets, and caterpillars (Hughes 1999, Laymon 1998). Adults feed nestlings whole prey items, which consist primarily of caterpillars (Hughes 1999).

Threats and Special Management Considerations

Habitat loss and fragmentation due to flooding behind dams, clearing, water table lowering, and invasion by nonnative invasive vegetation are the primary threats to the species (Laymon 1998). Groundwater depletion that results in reduction of groundwater-dependent riparian vegetation (e.g., cottonwood, willow, and valley oak) can further fragment and reduce this species' available suitable habitat (Rohde et al. 2019).

Suitable nesting habitat with the appropriate acreage is limited within the Planning Area. Large-scale restoration activities have been shown to be an effective management technique for this species elsewhere within their range, with use documented within 2 years. Areas with the most



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-54
Yellow-billed cuckoo, Coccyzus americanus
Potential Habitat Distribution and Known Occurrence Records

recent documentation of occurrences, such as Prado Basin, could be considered for such restoration efforts.

Other Relevant Information

Little is known about the migration route of the western yellow-billed cuckoo. Conservation of riparian corridors within the Planning Area may be considered for this species as migration between summer and wintering areas. The most recent statewide survey (1999 to 2000) indicates a population decline with a contraction of the range to the core areas of occurrence along the Sacramento, Kern, and Colorado Rivers (McNeil and Tracy 2013). When compared to earlier statewide surveys (1977 and 1987), there was an absence of yellow-billed cuckoos at isolated sites in the Prado Flood Control Basin, the Mojave and Armargosa Rivers, and the Owens Valley in Inyo County where it had previously bred (McNeil and Tracy 2013). The lower Eel River in Humboldt County may prove to be a newly documented breeding site.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Current Status and Distribution

The southwestern willow flycatcher (*Empidonax traillii extimus*) is Federally and State listed as endangered and has a breeding range that includes Southern California; southern Nevada; southern Utah, Arizona, and New Mexico; and southwestern Colorado (Sogge et la. 2010). Occurrences recorded in the Planning Area since 2004 are in Cajon Wash, Waterman Creek, Day Canyon, Santa Ana River (north of Crafton Hills), San Timoteo Canyon, Santa Ana River (within Prado Basin), English Creek, Little Sand Canyon, and southwest of McKinley Mountain (northeast of San Bernardino) (ICF 2014, USFWS 2013).

Habitat Requirements

In Southern California, the southwestern willow flycatcher is restricted to riparian habitat along rivers, streams, or other wetlands where an adequate prey base is present (USFWS 1995). Suitable habitat typically consists of dense tree or shrub cover (≥ 10 feet) with dense twig structure and foliage, and may include interspersed patches of open habitat (USFWS 1995, Sogge et al. 2010). Vegetative composition can range from all native species to a mix of native and nonnative species or monotypic stands of nonnative species, but almost always includes willow (*Salix* spp.) and/or tamarisk (Sogge et al. 2010, USFWS 2013). Nests are located near surface water or saturated soils; water availability at a site may range from inundated to dry from year to year or within the breeding season (Sogge et al. 2010). Riparian habitats lacking suitable conditions located adjacent to territories may function as secondary habitat used for foraging.

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The distribution of southwestern willow flycatcher modeled habitat, documented occurrences, and designated critical habitat in the Planning Area are illustrated on Figure 3-55, and quantified in Table 3-15. The habitat distribution model combines an existing regional model developed by USGS (Hatten 2016) that identifies and ranks core habitat and adds other areas of potentially suitable

habitat based on wildlife habitat relationships.[3] The Hatten (2016) model was limited to the extent of potentially suitable land cover types as identified below.

Potentially Suitable Habitat

Land Cover: Western North American Disturbed Marsh, Wet Meadow, and Shrubland; Warm Southwest Riparian Forest; Warm Southwest Riparian Forest (Arroyo Willow); Warm Southwest Riparian Forest (Black Willow); Warm Southwest Riparian Forest (Elderberry); Warm Southwest Riparian Forest (Fremont Cottonwood); Warm Southwest Riparian Forest (Red Willow); Warm Southwest Riparian Forest (Sandbar Willow); Warm Southwest Riparian Forest (Shining Willow); Warm Southwest Riparian Forest (Sycamore); Warm Southwest Riparian Forest (White Alder); Western North American Temperate and Boreal Freshwater Marsh, Wet Meadow, and Shrubland.

The Hatten model output is displayed within the riparian habitat as defined above.

The potentially suitable habitat was then classified into the following habitat suitability categories by ranking highest value to lowest value based on the Hatten (2016) model scores and critical habitat delineations:

- **Core Southwestern Willow Flycatcher Habitat**: Potentially suitable habitat within southwestern willow flycatcher final critical habitat
- **Very High Value Habitat**: Hatten model highest score
- **High Value Habitat**: Hatten model next highest score
- **Moderate Value Habitat**: Hatten model next highest score
- **Other Potentially Suitable Habitat**: Potentially suitable habitat not mapped in the very high, high, and moderate value habitat classes of the Hatten model.

Southwestern Willow Flycatcher Designated Critical Habitat

There are 4,431 acres of designated critical habitat for southwestern willow flycatcher in the Planning Area (78 *Federal Register* 343). Designated critical habitat is located within Bear, Mill, Oak Glen, San Timoteo, and Waterman Creeks, and the East, Middle, and West Forks of the Santa Ana River.

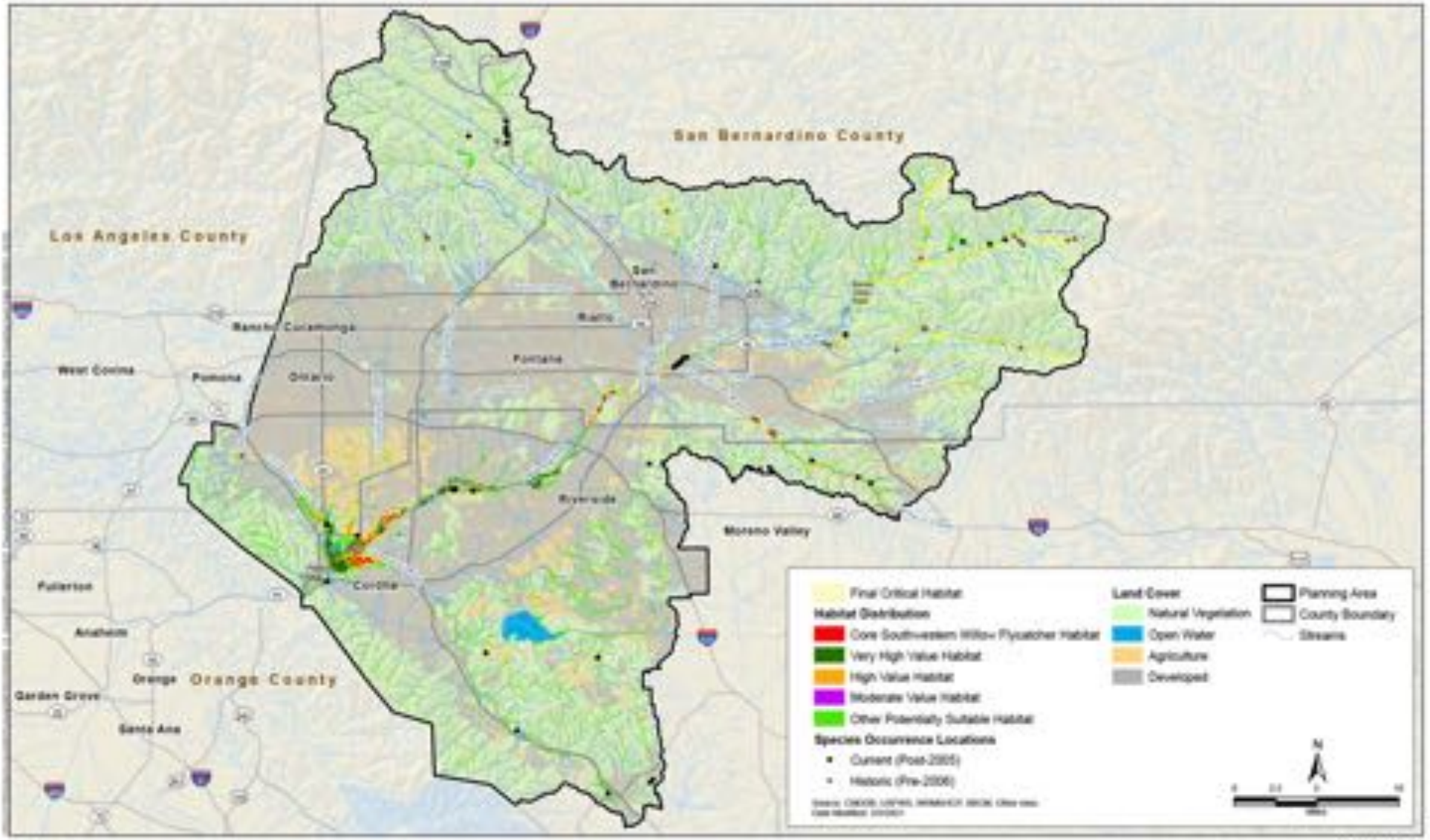
Taxonomy and Genetics

The southwestern willow flycatcher is one of four currently accepted subspecies of the willow flycatcher (*Extimus traillii*) in North America (USFWS 2002). Genetic research has determined that southwestern willow flycatcher (*E. t. extimus*) is a distinct subspecies (Paxton 2000).

Reproduction

The southwestern willow flycatcher is predominantly monogamous, although some populations have high rates of polygyny (Paxton et al. 2007). Breeding typically begins in early June (few in early

[3] The Hatten (2016) Southwestern Willow Flycatcher Model is a statistical model that integrates GIS, Landsat TM data, and logistic regression. Input variables include floodplain size, vegetation density, and variation in vegetation density and amount of dense vegetation. Output of the Hatten model is categorized and ranked into classes of habitat value. See Hatten (2016) for further information.



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-55
Southwestern willow flycatcher, *Empidonax traillii extimus*
Potential Habitat Distribution and Known Occurrence Records

May). The female builds the nest with little to no assistance from the male. Up to two clutches are produced each season; re-nesting rates are higher for pairs following an unsuccessful breeding attempt (Ellis et al. 2008). Clutch size is typically 3–4 eggs and decreases with each re-nesting attempt (Sogge et al. 2010, Ellis et al. 2008). The female incubates eggs for 12–13 days after the last egg is laid. Chicks leave the nest within 12–15 days of hatching. Initially the female provides the majority of care for the young; the male's role increases with the age of the nestlings. Both parents will feed fledglings for about 2 weeks (Sogge et al. 2010).

Dispersal, Territoriality, and Home Range

Most adult flycatchers return to the same drainage from one year to the next, often near their previous breeding site; however, movement to different breeding sites from year to year is not uncommon. Dispersal can range from 0.1–450 kilometers. First year birds tend to disperse farther distances than adults, on average 11 kilometers farther (Sogge et al. 2010, Paxton et al. 2007).

Males establish and defend territories aggressively. Females usually arrive 1 or 2 weeks after males and settle on established territories; the territory is likely chosen based on the characteristics of the site rather than those of the male (Sogge et al. 2010). Territories tend to be larger early in the season and become smaller after pairing occurs (Sogge et al. 2010, Finch and Stoleson 2000). Territory sizes vary depending on the habitat quality, food availability, population density, and pairing/nesting stage. Typically, territories range from 0.2 to 5.7 acres (Sogge et al. 2010).

Daily and Seasonal Activity

Individuals typically arrive on breeding grounds by early May (very few in late April); males typically arrive a few weeks before females (USFWS 2002, Sogge et al. 2010). Pairs with fledglings may stay as late as late-August to early-September. Unpaired males may leave the breeding grounds as early as mid-July (USFWS 2002). Seasonal activity is depicted in Table 3-37.

Table 3-37. Seasonal Activity of Southwestern Willow Flycatcher

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wintering	■	■	■						■	■	■	■
Breeding					■	■	■	■				
Migration				■	■			■	■			
Molt			■	■				■	■	■	■	

Source: USFWS 2002

Diet and Foraging

The southwestern willow flycatcher is an insectivore generalist and forages on external edges or internal canopy openings of its territory (sometime in neighboring territories), above the canopy or over open water (Finch and Stoleson 2000). Adult diets consist mainly of arthropods: bees, wasps, flies, leaf hoppers, and beetles (Durst et al. 2008), which it catches in the air, gleans from vegetation, or picks from the ground. Variations in diet can occur based on the quality of its territory or weather conditions (Durst 2004).

Threats and Special Management Considerations

The primary threat to southwestern willow flycatcher is the loss, modification, and fragmentation of suitable riparian habitat, caused primarily by dams and reservoirs, water diversion and ground water pumping, channelization, flood control, agriculture, recreation, and urbanization (Durst et al. 2008). Changes in groundwater levels can result in overall reduction in water availability during breeding and nesting seasons, which can particularly affect this species (Rohde et al. 2019). Tamarisk, which has invaded riparian habitats in part due to anthropogenic disturbances, is highly flammable and poses a threat to riparian habitat. The reduction of flow of water through riparian habitat, due to the dams and flood control, allows for the buildup of fuel in the understory, which increases the risk of fire (USFWS 2002) and reduces the natural processes of recruitment and fluvial disturbance.

Major stressors on the species, such as destruction of riparian habitat, manipulation of groundwater and surface water, livestock and other agricultural practices, and floodplain and watershed alterations, must be managed and/or minimized in areas of suitable habitat (USFWS 2002). Monitoring and surveying efforts in the Planning Area should continue in order to maintain current information regarding the population size, breeding status, and distribution of this species. Important considerations when managing and creating riparian habitat are inundation timing, plant species composition, and plant genetic variety, which can influence the arthropod prey base.

Other Relevant Information

Brown-headed cowbirds, which are obligate brood parasites, also contribute to overall nest failure for southwestern willow flycatcher; however, they are not considered a primary threat (Durst et al. 2008). Nonetheless, short-term cowbird control practices, such as trapping, as well as long-term management practices, with an emphasis on reducing conditions known to attract cowbirds, including horse stables, agricultural fields, and golf courses, should be implemented (USFWS 2002, Finch and Stoleson 2000).

Coastal California Gnatcatcher (*Polioptila californica californica*)

Current Status and Distribution

The coastal California gnatcatcher (*Polioptila californica californica*) is Federally listed as threatened and is a California Species of Special Concern. This species occurs in the following locations within the Planning Area: (1) San Bernardino County: Etiwanda Fan, Lytle Creek Wash, Cajon Wash, Cable Creek Wash, Santa Ana River Wash, Mill Creek, Reche Canyon (Jurupa Hills, Blue Mountain), and Chino Hills; and (2) Riverside County: Reche Canyon, Lake Mathews, Gavilan Hills, Norco Hills, Arroyo Del Torro-Temescal Wash (Lake Elsinore, Wasson Canyon), Alberhill/Lake Elsinore (Walker Canyon, Lake Elsinore Clay Mines), and Temescal Valley (ICF 2014, USFWS 2014, eBird 2012).

Habitat Requirements

Coastal California gnatcatcher occurs in Venturan, Riversidian, and Diegan coastal sage scrub (Atwood 1993). Suitable coastal sage scrub typically includes *Artemisia californica*, *Eriogonum fasciculatum*, *Encelia californica*, *E. farinosa*, and various species of *Salvia* (Beyers and Wirtz 1997). Nest success, fledgling survival, and adult survival are positively correlated with robust vertical and horizontal perennial structure, and suitable nest patches can be significantly different among pairs (Braden 1999). USFWS description of critical habitat PBFs includes dynamic and successional sage

scrub habitats and nearby non-sage scrub habitats such as chaparral, grassland, and riparian areas to provide space for dispersal, foraging, and nesting (USFWS 2007).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The distribution of coastal California gnatcatcher modeled habitat, documented occurrences, and designated critical habitat in the Planning Area are illustrated on Figure 3-56, and quantified in Table 3-15. As part of the San Diego Multi-Species Management Plan (SDMMP) to conduct long-term coordinated monitoring of the gnatcatcher across the species' range, a statistical habitat distribution model was developed (Preston and Kus 2015). The results of the SDMMP model were applied to areas mapped as Californian Coastal Scrub and North American Warm-Desert Xeric-Riparian Scrub land cover types within the Planning Area, and habitat value was categorized based on the scores of the SDMMP model as follows:

- Very High Value Habitat = 0.75–1.00
- High Value Habitat = 0.50–0.74
- Moderate Value Habitat = 0.25–0.49
- Low Value Habitat = 0–0.24
- **Other Suitable Habitat**: Includes the above vegetation types within the species range but *not* captured by the SDMMP model.
- **Post-processing**: Areas mapped as developed or agriculture in the Upper SAR HCP land cover data were removed from the model results.

Coastal California Gnatcatcher Designated Critical Habitat

There are 13,589 acres of designated critical habitat for coastal California gnatcatcher in the Planning Area (72 *Federal Register* 72009). Designated critical habitat occurs within the central, western, and southwestern portions of the Planning Area.

Taxonomy and Genetics

One of three subspecies of California gnatcatcher, the coastal California gnatcatcher (*P. c. californica*) is the northernmost subspecies of California gnatcatcher. Other subspecies (*P. c. pontilis* and *P. c. margaritae*) are located in Baja California (Atwood 1993).

Reproduction

The coastal California gnatcatcher is monogamous. The breeding season occurs from mid-February to August. Both males and females nest build, incubate, and care for altricial young. Egg laying is highest April through May. Incubation is 14–15 days, clutch size ranges from 2–5 eggs, and chicks fledge 16 days after hatching (USFWS 2010d). Reproductive success is dependent on habitat condition, predator populations, and food availability.

Dispersal, Territoriality, and Home Range

The coastal California gnatcatcher is a permanent resident and does not migrate. This species tends to remain in the same home range from year to year and disperses only as far as necessary to find

unoccupied areas within suitable habitat patches (Atwood 1993, Braden 1999). This species' natal dispersal is largely connected with corridors of native vegetation. Juveniles generally disperse approximately 1.4 miles from their natal site depending on habitat availability and condition (Bailey and Mock 1998). The pair of gnatcatchers defends their home range. Density of shrub cover, composition of plants, habitat quality, surrounding disturbances, and adjacent gnatcatcher territories dictate the size of a territory (Kucera 1997). The size of a territory ranges between 2 and 14 acres (USFWS 2010d), typically on lower elevations along coast ranges or on gentle slopes.

Daily and Seasonal Activity

The coastal California gnatcatcher is diurnal and is active yearlong. The species' highest activity is in the morning. Daily activity is dependent on the condition of occupied coastal sage scrub. Poor quality coastal sage scrub results in an expansive home range. Foraging can occur in adjacent vegetation communities (e.g., riparian and chaparral), especially in the non-breeding season. During the breeding season, home range becomes smaller (Atwood 1993). Seasonal activity is depicted in Table 3-38.

Table 3-38. Seasonal Activity of Coastal California Gnatcatcher

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding		■	■	■	■	■	■	■				
Dispersal					■	■	■	■	■	■		
Molt	■	■	■				■	■	■			

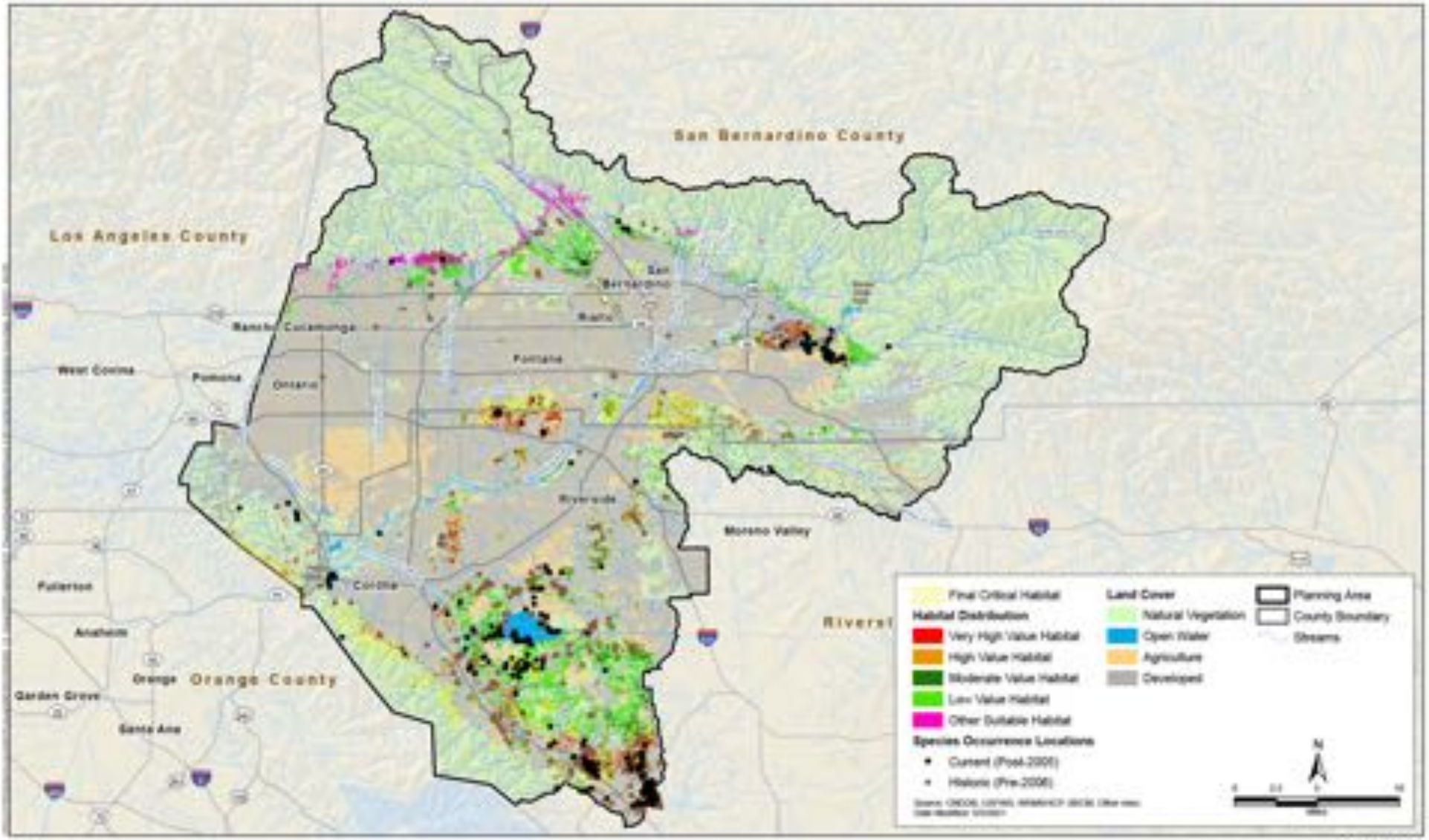
Sources: Atwood 1993, Atwood and Bontrager 2001

Diet and Foraging

Coastal California gnatcatcher typically gleans insects from vegetation, primarily *Artemisia* and *Eriogonum* (Atwood 1993) and may also eat some seeds (Kucera 1997). The species' foraging range is dependent on condition of coastal sage scrub (variation of plant species and shrub cover), food availability, and time of year (breeding season vs. non-breeding season) (Atwood 1993).

Threats and Special Management Considerations

The primary threat to coastal California gnatcatcher is loss of habitat due to urban and agricultural development. Wildfires, nest predators, and brood parasitism by brown-headed cowbirds have potential to debilitate population viability (Atwood 1993). Successful conservation of the species is dependent on restoring or enhancing areas of fragmented coastal sage scrub throughout the Planning Area so that increased shrub cover and improved habitat quality supports dispersing individuals. Expansion of corridors connecting good quality coastal sage scrub allows for a greater exchange of genetic material. Expanding/connecting areas of coastal sage scrub between Lytle Creek and the Etiwanda Fan, Lake Mathews, and other areas that are currently fragmented would promote the overall viability of the species within the Planning Area. Coastal sage scrub restoration areas should include higher density of *Artemisia californica* and *Eriogonum fasciculatum*, as there seems to be a strong correlation between these species and occupied habitat (likeliness to use as nest substrate and greater food supply). Additionally, wildfires are fueled by drought-tolerant coastal sage scrub. Fire management along the foothills of the San Bernardino and San Gabriel Mountains and areas of critical habitat throughout the Planning Area should be carefully considered.



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-56
Coastal California gnatcatcher, *Polioptila californica californica*
Potential Habitat Distribution and Known Occurrence Records

Other Relevant Information

The highest densities of coastal California gnatcatcher are known to occur in the upper Santa Ana River, Lake Mathews Watershed, the foothills of the San Bernardino mountains (Etiwanda Fan, Lytle Creek, Cable Creek), and Temescal Wash. Riversidian coastal sage scrub with greater than 50% shrub cover has the highest potential to support successful nesting and high quality foraging grounds. Home ranges or territory sizes are dependent on density of shrub cover, composition of plants, habitat quality, surrounding disturbances, and adjacent gnatcatcher territories. Poor quality coastal sage scrub increases dispersal and overall home range size.

Least Bell's Vireo (*Vireo bellii pusillus*)

Current Status and Distribution

Least Bell's vireo (*Vireo bellii pusillus*) is listed as Federally and State endangered. The species is found throughout Southern California during the breeding season, from Santa Barbara County southward, with the largest populations in San Diego and Riverside Counties (USFWS 2006). The species is distributed throughout the Planning Area where suitable riparian habitat is present, with the largest core population in the Prado Basin portion of the Santa Ana River (ICF 2014).

Habitat Requirements

Suitable habitat is largely associated with early successional (5- to 10-year-old) riparian scrub and woodlands that have developed canopy layer and dense shrubs at 3–6 feet (Franzreb 1989). Habitat is typically dominated by species such as mulefat, willows, cottonwood, and Mexican elderberry (Kus 2002). Nesting habitat in California is characterized by a dense shrub layer 2–10 feet aboveground, and the species can use any age riparian habitat if such an understory is present (Franzreb 1989, Kus 2002). Breeding birds are also found in isolated riparian patches (>0.20 acre) with no discernable over-story canopy and limited understory structure (Braden 2015). USFWS description of critical habitat PBFs includes riparian woodland vegetation that generally contains both canopy and shrub layers, and some associated upland habitats (USFWS 1994).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The distribution of least Bell's vireo modeled habitat, documented occurrences, and designated critical habitat in the Planning Area are illustrated on Figure 3-57, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Core Breeding Habitat

- **Land Cover**: Western North American Disturbed Marsh, Wet Meadow, and Shrubland; Warm Southwest Riparian Forest; Warm Southwest Riparian Forest (Arroyo Willow); Warm Southwest Riparian Forest (Black Willow); Warm Southwest Riparian Forest (Elderberry); Warm Southwest Riparian Forest (Fremont Cottonwood); Warm Southwest Riparian Forest (Red Willow); Warm Southwest Riparian Forest (Sandbar Willow); Warm Southwest Riparian Forest (Shining Willow); Warm Southwest Riparian Forest (Sycamore); Warm Southwest

Riparian Forest (White Alder); Western North American Temperate and Boreal Freshwater Marsh, Wet Meadow, and Shrubland; **AND**

- **NWI and SoCal Wetlands hydrology attribute modifier:** Semi-permanently flooded (regardless of Land Cover type); **AND**
- Within final critical habitat.

Other Breeding Habitat

- **Land Cover**: Western North American Disturbed Marsh, Wet Meadow, and Shrubland; Warm Southwest Riparian Forest; Warm Southwest Riparian Forest (Arroyo Willow); Warm Southwest Riparian Forest (Black Willow); Warm Southwest Riparian Forest (Elderberry); Warm Southwest Riparian Forest (Fremont Cottonwood); Warm Southwest Riparian Forest (Red Willow); Warm Southwest Riparian Forest (Sandbar Willow); Warm Southwest Riparian Forest (Shining Willow); Warm Southwest Riparian Forest (Sycamore); Warm Southwest Riparian Forest (White Alder); Western North American Temperate and Boreal Freshwater Marsh, Wet Meadow, and Shrubland; **AND**
- **NWI and SoCal Wetlands hydrology attribute modifier**: Semi-permanently flooded (regardless of Land Cover type).

Least Bell's Vireo Designated Critical Habitat

There are 9,900 acres of designated critical habitat for least Bell's vireo in the Planning Area (*Federal Register*, February 2, 1994). Designated critical habitat occurs within Prado Basin and along the Santa Ana River in the Planning Area.

Taxonomy and Genetics

Least Bell's vireo is one of four subspecies of Bell's vireo (*Vireo belli*). All subspecies breed in different areas of the U.S. and winter in Mexico (Franzreb 1989).

Reproduction

Least Bell's vireo breeds monogamously. Males arrive mid-March to establish and defend breeding territories. Nests are built in dense shrubs along the edge of riparian habitat (USFWS 1998). Nests are typically placed below approximately 6.5 feet from the ground. In the Planning Area, nests were most common in willow species (48%) and mulefat (29%) (SAWA 2019). Courtship, pair-bonds, and nesting occurs while the male actively defends the breeding territory. Both adults incubate for 14 days and feed chicks. Clutch size is 3–5 eggs, and pairs often produce two broods (Franzreb 1989). Young fledge in 10–12 days, but are tended by adults for up to 40 days. Fledglings disperse gradually from the natal site.

Dispersal, Territoriality, and Home Range

Birds have a high breeding site fidelity in that an individual will return to breed in the same area from year to year (Franzreb 1989). Juveniles disperse from their natal site gradually: 10–100 meters between the first 14 days after fledging and approximately 1.6 kilometer from the natal site by the time of the second brood (Kus et al. 2010). Individuals are capable of long-distance dispersal, perhaps over 350 kilometers (217 miles) (Howell et al. 2010).

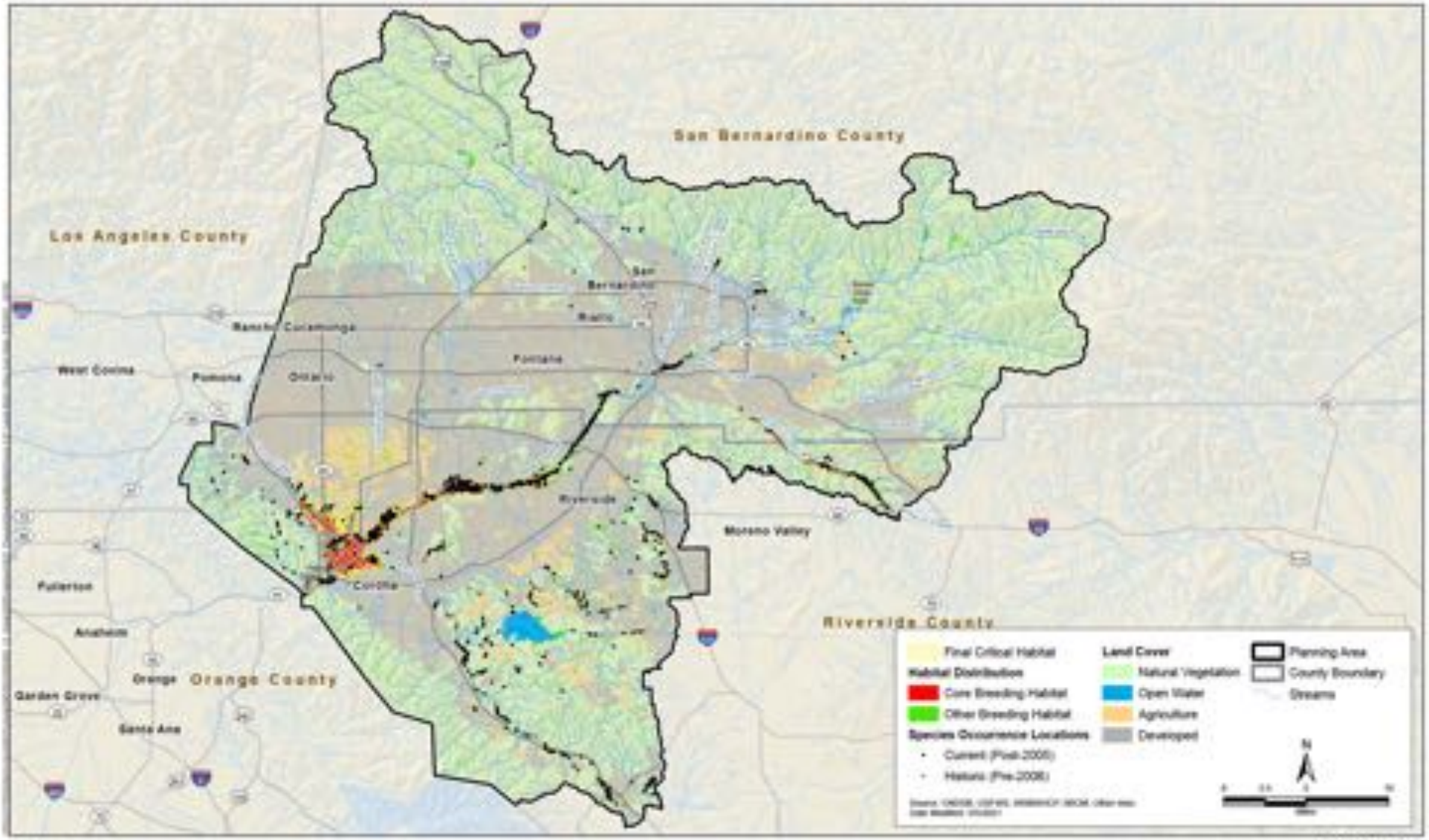


Figure 3-57
Least Bell's vireo, *Vireo bellii pusillus*
Potential Habitat Distribution and Known Occurrence Records

Males aggressively defend breeding territories through all reproductive stages. Breeding territories expand and contract based on the nest cycle stage, with wider territories while a male is unpaired and as fledglings begin to forage. Territories contract when a male is mated and the pair is incubating (Kus et al. 2010). Breeding territories vary from 0.37 to 4.1 acres depending on location (Franzreb 1989). Along the Santa Ana River, breeding territories range from 0.75–3.2 acres (Kus et al. 2010).

Daily and Seasonal Activity

Least Bell's vireo are mostly active during the day. Daily activity includes foraging by hopping amongst vegetation between branches while foraging (Kus 2002). Seasonal activity includes defense of breeding territory by males during the nesting season. Migration occurs in April–May and August–November from Southern California to overwintering areas in southern Baja California (Table 3-39) (Franzreb 1989, Kus et al. 2010).

Table 3-39. Seasonal Activity of Least Bell's Vireo

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wintering	■	■										■
Breeding			■	■	■	■	■					
Migration			■	■	■			■	■	■	■	
Molt						■	■	■	■			

Source: Kus et al. 2020

Diet and Foraging

Least Bell's vireo is an insectivore. Foraging behavior includes gleaning, hovering, and hawking (fly-catching behavior) insects from all riparian vegetation levels, up to 20 meters (65 feet) above the ground, with activity concentrated in lower to mid-canopies during breeding (Kus 2002). During the nesting season, foraging is typically restricted to the breeding territory. Non-riparian habitat adjacent to the breeding territory is utilized as foraging habitat toward the end of the nesting season (Franzreb 1989).

Threats and Special Management Considerations

Predominant threats to the species include loss of riparian habitat, degradation of riparian habitat, and brood parasitism by brown-headed cowbird (Franzreb 1989). Changes in groundwater levels can result in overall reduction in water availability during breeding and nesting seasons, which can particularly affect this species (Rohde et al. 2019). Successful conservation of the species is dependent on restoring or enhancing areas of fragmented and degraded riparian habitat so that successional habitat can support dispersing and returning individuals. In the Planning Area, areas such as the Prado Basin and Santa Ana River should continue annual brown-headed cowbird trapping to decrease brood parasitism. Establishment and recruitment of riparian habitat is dependent on natural hydrological processes, and changes to those processes can alter the distribution and species composition of riparian habitat, which in turn could affect breeding suitability and reproductive output.

Los Angeles Pocket Mouse (*Perognathus longimembris brevinasus*)

Current Status and Distribution

Los Angeles pocket mouse (*Perognathus longimembris brevinasus*) is a California Species of Special Concern. Its distribution is restricted to Southern California. Historically, it was found from San Fernando east through San Bernardino and Riverside to Cabazon, south through Temecula to Aguanga (Williams 1986, Bolster 1998). It has been documented in the northern portion of the Planning Area, almost entirely within San Bernardino County, with some occurrences in Riverside County (ICF 2014).

Habitat Requirements

Generally, habitat consists of alluvial, aeolian, or well-drained upland deposits of sandy soil in sparsely vegetated habitats (Dudek & Associates 2003). These habitats are generally lower elevation sparse grassland, alluvial sage scrub, and coastal sage scrub (Bolster 1998). Foraging occurs under shrub cover or near rock crevices (Dudek & Associates 2003). In Riverside County, trapping data suggests that habitat dominated by bare ground is more frequently occupied than habitat dominated by litter and grass thatch (WRMSHCP 2011).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

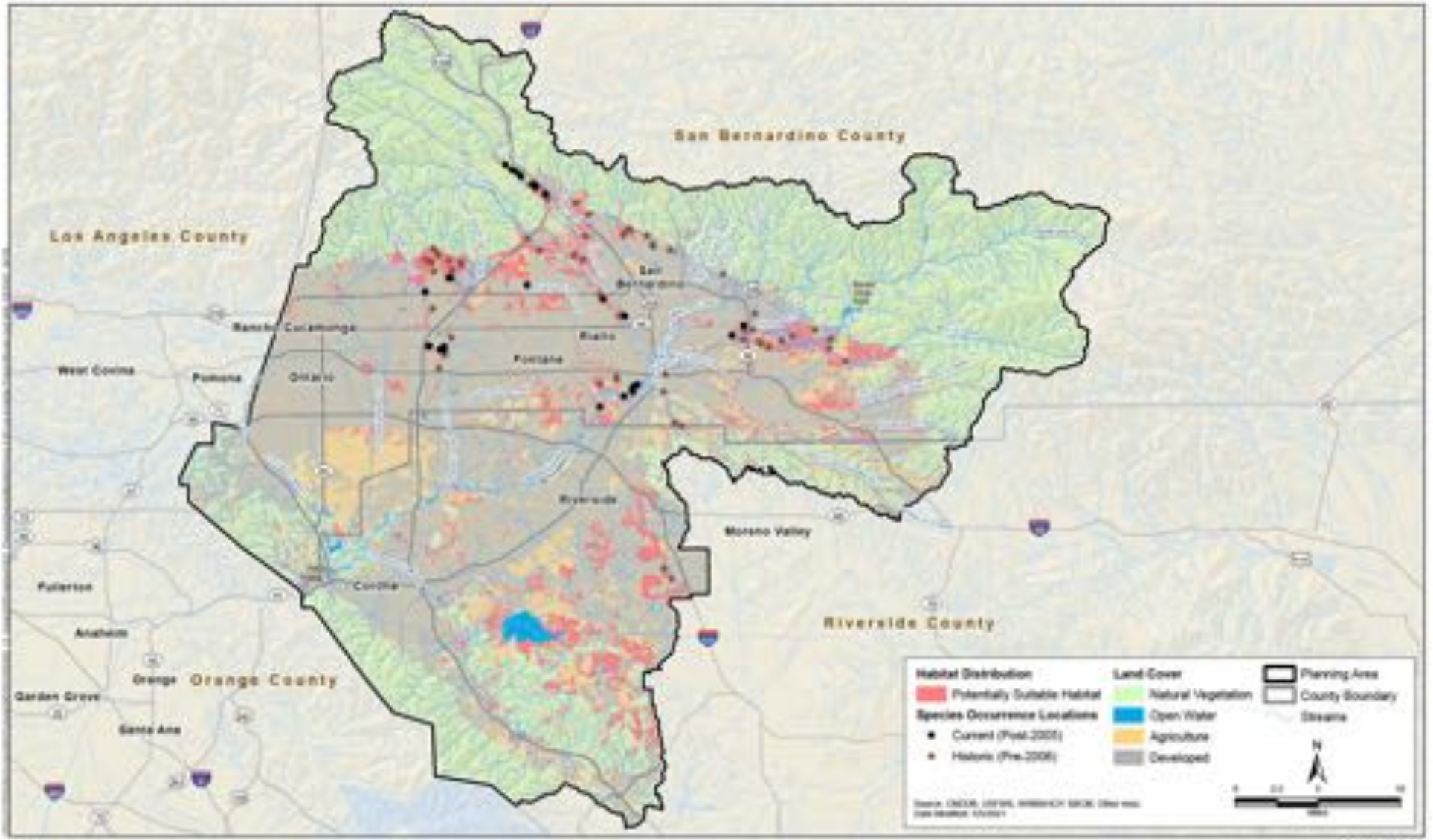
Distribution of Los Angeles pocket mouse modeled habitat and documented occurrences in the Planning Area are illustrated on Figure 3-58, and quantified in Table 3-15. The following modeled habitat types are used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create each modeled habitat type.

Potentially Suitable Habitat

- **Land Cover**: Californian Coastal Scrub; Californian Annual and Perennial Grassland; Californian Disturbed Grassland, Meadow, and Scrub; North American Warm-Desert Xeric-Riparian Scrub; Great Basin-Intermountain Xeric-Riparian Scrub; **AND**
- **Soil Texture**: Sand; sandy loam; coarse sand; coarse sandy loam; fine sand; fine sandy loam; loamy sand; loamy coarse sand; loamy fine sand; river wash; very fine sandy loam; **AND**
- **Landform**: alluvial fans; alluvial flats; floodplains; foothills, terraces, and uplands; also drainageways regardless of land cover type; **AND**
- **Elevation**: 0–3,000 feet; **AND**
- **Slope**: 0–10%.

Taxonomy and Genetics

Los Angeles pocket mouse is one of eight subspecies of *P. longimembris* found in California. Subspecies *P. l. pacificus,* is Federally endangered. *P. l. brevinasus* is physically distinguished from other *P. longimembris* subspecies by a short rostrum (Bolster 1998).



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-58
Los Angeles pocket mouse, *Perognathus longimembris brevinasus* Potential Habitat Distribution and Known Occurrence Records

Reproduction

Individuals breed once, typically April–June, but can extend breeding season and have more litters. Reproduction appears correlated with rainfall and seed availability, which can result in substantial population fluctuations (USFWS 2010e). Reproductive males and females have been observed as early as February and continue through September, with the peak of breeding occurring May–June (Dudek & Associates 2003). Litters consist of 3 to 4 pups.

Dispersal, Territoriality, and Home Range

The data on Los Angeles pocket mouse is limited. Studies done on *P. longimembris* show high site fidelity, with individuals trapped from year to year as close as 50 feet from previous detections. Studies from similar subspecies, *P. l. pacificus,* showed first year individuals dispersing a mean distance of 62 feet (Dudek & Associates 2003).

Individuals are solitary, with home ranges typically overlapping during the breeding season. A study of *P. longimembris* demonstrated that home ranges averaged 0.25–1.2 acres, with an average of 0.74 acre. Average home ranges are 1.2–7.6 acres for females and 0.7–4.7 acres for males (Dudek & Associates 2003).

Though dispersal and home ranges are relatively small (generally no more than 8 acres per individual), corridors for dispersal between populations are important for the health and survival of the species. Disconnection between populations limits gene flow, which may prevent populations from adapting to changing environmental conditions.

Daily and Seasonal Activity

Los Angles pocket mouse is primarily nocturnal, being active and emerging at night (Dudek & Associates 2003, WRMSHCP 2011). The species uses torpor to decrease body temperature and metabolic rate to conserve energy. It remains underground in burrows from September to March (USFWS 2010e). However, timing and duration of activity cycles can vary across seasons and appear to be a function of soil temperature, food availability, and ambient air temperature; aestivation (dormancy) has been recorded in June (USFWS 2010e). May and June are peak months for surface activity (WRMSHCP 2011). Seasonal activity is depicted in Table 3-40.

Table 3-40. Seasonal Activity of Los Angeles Pocket Mouse

Life Stage/Activity Period[1]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hibernation	■	■	■						■	■	■	■
Peak Surface Activity					■	■	■					
Breeding				■	■	■						

Sources: Dudek & Associates 2003, WRMSHCP 2011, USFWS 2010e
[1]Timing and duration of seasonal activity can vary depending upon site conditions (e.g., soil temperature, food availability, ambient air temperature)

Diet and Foraging

Los Angeles pocket mouse is primarily a granivore (seed eater), and may prefer to feed on grass and forb seeds (Dudek & Associates 2003). Although a strong seed specialist, it may seasonally eat forbs and rarely insect larva and arthropods (Bolster 1998). Los Angeles pocket mouse forages on the

ground under the low canopy of shrubs and trees, using fur–lined cheek pouches to gather food. It stores seeds in underground caches (Dudek & Associates 2003).

Threats and Special Management Considerations

The main threat to the species is habitat loss due to urban and suburban development, agriculture, sand and gravel mining, and flood control projects (Bolster 1998, Dudek & Associates 2003, WRMSHCP 2011). Fragmentation of habitat caused by habitat loss creates isolated populations that limit dispersal, causing a decrease in gene flow that could lead to localized extirpation (Dudek & Associates 2003). Plant species that are food sources for Los Angeles pocket mouse may be adversely affected by changes in groundwater management regimes. Changes in groundwater levels may also affect soil substrates, which would affect the availability of forage (Rohde et al. 2019).

Suitable habitat for this species is found throughout the Planning Area. Based on occurrence information, habitat suitability appears linked to the presence of sandy terraces associated with rivers and creeks. These areas experience infrequent flood events that remove excess vegetation, grass thatch, and litter to maintain the open sandy soils preferred by this species. Any activities that might change the flood event frequency could have a negative effect on the species. The allocation and conservation of large areas of habitat should be considered to prevent continued decline in distribution and abundance. This species responds well to management activities, such as fire (WRMSHCP 2011) and presumably mechanical removal that takes out excess shrub vegetation and groundcover to expose open sandy substrates. This species has limited periods when it is active at the surface, which must be considered for any monitoring program that is established.

San Bernardino Kangaroo Rat (*Dipodomys merriami parvus*)

Current Status and Distribution

San Bernardino kangaroo rat (*Dipodomys merriami parvus*) is Federally listed as endangered and is a candidate for listing as endangered under the California Endangered Species Act (CESA). Prior to emergency listing under the CESA, the San Bernardino County Museum estimated the historic range at 28,000 acres. At the time of the final listing, USFWS determined that only about 9,797 acres appeared to be suitable in three primary locations: (1) Santa Ana River (3,861 acres), (2) Lytle Creek and Cajon Creek (5,161 acres), and (3) San Jacinto River (775 acres), with smaller amounts of habitat at City Creek, Reche Canyon, Etiwanda alluvial fan, and South Bloomington (USFWS 2009c). During the 2009, 5-year review, USFWS determined that San Bernardino kangaroo rat (SBKR) populations persisted only within the three main locations; however, these habitats were highly fragmented and included a mosaic with varying qualities of habitat that were isolated from other high-quality habitats occupied by the species (USFWS 2009c). As of 2018, it was estimated that over 85% of remaining functional SBKR occupied habitat was associated with Lytle Creek and Cajon Wash and the Santa Ana River, with the other important occupied habitat occurring along the San Jacinto River (USFWS 2009c). This species is likely extirpated from the Etiwanda Fan and Bautista Creek (USFWS 2018).

Current (post-2005) occurrences of this species are known from the northern portion of the Planning Area in San Bernardino County, Day Canyon Wash, Etiwanda Canyon, Lytle Creek, Cajon Canyon, Devil Canyon, and City Creek, and habitat along the Upper Santa Ana River from southwest of the San Bernardino International Airport east to the Crafton Hills. There is also critical habitat designated in the Planning Area.

Habitat Requirements

Primary habitat for San Bernardino kangaroo rat is Riversidian alluvial fan sage scrub (RAFSS) within alluvial floodplains (USFWS 2009c). Each successional stage of this habitat (pioneer, intermediate, and mature) is used, but highest densities are often found in pioneer-intermediate RAFSS. Mature habitat occurs within the greatest elevation from the low flow channel and provides the most protection from inundation during storm events (USFWS 2002). Sandy substrate is the best predictor of species abundance (Shier et al. 2019), while a high density of nonnative grass is most strongly correlated with negative occupancy (USFWS 2009c). USFWS description of critical habitat PBFs includes alluvial fans, washes and associated floodplains with sandy soils suitable for burrowing, and adjacent upland areas, including alluvial fan sage scrub and associated vegetation with a moderately open canopy (USFWS 2002).

Distribution of Modeled Habitat and Documented Occurrences in the Planning Area

The distribution of SBKR modeled habitat, documented occurrences, designated critical habitat, refugia, and areas assumed to be occupied in the Planning Area are illustrated on Figure 3-59, Figure 3-60, and 3-61 and quantified in Table 3-15. The following modeled habitat type is used to represent the species' habitat distribution in the Planning Area; this includes a listing of the data and/or parameters used to create the modeled habitat type.

The distribution of SBKR habitat in the Planning Area is based on a habitat suitability model developed by ICF with review and input from SBKR researchers at the San Diego Zoo Institute for Conservation Research.

Suitable Habitat

- **Land Cover**: Californian Coastal Scrub, California Coastal Scrub (California buckwheat), North American Warm-Desert Xeric-Riparian Scrub, Great Basin-Intermountain Xeric-Riparian Scrub, and Water – Seasonal; **AND**
- **Soil Type:** The above land cover types were then clipped to fluvent soils as identified in the U.S. Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Soil Survey Geographic Database. SBKR researchers at the San Diego Zoo Institute for Conservation Research have found that SBKR often have a high association with fluvent soils (alluvial soils where repeated deposition of sediments from periodic flooding prevents the development of more mature soil characteristics) (Shier pers. comm.). The fluvent soils data were used to select model results in the GIS layer, which were retained in the final results. Areas with non-fluvent soils were removed.
- **Post-Processing**: Areas that were highly fragmented resulting in small (e.g., less than 10 acres) and isolated (e.g., greater than 1,000 feet) patches of habitat were removed from the model results. Areas that were small, fragmented, highly disturbed, and isolated by development were identified using aerial photos and removed from the model output or downgraded in habitat assessment classification, where appropriate.

  Other areas were included in the final model results if they were surrounded by modeled suitable habitat and were known to be suitable from field observations, even when the GIS model did not include them (e.g., due to fine-scale differences in the regional vegetation or soils mapping data).

- **Potential Refugia Habitat:** Areas outside of the 100-year floodplain boundary were identified as Potential Refugia Habitat (see Figure 3-60) important to temporarily support SBKR during major flood events.

San Bernardino Kangaroo Rat Assumed Occupied Habitat

- **Assumed Occupied Habitat:** Assumed Occupied is not a modeled dataset; it is a separate data layer that was estimated to indicate all areas where SBKR may be present (Figure 3-61). All areas outside of this data layer have extremely limited potential for SBKR to occur. The layer was generated from review of available trapping data (positive and negative), known extant occurrences, and estimates of likely occupied areas where data were absent. It provides a conservative estimate of all areas where SBKR has the potential to be found. Note: because some areas known to support SBKR did not have occurrence data available in GIS format not all areas of assumed occupied habitat will have occurrences shown in Figure 3-61.

San Bernardino Kangaroo Rat Designated Critical Habitat

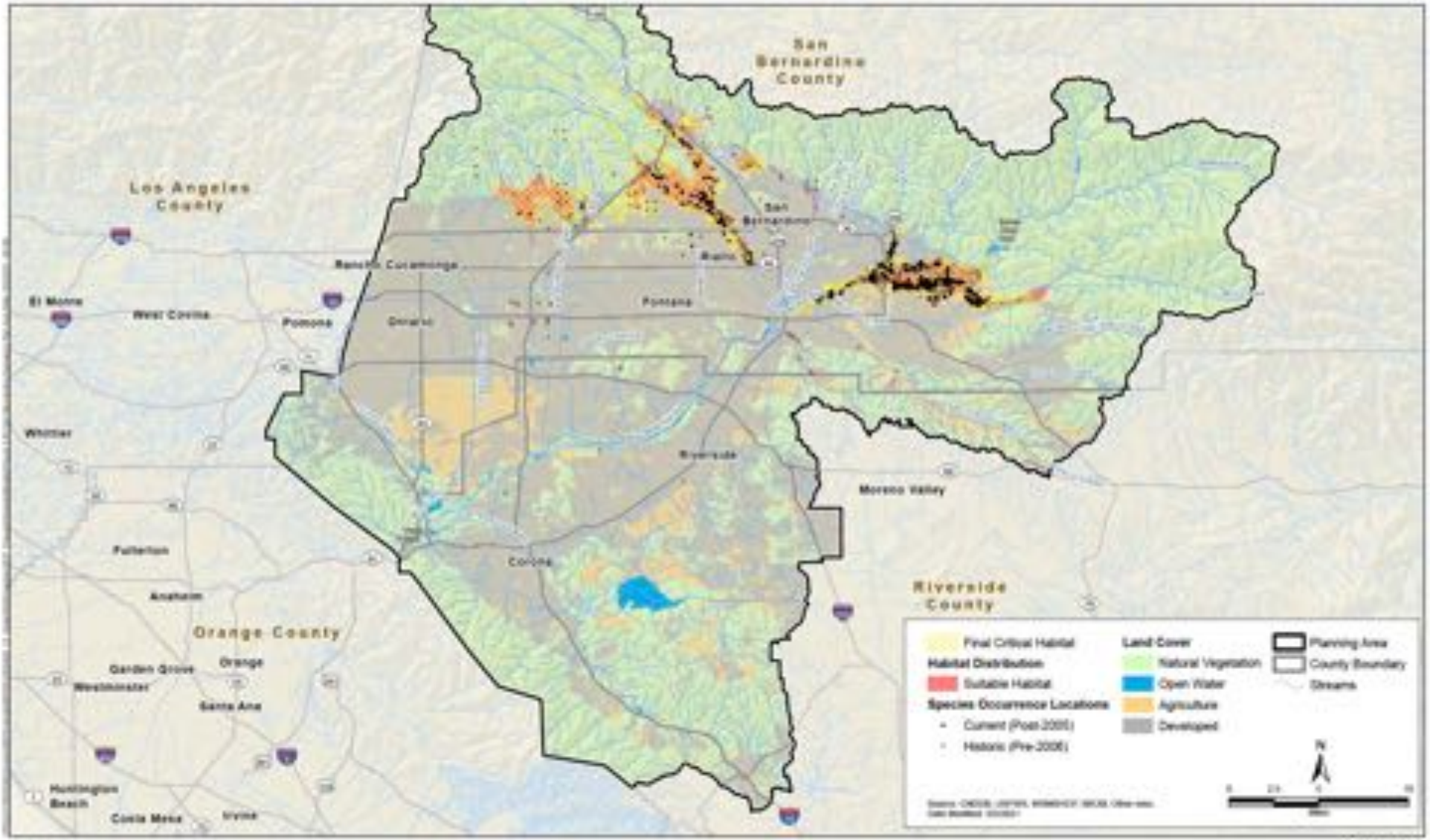
There are 27,745 acres of designated critical habitat for SBKR in the Planning Area (72 *Federal Register* 33807). Designated critical habitat occurs within the Etiwanda Fan, Lytle, and Cajon Creeks (including Cable and Devil Canyon Creeks) and the Santa Ana River Wash (including portions of Mill, Plunge, and City Creeks).

Taxonomy and Genetics

The subspecies is one of three Merriam's kangaroo rat (*Dipodomys merriami*) in California (USFWS 2009c). The species is the most highly differentiated subspecies of *Dipodomys merriami* morphologically (Lidicker 1960). A range-wide genetic study found that the three primary remaining populations (Santa Ana, Lytle-Cajon, and San Jacinto) are genetically distinct from one another with further sub-structuring among sites within the populations and little to no gene flow between sites (Hendricks et al. 2020). Sub-structuring indicates isolation or limited gene flow is occurring among sites within populations. All three remaining populations exhibit a low level of genetic diversity with low effective population sizes (Hendricks et al. 2020). Diversity within the three populations is similar to other species with fragmented distributions. Genetic evidence suggests that these three populations have been recently separated, likely within the last 100 years, which also corresponds with reduction in habitat since the 1930s (Hendricks et al. 2020). This indicates a lack of ability to adapt to environmental change, which in turn makes the populations more vulnerable to extinction as a result of stochastic (random) environmental events, such as wildfire or flooding.

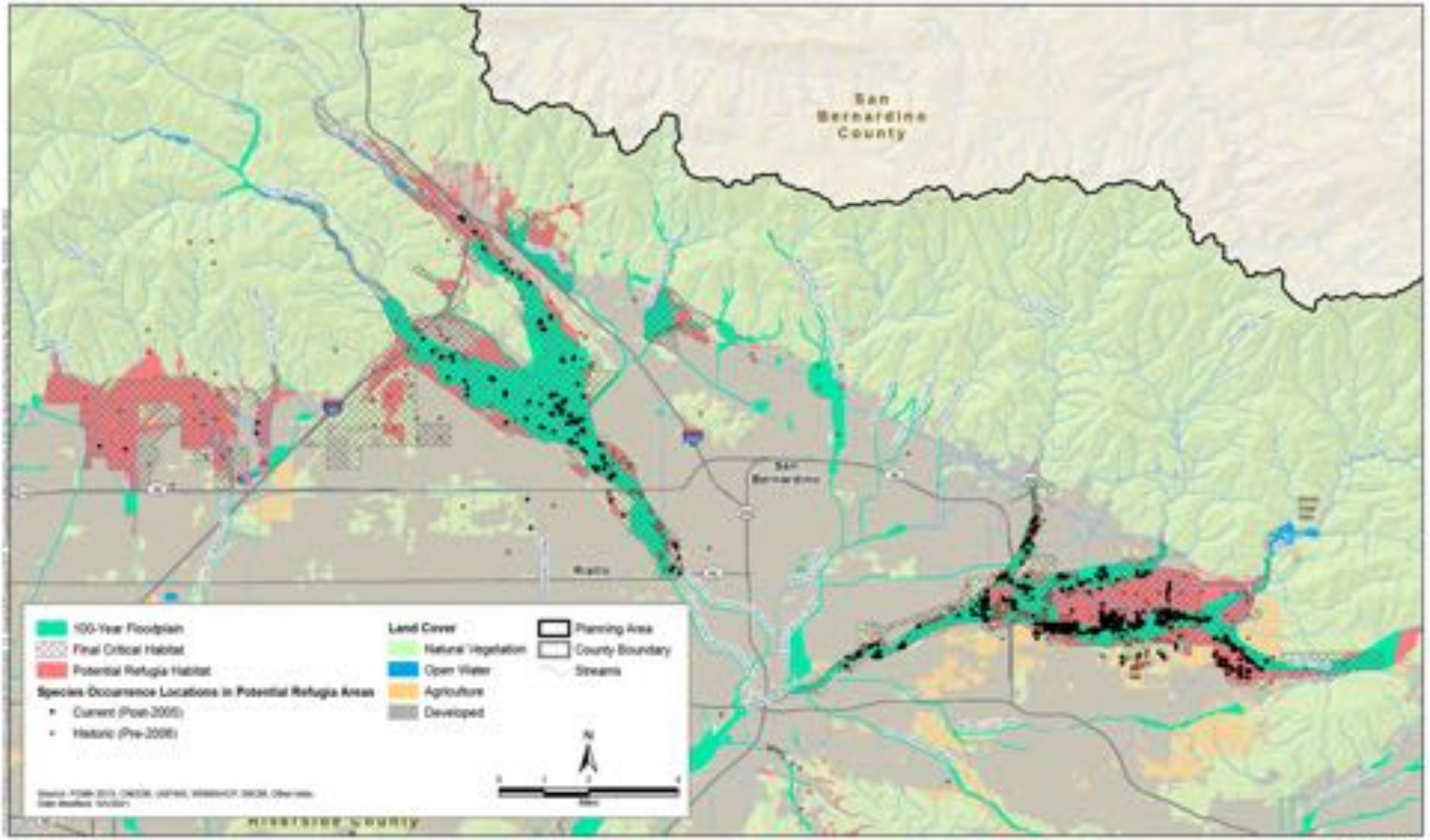
Reproduction

Reproductive activities peak in June and July (USFWS 2009c), but pregnant or lactating females can be present January–November (USFWS 1998) (Table 3-41). Females are capable of more than one litter per year and typical size is 2–3 individuals (Jones 1993). Breeding varies in relation to ecological conditions, with individuals not breeding when plant productivity is poor (Heske et al. 1993).



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-59
San Bernardino kangaroo rat, *Dipodomys merriami parvus* Potential Habitat Distribution and Known Occurrence Records



Upper Santa Ana River
Habitat Conservation Plan

Figure 3-60
Refugia Habitat and Occurrence Records for San Bernardino kangaroo rat

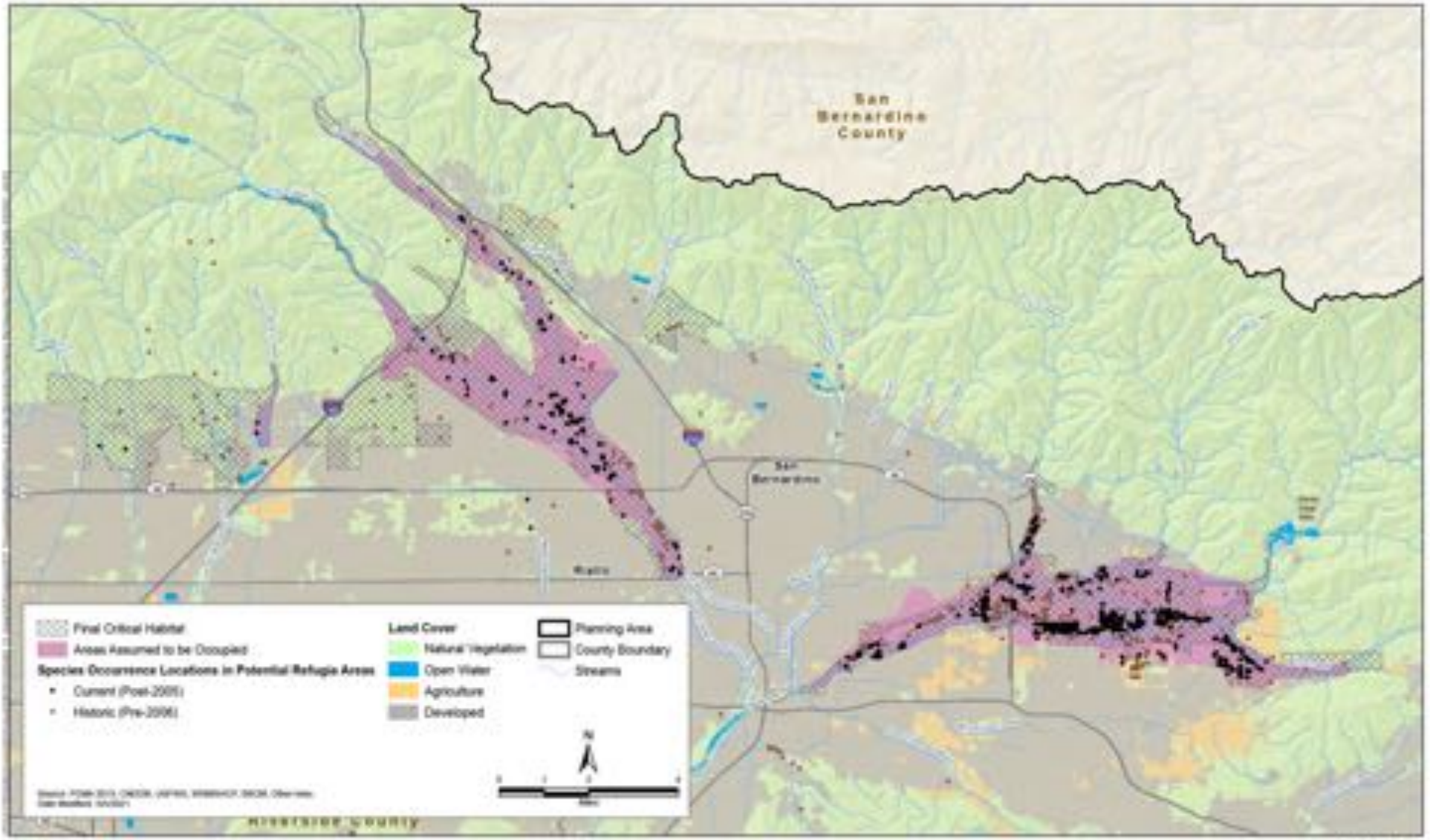


Figure 3-61
Areas Assumed to be Occupied and Occurrence Records for San Bernardino kangaroo rat

Dispersal, Territoriality, and Home Range

The species is philopatric so tends to establish home ranges close to their natal range (French 1993). Movements of 40–60 meters are common (USFWS 1998), and long-distance events can be over 240 meters (Zeng and Brown 1987) and documented up to 1.2 kilometers (Braden 2015). However, more than 85% of individuals disperse less than 125 meters (Jones 1989). Dispersal is slightly male-biased (Jones 1989). Reproductive males travel farther than females or males with regressed testes (Behrends et al. 1986).

Individuals are primarily solitary but have overlapping home ranges (Randall 1993). They tend to tolerate familiar neighbors more than strangers and may have long-term associations with the same individuals (Randall 1993). Kangaroo rats actively defend small core areas near burrows (Jones 1993). Sand baths may be important to establish familiarity between individuals (Randall 1991). Average male home ranges may be slightly larger than those of females (0.74 versus 0.26 hectare) (Jones 1989).

Daily and Seasonal Activity

The San Bernardino kangaroo rat is unable to enter a state of torpor (Brown and Harney 1993), and therefore can be active at the surface year-round. They are nocturnal, emerging from their burrows at dusk to forage and returning before dawn, and occupying their burrows during daylight hours for shelter and to avoid high temperatures. Surface activity is reduced during full moon periods (Daly et al. 1992a).

Table 3-41. Seasonal Activity of San Bernardino Kangaroo Rat

Life Stage/ Activity Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding												

Sources: USFWS 1998, USFWS 2009c

Diet and Foraging

San Bernardino kangaroo rats are primarily granivores (seed eaters), but consume herbaceous material and insects when available (Reichman and Price 1993). They collect seeds in cheek pouches and store them in subsurface caches (Daly et al. 1992b). Water requirements are satisfied by seeds and herbaceous material consumed (French 1993).

Threats and Special Management Considerations

Major threats to the San Bernardino kangaroo rat include loss of habitat, including upland refugia habitat (Figure 3-60), habitat fragmentation due to development, and the alteration of waterways. Flood control, dams, and water conservation projects that change the hydrology of a system are indirect long-term threats to fluvial processes required for habitat.

Because existing flood control structures, roads, and dams have altered fluvial processes, long-term maintenance of high-quality habitat through vegetation management and fluvial processes will be important for conservation in the Planning Area. Pioneer- and intermediate-stage alluvial fan sage scrub, which tends to occur on the terraces above the low flow channel, provides the highest quality habitat because it is sandy and fairly open, and has low vegetation cover. The density of vegetation is particularly important as it affects the species' burrowing, locomotion, and foraging ability.

Experimental thinning of vegetation in the Santa Ana River resulted in an increase in use of the more open habitat (Price 1978). Mature-stage alluvial fan sage scrub is less suitable as primary habitat because of the typical dense vegetation cover, but is important as refugia in high flow events. Consequently, natural fluvial processes (or other mechanisms that mimic these processes), whereby cycles of flooding and dry periods result in dynamic fluctuations of terraces and habitat, are crucial.

Reduction in overall genetic diversity and lack of gene flow between populations make this species more vulnerable to stochastic events. While fluctuations in population numbers are natural for this species due to local extirpation and recolonization following flood events, increasing precipitation volatility in the form of extreme drought years followed by extreme precipitation years and flooding may have more serious consequences for this species (Hendricks et al 2020). Natural recolonization following extreme events may be impossible due to loss of adjacent refugia and habitat fragmentation as evidenced by no gene flow between sub-populations in the Planning Area aside from translocation (Hendricks et al. 2020). Successful translocation may help offset effects of habitat fragmentation, restore some level of geneflow between sub-populations, and increase genetic diversity within sub-populations (Hendricks et al. 2020).

Edge effects are also threats to remaining San Bernardino kangaroo rat populations. These effects include increased nighttime illumination, habitat degradation due to nonnative invasive plant cover (particularly nonnative grasses), disturbances from off-highway vehicles, and effects associated with trash dumping. The effects of nighttime lighting are of particular concern for nocturnal animals, including this species, because rodents alter foraging behaviors in response to the full moon, and artificial lights can result in the same responses (Wang and Shier 2017). Increased nighttime lighting can also result in increased predation (Beier 2006).

Other Relevant Information

The Planning Area supports the majority of the current known range of this species. The most stable populations remaining are present in Lytle Creek, Cajon Wash, and the Santa Ana River. Plunge Creek and City Creek also support moderate populations, although the long-term viability of these areas is likely dependent on the connectedness of suitable habitat to the more robust Santa Ana River populations. Currently, the suitable habitat connection between City Creek and the Santa Ana River is constrained at Alabama Street with a very narrow swath of habitat. Further constraints to movement may occur between 5th Street and I-210, where currently no terraced habitat is available and vegetation is lacking due to frequent scouring events. The suitable habitat connection between City Creek and Plunge Creek is constrained at I-210 and Plunge Creek where only a very narrow swath of habitat is present. The suitable habitat connection between Plunge Creek and the Santa Ana River is likely only slightly constrained by maturing vegetation characteristics and the presence of nonnative grasses.

HCP DRAFT EIR
BIOLOGICAL RESOURCES IMPACTS

Biological Resources Impact from the Upper Santa Ana River Habitat Conservation Plan Environmental Impact Report (May 2021)

Impact BIO-1: Have a Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies, or Regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service: Impacts on Group 1 HCP Covered Species and Habitat due to Implementation of HCP.
Impacts on Group 1 Covered Species from implementation of the Proposed Project (issuance of the ITPs and implementation of the HCP conservation measures) would be beneficial. Impacts on Group 1 Covered Species from implementation of Restoration Activities would be reduced to less-than-significant levels with implementation of Conservation Strategy AMMs.

Impact BIO-2: Have a substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies, or Regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service: Impacts on Group 2 HCP Covered Species and Habitat due to Implementation of HCP.
Impacts on Group 2 Covered Species from implementation of Proposed Project (issuance of the ITPs and implementation of the HCP conservation measures) would be beneficial. Impacts on Group 2 Covered Species from implementation of Restoration Activities would be reduced to less-than-significant levels with implementation of Conservation Strategy AMMs**.**

Impact BIO-3: Have a Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies, or Regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service: Impacts on Group 3 HCP Covered Species and Habitat due to Implementation of HCP.
Restoration activities associated with the Conservation Strategy are anticipated to benefit aquatic habitat for Santa Ana sucker through quality enhancements compared with existing conditions. Furthermore, AMMs for Santa Ana sucker will be implemented, and the HCP's Up-Front and Stay-Ahead Provisions will require that implementation of the Conservation Strategy and progress toward assembly and management of the HCP Preserve System will stay ahead of Covered Activity impacts by a minimum of 10%. However, given the threatened status of the species and consideration of the species current limited distribution within the Santa Ana River, for the purposes of this CEQA analysis, the potential impact on Santa Ana sucker is conservatively found to be significant and unavoidable. The EIR reaches this conclusion because, although the Conservation Strategy is designed and expected to result in a net beneficial effect on Santa Ana Sucker, it cannot be concluded with complete confidence that all of the proposed conservation measures (e.g., translocation) will necessarily achieve their intended result.

Impact BIO-4: Have a Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-Status Species in Local or Regional Plans, Policies, or Regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service: Impacts on Non-HCP Covered Species and Habitat.
The net effect of the issuance of the ITPs and implementation of the HCP conservation measures would be an overall beneficial effect on non- covered special-status plant and wildlife species during the Permit Term. Ground-disturbing activities associated with habitat improvement activities within the Preserve System could result in the injury or death of non-covered special-status wildlife species. However, implementation of AMMs and mitigation measures would reduce impacts to less-than-significant levels.

Impact BIO-5: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
Implementation of the Proposed Project would have significant impacts on riparian habitats from the permanent loss of riparian woodlands. However, the net effect of the Proposed Project will be an overall beneficial effect on riparian woodlands because the Proposed Project would require the establishment of the HCP Preserve System, which would conserve 208.3 acres of new riparian woodlands and restore and enhance 216 acres of additional riparian woodlands. Additionally, implementing AMMs in the Conservation Strategy, general BMPs, and a Stormwater Pollution Prevention Plan (SWPPP) and erosion control plan would also reduce direct and indirect effects. Together, the preservation and improvement of riparian woodlands and implementation of Conservation Strategy AMMs would reduce these impacts to less-than-significant levels.

Impact BIO-6: Have a substantial adverse effect on State or Federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means.
Implementation of the Proposed Project could have significant impacts from the permanent loss of wetlands and other waters. However, the net effect of the Proposed Project will be an overall beneficial effect on wetlands and other waters because the Proposed Project would require the establishment of the HCP Preserve System, which would conserve 39.0 acres of new wetland habitats and 37.8 acres of permanent water and improve 54 acres of additional wetlands. Additionally, implementing AMMs in the Conservation Strategy, general BMPs, and a SWPPP and erosion control plan would also reduce direct and indirect effects. Together, the preservation and restoration of wetlands and implementation of Conservation Strategy AMMs would reduce these impacts to less-than-significant levels.

Impact BIO-7: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
The net effect of the Proposed Project would be an overall beneficial effect on Covered Species and other special-status species because the Proposed Project would require the establishment of the HCP Preserve System, which would prioritize the conservation and long-term management of a landscape of natural land cover types that will create, restore and/or rehabilitate, to the greatest extent practicable, migration corridors for Covered Species or other special- status species. The conserved lands planned for inclusion in the HCP Preserve System would generally be continuous with existing open spaces and protected areas within the Plan Area, thus enhancing their benefits for wildlife movement.

Impact BIO-8: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
The net effect of the Proposed Project will be an overall beneficial effect on Covered Species, other special-status species, and natural vegetation because the Proposed Project would require the establishment of the HCP Preserve System as well as AMMs and compliance with applicable local tree policies and/or ordinances.

Impact BIO-9: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.
Because the specific details are not known at this time for some activities, the exact impacts on Conservation Areas for the WRC MSHCP/NCCP, Upper Santa Ana River Wash HCP, SKR HCP, Lake Mathews HCP, and West Valley HCP resulting from construction and O&M activities cannot be predicted. Quantitative analysis of the exact areas, acreages, and protected resources under the HCPs that could be affected by each activity will be performed at a project-by-project level basis during the independent environmental review process. Implementation of the Covered Activities, including the Conservation Strategy, could have significant impacts related to temporary and permanent loss of areas within established HCPs. However, the net effect of the Proposed Project (issuance of the ITPs and implementation of the HCP conservation measures) would be an overall beneficial effect on Covered Species and other special-status species through the establishment of the HCP Preserve System. Additionally, implementation of AMMs under the Conservation Strategy as well as Mitigation Measures BIO-6 and BIO-7 would reduce the impacts to less-than- significant levels with mitigation.

BIO-1: Conduct Pre-activity Surveys to Document the Presence of Non-Covered Special-Status Plant Populations

The Alliance shall retain a qualified botanist to document the presence or absence of non-covered special-status plant species within the Preserves. Surveys for non- covered special-status plant would be conducted prior to the commencement of restoration activities to determine the presence, location, and extent of any populations of non-covered special-status plant species. If non-covered special-status plants are found, the population would be incorporated into the project or restoration design to avoid, to the extent feasible, direct or indirect impacts on those species. Special-status plant populations near habitat improvement activities shall be protected by installing environmentally sensitive area fencing around the populations.

BIO-2: Conduct Pre-activity Surveys to Document the Presence of Non-Covered Special-Status Amphibians and Reptiles

Prior to conducting any ground-disturbing activities associated with the habitat improvement, the Alliance shall conduct pre-activity surveys for special-status amphibian and reptile species. If special-status species are observed within areas that will be disturbed, they will be encouraged to move out of those areas or will be captured and relocated to suitable habitat outside of disturbance areas. A qualified biologist shall be present during ground-disturbing activities to ensure that special-status amphibian and reptile species are not adversely affected.

BIO-3. Conduct Pre-activity Surveys to Document the Presence of Bat Maternity and Hibernation Roosts

Prior to ground-disturbing activities associated with habitat improvement activities (including vegetation removal) within suitable habitat for bat species, the Alliance shall retain a qualified biologist to conduct a bat roost assessment to determine whether bat maternity roosts or hibernation roosts are likely to occur. Any locations identified as suitable bat roosting habitat shall be subject to additional nighttime surveys during the summer months (i.e., June–August) to determine roosting. Surveys will be conducted using a combination of visual inspection, exit counts, and acoustic surveys. If no maternity or hibernation roosts are detected, no further mitigation is required. If bats are found using vegetation subject to potential impacts, the species of bat(s) and number of bats will be determined.

If impacts on maternity roosts or hibernation roosts are likely, the following mitigation options are available:

- Habitat improvement activities involving vegetation removal shall occur in September through early November, after the breeding season and before the bat hibernation season. Furthermore, trees identified as suitable bat roost sites shall be removed using a two-step process that occurs over a 2-day period. On day one, branches and limbs that do not contain crevices or cavities shall be removed using hand tools or chainsaws. On day two, the remainder of the tree may be removed.
- A qualified biologist shall conduct a survey to determine presence of bats within maternity or hibernation roosts. If no roosting bats are found, no further mitigation is required. If bats are detected, a 50-foot exclusion zone shall be established around the occupied roost until roosting activities have ceased. The identified two-step process will be implemented where trees need to be removed/affected.

BIO-4: Conduct Pre-activity Surveys to Document Presence of San Diego Desert Woodrats

Within suitable habitat for the San Diego desert woodrat, the Alliance shall retain a qualified biologist to conduct surveys for San Diego desert woodrat not more than 30 days prior to the start of ground-disturbing activities (including vegetation removal). All San Diego desert woodrat nests shall be mapped and flagged for avoidance. Graphics depicting the location of all San Diego

desert woodrat nests shall be provided to the Alliance to determine if those nests would be affected by habitat improvement activities. Any San Diego desert woodrat nests that cannot be avoided shall be relocated according to the following procedures.

- Each active nest shall be disturbed by the qualified biologist to the degree that San Diego desert woodrats leave the nest and seek refuge elsewhere. After the nests have been disturbed, the nest sticks shall be removed from the impact areas and placed outside of areas planned for impacts. Nests shall be dismantled during the non-breeding season (between October 1 and December 31), if possible. If a litter of young is found or suspected, nest material shall be replaced and the nest left alone for 2–3 weeks; after this time, the nest will be rechecked to verify that young are capable of independent survival before proceeding with nest dismantling.

BIO-5: Conduct Pre-activity Surveys to Document the Presence of American Badger

Within suitable habitat for the American badger, the Alliance shall retain a qualified biologist to conduct focused preconstruction surveys for potential American badger dens within areas where ground-disturbing activities will occur no more than 2 weeks prior to the initiation of those ground-disturbing activities (including vegetation removal) associated with habitat improvement activities. If no potential American badger dens are present, no further mitigation is required. If potential dens are within disturbance areas, the following measures shall be required to avoid impacts on American badgers:

- If the biologist determines that potential dens are inactive, the biologist shall excavate the burrow by hand with a shovel to prevent badgers from reusing them during construction.
- If the biologist determines that potential dens may be active, and cubs may be present in the den, no impacts will occur until the cubs are no longer reliant on the den. Following confirmation that either cubs are not present, or are no longer dependent on the den, the entrances of the dens shall be blocked with one-way doors over a 3–5 day period. The one-way doors shall be checked daily to ensure that they are in proper working order and to determine if the burrows are still active. After the biologist determines that badgers have stopped using active dens within the area potentially affected by the activity, the dens shall be hand-excavated with a shovel to prevent re-use during construction.

BIO-6: Conduct Impact Analysis to Ensure that Activities Do Not Conflict with the Provisions, Goals, and Objectives of Other HCPs within the Permit Area

Permittees with Covered Activities proposed in other HCPs within the Permit Area (i.e., Wash Plan HCP, Lake Mathews MSHCP, WRC MSHCP, SKR HCP, West Valley HCP) shall conduct an impact analysis as part of the environmental review process on a project-by-project basis prior to implementation. Should an activity impact any designated conservation lands under one of these HCPs, then a mitigation plan will be developed to ensure no net loss of HCP conservation lands. Compensation for the permanent loss of conservation lands would be accomplished through the acquisition of replacement lands at a minimum 1:1 ratio. These lands will provide equivalent or greater habitat value and be located adjacent to the existing HCP conservation lands. Restoration of temporary impact areas on HCP conservation lands will be accomplished through on-site restoration of those temporarily affected areas, including the development of a Habitat Mitigation and Monitoring Plan. The mitigation plan would be developed in consultation with the applicable HCP reserve managers and policy authorities (i.e., WRCRCA, Lake Mathews Reserve Management Committee, RCHCA, Conservation District, Riverside Land Conservancy), USFWS, and CDFW to ensure that the activity does not conflict with the provisions, goals, and objectives of the HCP and that the mitigation plan will offset any losses and is biologically equivalent.

BIO-7: Comply with Policies, Goals, Objectives, and Conservation Measures of Other HCPs Located within the Permit Area

Any activity that occurs within the boundaries of another HCP located within the Permit Area (i.e., Wash Plan HCP, Lake Mathews MSHCP, WRC MSHCP, SKR HCP, West Valley HCP) shall comply and be consistent with the policies, goals, objectives, and conservation measures of that plan to the maximum extent feasible.

RP-4 SITE SPECIFIC BIOLOGICAL RESOURCES ASSESSMENT

Biological Resources Assessment

Jacobs

Jacobs

Inland Empire Utilities Agency
RP-4 AWPF Project

Biological Resources Assessment

Document No. | Final

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Tom Dodson & Associates

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Contents

Executive Summary

Jacobs Engineering Group, Inc. was retained by Tom Dodson and Associates to conduct a Biological Resources Assessment and Jurisdictional Waters Assessment for the Inland Empire Utilities Agency's proposed Regional Water Recycling Plant No. 4 AWPF Project located in the City of Rancho Cucamonga, San Bernardino County, California. The Project would improve the Facility's existing wastewater treatment plant infrastructure by constructing a new advanced water purification facility. The proposed Project would involve Water Infrastructure Finance and Innovation Act of 2014 loans administered by the U.S. Environmental Protection Agency. Therefore, this Biological Resources Assessment and Jurisdictional Waters Assessment was prepared in accordance with the CEQA-Plus requirements of the Water Infrastructure Finance and Innovation Act program.

In September of 2021, Jacobs biologists conducted a Biological Resources Assessment survey to address potential effects of the Project on designated Critical Habitats and/or special status species. Data regarding biological resources in the Project vicinity were obtained through literature review and field investigation. Available databases and documentation relevant to the Project Area were reviewed for documented occurrences of sensitive species that could potentially occur in the Project vicinity, including the U.S. Fish and Wildlife Service designated Critical Habitat online mapper and Information for Planning and Consultation System, as well as the most recent versions of the California Natural Diversity Database and California Native Plant Society Electronic Inventory.

The result of the reconnaissance-level field survey was that no state or federally listed species were identified within the Project Area and none are expected to occur. The proposed Project will not affect any state or federally listed species or other special status species, including any California Fully Protected species or California rare and endangered plant species. The proposed Project will not result in the loss or adverse modification of USFWS designated Critical Habitat. Furthermore, the proposed Project will not affect any resources protected under the Coastal Barriers Resources Act, Coastal Zone Management Act, Fish and Wildlife Conservation Act, Magnuson-Stevens Fishery Conservation and Management Act, the Protection of Wetlands – Executive Order 11990 or Wild and Scenic Rivers Act, respectively.

Jacobs biologists also assessed the Project Area for the presence of state and/or federal jurisdictional waters that may potentially be impacted by the Project. The jurisdictional waters assessment was conducted in accordance with the U.S. Army Corps of Engineers *Wetlands Delineation Manual, Jurisdictional Determination Form Instructional Guidebook,* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. The result of the jurisdictional waters assessment is that there are no wetland or non-wetland jurisdictional waters within the Project Area. Therefore, the Project will not impact any jurisdictional waters and no state or federal jurisdictional waters permitting will be required under current regulation.

This report describes delineated resources, provides an aquatic resource delineation map, identifies state and/or federally listed species with potential to occur on site and presents representative site photographs. The delineation results and conclusions presented in this report are considered preliminary and valid under current regulatory context. Additionally, according to protocol and standard practices, the results of the habitat assessment surveys will remain valid for the period of one year, or until September 2022, after which time, if the site has not been disturbed in the interim, another survey may be required to determine the persisting absence of special status species and to verify environmental conditions on site. Regardless of survey results and conclusions given herein, if any state or federally listed species are found on site during Project-related work activities, all activities likely to affect the animal(s) should cease immediately and regulatory agencies should be contacted to determine appropriate management actions.

1. Introduction

The Inland Empire Utilities Agency (IEUA) is proposing to implement its RP-4 Advanced Water Purification Facility (AWPF) project, located in the City of Rancho Cucamonga, San Bernardino County, California. IEUA proposes to make improvements at its Regional Water Recycling Plant No. 4 (RP-4) that would consist of installing a new AWPF at its existing RP-4 facility. The proposed Project would involve Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) loans administered by the U.S. Environmental Protection Agency (EPA).

On behalf of Tom Dodson and Associates (TDA), Jacobs Engineering Group, Inc. (Jacobs) has prepared this Biological Resources Assessment (BRA) report for IEUA's proposed RP-4 AWPF Project (Project), in accordance with the CEQA-Plus (California Environmental Quality Act [CEQA]) requirements of the WIFIA program. The BRA fieldwork was conducted by Jacobs biologist Daniel Smith in September 2021. The purpose of the BRA survey was to address potential effects of the Project on designated Critical Habitats and/or any species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA), as well as any species otherwise designated as sensitive by the California Department of Fish and Wildlife (CDFW [formerly California Department of Fish and Game]) and/or the California Native Plant Society (CNPS).

The Project Area was assessed for sensitive species known to occur locally. Attention was focused on those state and/or federally listed as threatened or endangered species and California Fully Protected species that have been documented in the vicinity of the Project Area, whose habitat requirements are present within or adjacent to the Project Area. Results of the habitat assessment are intended to provide sufficient baseline information to the Project Proponent (IEUA) and, if required, to City, County or other local government planning officials and federal and state regulatory agencies, including the U.S. Fish and Wildlife Service (USFWS) and CDFW, respectively, to determine if the Project is likely to result in any adverse effects on sensitive biological resources and to identify mitigation measures to offset those effects. Additionally, Jacobs staff assessed the Project Area for the presence of State and/or federal jurisdictional waters potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and CDFW under Section 1602 of the California Fish and Game Code (FGC), respectively.

1.1 Project Description

The AWPF would be constructed within the existing RP-4 facility and would be in the vicinity of the existing wind turbine located on the western side of the plant (Figure 1). The layout of the Project incorporates a conservative minimum setback of about 25 feet from the turning radius of the turbine blades to any structures, which will be confirmed during final design. Note that the chemical facilities are located within the 25-foot setback, but outside of the 74-foot turbine blade radius. A new road would be constructed on the western edge of the plant to facilitate chemical deliveries and provide vehicle access around the entire AWPF. An equalization tank to equalize flows prior to MF is proposed in the southwest corner of the plant. The AWPF equalization/MF feed tank is assumed to be 1.2 million gallons and is shown in the southwest corner of the plant near the AWPF.

SOURCE: Tom Dodson & Associates

FIGURE 1

Site Layout
IEUA RP-4 AWPF Project

1.1.1 Area of Potential Effect

The Area of Potential Affect (APE) for the proposed Project encompasses all areas that may be affected directly and/or indirectly by the Project, including the proposed construction footprint, stockpile and staging areas, as well as immediate adjacent areas outside of the proposed Project site. It encompasses the geographic extent of environmental changes (i.e. the physical, chemical, and biotic effects) that will result directly and/or indirectly from the Project. The entire Project APE is disturbed, consisting of existing facilities and artificial landscaping within an existing wastewater treatment plant.

1.2 Project Location

The proposed Project is generally located in Section 17 of Township 1 South, Range 6 West, San Bernardino Base Meridian (SBBM), within the City of Rancho Cucamonga, San Bernardino County, California (Figures 2 & 3). The Project Area is depicted on the *Guasti* U. S. Geological Survey's (USGS) 7.5-Minute Series Quadrangle map. Specifically, the Project APE is within IEUA's existing Regional Water Recycling Plant No. 4 (RP-4) located at 12811 6th Street, on the southwest corner of Etiwanda Avenue and 6th Street; approximately 1 mile north of Interstate 10 (I-10) and 1 mile east of Interstate 15 (I-15) (Figures 3 & 4).

SOURCE: Google Earth

FIGURE 1

Jacobs

Regional Location
IEUA RP-4 AWPF Project

SOURCE: Google Earth

FIGURE 2

Jacobs

Topographic Map of Project Location
IEUA RP-4 AWPF Project

SOURCE: Google Earth

FIGURE 3

Jacobs

Aerial Photograph of Project Area
IEUA RP-4 AWPF Project

1.3 Environmental Setting

The Project Area lies in the geographically based ecological classification known as the Inland Valleys – Level IV ecoregion, of the Southern California/Northern Baja Coast – Level III ecoregion (Griffith et al. 2016). The goal of regional ecological classifications is to reduce variability based on spatial covariance in climate, geology, topography, climax vegetation, hydrology, and soils. The Inland Valleys ecoregion is a heavily urbanized ecoregion that historically consisted of the alluvial fans and basin floors immediately south of the San Gabriel and San Bernardino Mountains (Griffith et al. 2016). The topography of the Project Area consists of flat urban landscape, comprised of existing wastewater treatment facility. The elevation of the Project Area is approximately 1,080 feet above mean sea level (amsl).

The Rancho Cucamonga area is within a hot-summer Mediterranean climate (Csa), subject to both seasonal and annual variations in temperature and precipitation. Average annual maximum temperatures within the Project Area peak at 91.1 degrees Fahrenheit (° F) in August and fall to an average annual minimum temperature of 38.1° F in January. Average annual precipitation is greatest from November through April and reaches a peak in January (3.56 inches). Precipitation is lowest in the month of July (0.01 inches). Annual total precipitation averages 16.97 inches.

Hydrologically, the Project Area is situated within the Chino (Split) Hydrologic Sub-Area (HSA 801.21). The Chino (Split) HSA comprises a 190,515-acre drainage area, within the larger Santa Ana Watershed (HUC 18070203). The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. The nearest tributary to the Santa Ana River is the San Sevaine Channel, which is approximately 0.66 mile east of the Project site at its nearest point.

Given that the Project is entirely within an existing wastewater treatment facility, soils within the Project Area are likely comprised of fill material. According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the Project Area is mapped within Delhi fine sand and Hanford coarse sandy loam, 2 to 9 percent slopes. Delhi fine sand soil type consists of fine sand and sand layers comprised of sandy alluvium derived from granite. This soil type is somewhat excessively drained, with a negligible runoff class and does not have a hydric soil rating. Hanford coarse sandy loam soil type consists of sandy loam and fine sandy loam layers comprised of alluvium derived from granite. This soil type is somewhat well drained, with a low runoff class and does not have a hydric soil rating.

The Project APE is entirely within an urban landscape comprised of existing wastewater treatment facility and artificial landscaping. Surrounding land use consists entirely of wastewater treatment facility surrounded by commercial/industrial development (Figure 4).

2. Assessment Methodology

2.1 Biological Resources Assessment

Data regarding biological resources in the Project Area were obtained through literature review and field investigation. Prior to performing the survey, available databases, and documentation relevant to the Project Area were reviewed for documented occurrences of sensitive species in the Project vicinity (approximately 1 mile). The USFWS threatened and endangered species occurrence data overlay, USFWS Information for Planning and Consultation System (IPaC) and the most recent versions of the California Natural Diversity Database (CNDDB; *Rarefind 5*) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species data in the *Guasti* USGS 7.5-Minute Series Quadrangle. These databases contain records of reported occurrences of state and/or federally listed species or otherwise sensitive species and habitats that may occur within the vicinity of the Project site (approximately 1 mile). Other available technical information on the biological resources of the area was also reviewed including previous surveys and recent findings.

2.1.1 Biological Resources Assessment Field Survey

Jacobs biologist Daniel Smith conducted a biological resources assessment of the Project APE on September 30, 2021. The survey area encompassed 100 percent of the entire proposed impact area (see Figure 1). Wildlife species were detected during field surveys by sight, calls, tracks, scat, or other sign. In addition to species observed, expected wildlife usage of the site was determined per known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. The focus of the faunal species survey was to identify potential habitat for special status wildlife within the Project Area.

2.2 Jurisdictional Waters Assessment

On September 30, 2021, Mr. Smith also evaluated the Project APE for the presence of riverine/riparian/wetland habitat and jurisdictional waters, i.e. Waters of the U.S. (WOTUS), as regulated by the USACE and RWQCB, and/or jurisdictional streambed and associated riparian habitat as regulated by the CDFW. Prior to the field visit, aerial photographs of the Project Area were viewed and compared with the surrounding USGS 7.5-Minute Topographic Quadrangle maps to identify drainage features within the survey area as indicated from topographic changes, blue-line features, or visible drainage patterns. The USFWS National Wetland Inventory (NWI) and Environmental Protection Agency (EPA) Water Program "My Waters" Google Earth Pro data layers were also reviewed to determine whether any hydrologic features and wetland areas had been documented within the vicinity of the site. Similarly, the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) "Web Soil Survey" was reviewed for soil types found within the Project Area to identify the soil series in the area and to check these soils to determine whether they are regionally identified as hydric soils. Upstream and downstream connectivity of waterways (if present) were reviewed on Google Earth Pro aerial photographs and topographic maps to determine jurisdictional status. The lateral extent of potential USACE jurisdiction was measured at the Ordinary High Water Mark (OHWM) in accordance with regulations set forth in 33CFR part 328 and the USACE guidance documents listed below:

- *USACE – Corps of Engineers Wetlands Delineation Manual, Wetlands Research Program Technical Report Y-87-1 (on-line edition), January 1987 - Final Report.*
- *USACE – Jurisdictional Determination Form Instructional Guidebook (JD Form Guidebook), May 30, 2007.*
- *USACE – A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (A Delineation Manual), August 2008.*
- *USACE – Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), September 2008.*

- *USACE – Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (Minimum Standards), January 2016.*
- *The Environmental Protection Agency (EPA) and the Department of the Army's "Navigable Waters Protection Rule: Definition of 'Waters of the United States,'" April 21, 2020 (effective June 22, 2020) (85 FR 22250).*

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and *A Review of Stream Processes and Forms in Dryland Watersheds* (CDFW, 2010). Specifically, CDFW jurisdiction would occur where a stream has a definite course showing evidence of where waters rise to their highest level and to the extent of associated riparian vegetation.

3. Results

3.1 Existing Biological and Physical Conditions

The Project APE is within an urban landscape consisting of wastewater treatment facility surrounded by commercial/industrial development, transportation corridor (I-10, I-15), and San Bernardino County Sheriff detention center facility (Figure 4). The proposed impact area is completely disturbed, consisting of graded/ landscaped fill, paved roads, and unpaved, compacted dirt and gravel surfaces (see Appendix A – Site Photos). Although a portion of the Project site has been landscaped with native vegetation consisting of *Baccharis pilularis* Shrubland Alliance (coyote brush scrub), the Project APE no longer contains any habitat suitable to support any of the special status species known to occur in the region, and the only species expected to occur within the Project Area are those adapted to an urban environment. The only wildlife species observed or otherwise detected during the reconnaissance-level survey were California scrub-jay (*Aphelocoma californica*), rock pigeon (*Columba livia*), house finch (*Haemorhous mexicanus*), California towhee (*Melozone crissalis*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), and white-crowned sparrow (*Zonotrichia leucophrys*).

3.2 Special Status Species and Habitats

Per the IPaC, CNDDB, CNPSEI, and other relevant literature and databases, 31 sensitive species (14 plant species, 17 animal species) have been documented in the *Guasti* USGS 7.5-Minute Series Quadrangle. This list of sensitive species and habitats includes any state and/or federally listed threatened or endangered species, California Fully Protected species, CDFW designated Species of Special Concern (SSC), and otherwise Special Animals. "Special Animals" is a general term that refers to all the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The CDFW considers the taxa on this list to be those of greatest conservation need.

3.2.1 Special Status Species

Of the 31 sensitive species documented within the *Guasti* quad, nine are state and/or federally listed as threatened or endangered species. However, the Project Area consists entirely of urban landscape, and the habitat requirements for these species are absent from the Project APE. Table 1 (below) provides a list of all state and/or federally listed threatened and endangered species documented within the Project vicinity (approximately 1 mile), where they are found (locally, adjacent to the Project APE, or within the Project APE), if suitable habitat for that species exists within the APE and whether the Project may affect that species.

Table 1. Listed Species Documented within the Project Vicinity

Common Name	Scientific Name	Status	Found Locally	Found Adjacent	Found Within	Suitable Habitat	Project Affect
Plants:							
San Diego ambrosia	*Ambrosia pumila*	FE	No	No	No	None	No Effect
Invertebrates:							
Crotch bumble bee	*Bombus crotchii*	SCE	Yes	No	No	None	No Effect
Monarch butterfly	*Danaus plexippus*	FC	No	No	No	None	No Effect
Delhi Sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	FE	Yes	No	No	None	No Effect

Common Name	Scientific Name	Status	Found Locally	Found Adjacent	Found Within	Suitable Habitat	Project Affect
Birds:							
Tricolored blackbird	*Agelaius tricolor*	ST	Yes	No	No	None	No Effect
California black rail	*Laterallus jamaicensis coturniculus*	ST	No	No	No	None	No Effect
Coastal California gnatcatcher	*Polioptila californica californica*	FT	Yes	No	No	None	No Effect
Mammals:							
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	FE/ SCE	Yes	No	No	None	No Effect
Stephens' kangaroo rat	*Dipodomys stephensi*	FE/ST	No	No	No	None	No Effect

No state and/or federally listed threatened or endangered species, or other sensitive species were observed within the Project APE during the reconnaissance-level field survey and due to the environmental conditions on site, none are expected to occur. A complete list of all sensitive species identified by the IPaC, CNDDB and CNPSEI databases as potentially occurring in the Project vicinity is provided in Appendix C.

3.2.2 Special Status Habitats

The Project APE is not within or adjacent any sensitive habitats, including any USFWS designated Critical Habitat for any federally listed species. Therefore, the Project will not result in any loss or adverse modification of USFWS designated Critical Habitat, or any other special status habitats.

3.3 Jurisdictional Waters Assessment

The Project Area is within the Chino (Split) Hydrologic Sub-Area (HSA 801.21). The Chino (Split) HSA comprises a 190,515-acre drainage area, within the larger Santa Ana Watershed (HUC 18070203). This watershed is primarily within San Bernardino County and includes Riverside and Orange Counties with a small portion of Los Angeles Counties. The Santa Ana Watershed is bound on the north by the Mojave and Southern Mojave Watersheds, on the southeast by the Whitewater and San Jacinto Watersheds, and on the west by the San Gabriel, Seal Beach, Newport Bay, and Aliso-San Onofre Watersheds. The Santa Ana Watershed encompasses a portion of the San Gabriel and San Bernardino Mountains to the north and is approximately 3,000 square miles in area. The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. The nearest tributary to the Santa Ana River is the San Sevaine Channel, which is approximately 0.66 mile east of the Project site at its nearest point.

Waters of the U.S.

The USACE has authority to permit the discharge of dredged or fill material in WOTUS under Section 404 of the CWA. WOTUS are defined as:

> "All waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these

waters; tributaries of these waters; or wetlands adjacent to these waters" (Section 404 of the CWA; 33 CFR 328.3 (a).

Therefore, CWA jurisdiction exists over the following:

1. All traditional navigable waters (TNWs);
2. All wetlands adjacent to TNWs;
3. Non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) i.e., tributaries that typically flow year-round or have continuous flow at least seasonally; and
4. Every water body determined to have a significant nexus with TNWs.

Additionally, areas meeting all three wetland parameters would be designated as USACE wetlands, if they are adjacent to jurisdictional WOTUS, or otherwise determined to have a significant nexus to a TNW.

> *Findings*: There are no wetland or non-wetland WOTUS within the Project Area. Therefore, the Project will not result in any permanent or temporary impacts to WOTUS.

State Lake/Streambed

There are no lake, river, stream or aquatic resources, stream-dependent wildlife resources or riparian habitats within the Project Area. Therefore, the Project will not result in any permanent or temporary impacts to jurisdictional waters of the State.

4. Effects Analysis

The proposed Project will not affect any state or federally listed species or other special status species, including any California Fully Protected species or California rare and endangered plant species. The proposed Project will not result in the loss or adverse modification of USFWS designated Critical Habitat. Furthermore, the proposed Project will not affect any resources protected under the Coastal Barriers Resources Act, Coastal Zone Management Act, Fish and Wildlife Conservation Act, Magnuson-Stevens Fishery Conservation and Management Act, the Protection of Wetlands – Executive Order 11990 or Wild and Scenic Rivers Act, respectively.

The proposed Project will not impact any state or federal jurisdictional waters potentially subject to regulation by the USACE under Section 404 of the CWA, the RWQCB under Section 401 of the CWA and Porter Cologne Water Quality Control Act, or CDFW under Section 1602 of the California FGC, respectively. Therefore, no CWA Section 404/401 or FGC Section 1600 permitting will be required.

Migratory Bird Treaty Act

Although the Project is within an urban environment, there is vegetation (landscaped trees and shrubs), as well as man-made structures, within the Project APE that are suitable to support nesting birds. Most native bird species are protected from unlawful take by the federal Migratory Bird Treaty Act (MBTA) (Appendix B). In December 2017, the Department of the Interior (DOI) issued a memorandum concluding that the MBTA's prohibitions on take apply "[…] only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" (DOI 2017). Then in April 2018, the USFWS issued a guidance memorandum that further clarified that the take of migratory birds or their active nests (i.e., with eggs or young) that is incidental to, and not the purpose of, an otherwise lawful activity does not constitute a violation of the MBTA (USFWS 2018).

However, the State of California provides additional protection for native bird species and their nests in the FGC (Appendix B). Bird nesting protections in the FGC include the following (Sections 3503, 3503.5, 3511, 3513 and 3800):

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).
- Section 3511 prohibits the take or possession of Fully Protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.
- Section 3800 prohibits the take of any non-game bird (i.e. bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird).

5. Conclusions and Recommendations

5.1 Sensitive Biological Resources

No sensitive species were observed within the Project APE during the reconnaissance-level field survey and due to the environmental conditions on site, none are expected to occur. The Project APE is within an urban landscape consisting of a wastewater treatment facility surrounded by commercial/industrial development (Figure 4). The proposed impact area is completely disturbed, consisting of graded/ landscaped fill, paved roads, and unpaved, compacted dirt and gravel surfaces (see Appendix A – Site Photos).

The Project Area is no suitable to support any of the state or federally listed species, or other special status species documented in the Project vicinity. Furthermore, the only native vegetation that will be impacted consists of a previously graded/filled area within the existing wastewater treatment facility that has been landscaped (planted) with coyote brush scrub. Therefore, the proposed Project will not affect any state or federally listed species, or other special status species, and the potential for any of the sensitive species identified in Appendix C to occur within the APE is low. Furthermore, the proposed Project will not impact any USFWS designated Critical Habitats or state or federal jurisdictional waters.

Nesting Birds

In general, impacts to all bird species (common and special status) can be avoided by conducting work outside of the nesting season, which is generally February 1st through August 31st. However, if all work cannot be conducted outside of nesting season, the following is recommended:

> To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist should conduct pre-construction nesting bird surveys prior to Project-related disturbance to identify any active nests. If no active nests are found, no further action would be required.
>
> If an active nest is found, the biologist should set appropriate no-work buffers around the nest which would be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity, and duration of disturbance. Typically, accepted nest buffer distances vary from approximately 100 feet for some cavity nesting species, to 500 feet or more for some raptor species.
>
> The nest(s) and buffer zones should be field checked weekly by a qualified biological monitor. To avoid any direct (e.g., removal of the nest) or indirect (e.g., causing nest failure) take of an active nest, the approved no-work buffer zone should be clearly marked in the field, within which no project disturbance should commence until the nest has been determined to be inactive (i.e. fledged or failed) by a qualified biologist.

6. References

Calflora: Information on California plants for education, research and conservation. [web application]. 2021. Berkeley, California: The Calflora Database [a non-profit organization]. Available at: http://www.calflora.org/; accessed 25 August 2021.

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California [online edition, v8-03 0.45]. Available at: http://www.rareplants.cnps.org; accessed 28 September 2021.

California Natural Diversity Database (CNDDB). 2021. *RareFind 5* [Internet]. California Department of Fish and Wildlife, Version 5.2.14. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data; accessed 28 September 2021.

California Department of Fish and Game (CDFG). 2010. A Review of Stream Processes and Forms in Dryland Watersheds. Prepared by Kris Vyverberg, Senior Engineering Geologist, Conservation Engineering. December 2010.

Griffith, G.E., Omernik, J.M., Smith, D.W., Cook, T.D., Tallyn, E., Moseley, K., and Johnson, C.B., 2016, Ecoregions of California (poster): U.S. Geological Survey Open-File Report 2016–1021, with map, scale 1:1,100,000, http://dx.doi.org/10.3133/ofr20161021.

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

National Wetlands Inventory (NWI). 2020. U.S. Fish and Wildlife Service Wetlands Mapper. Available online at: https://www.fws.gov/wetlands/data/mapper.html; accessed 28 September 2021.

Natural Resources Conservation Service (NRCS). 2021. Web Soil Survey. Map Unit Descriptions. San Bernardino County Area, California. Available at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm; accessed 28 September 2021.

U.S. Army Corps of Engineers (USACE). 2001. USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards).

U.S. Army Corps of Engineers (USACE). 2007. Jurisdictional Determination Form Instructional Guidebook (JD Form Guidebook). May 30.

U.S. Army Corps of Engineers (USACE). 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (A Delineation Manual). August 2008.

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September 2008.

U.S. Army Corps of Engineers (USACE). 2016. Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (Minimum Standards). January 2016.

U.S. Army Corps of Engineers (USACE). 2018. National Wetland Plant List, version 3.4. U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH. Available online at: http://wetland-plants.usace.army.mil/; accessed 28 September 2021.

U.S. Fish and Wildlife Service (USFWS). Information for Planning and Consultation (IPaC). Website: https://ecos.fws.gov/ipac/; accessed 28 September 2021.

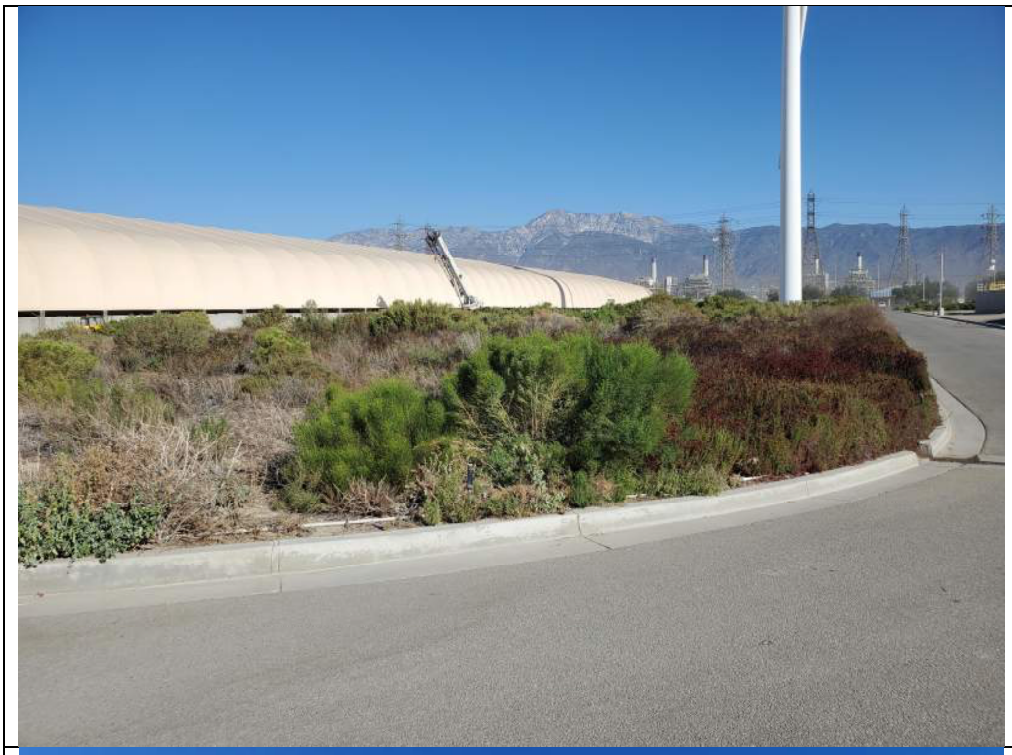
Western Regional Climate Center (WRCC). 2021. Period of Record Monthly Climate Summary for Pomona Fairplex, California (047050). Available online at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7050; accessed 28 September 2021.

Appendix A. Site Photos

Photo Map

	Photo 1. Looking south at the existing wind turbine and proposed and proposed 100-foot setback on northeast end of the Project Limits.
	Photo 2. Looking south at the proposed Project site from northwest corner of the Project Limits.

	Photo 3. Looking south along the western boundary of the proposed Project site.
	Photo 4. Looking north at the proposed Project site from southwest corner of the Project Limits.

	Photo 5. Looking north at the proposed Project site from southeast corner of the Project Limits.
	Photo 6. Looking south at the proposed Project site from northeast corner of the Project Limits.

Appendix B. Regulatory Framework

Federal Regulations

Clean Water Act

The purpose of the Clean Water Act (CWA) of 1977 is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" (WOTUS) without a permit from the United States Army Corps of Engineers (USACE). The definition of waters of the United States includes rivers, streams, estuaries, territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3 7b). The U.S. Environmental Protection Agency (EPA) also has authority over wetlands and may override a USACE permit. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; in California this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

Federal Endangered Species Act (ESA)

The federal Endangered Species Act (ESA) of 1973 protects plants and wildlife that are listed by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as endangered or threatened. Section 9 of the ESA (USA) prohibits the taking of endangered wildlife, where taking is defined as any effort to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 United States Code [USC] 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity, provided the action will not jeopardize the continued existence of the species. The ESA specifies that the USFWS designate habitat for a species at the time of its listing in which are found the physical or biological features "essential to the conservation of the species," or which may require "special Management consideration or protection…" (16 USC § 1533[a][3].2; 16 USC § 1532[a]). This designated Critical Habitat is then afforded the same protection under the ESA as individuals of the species itself, requiring issuance of an Incidental Take Permit prior to any activity that results in "the destruction or adverse modification of habitat determined to be critical" (16 USC § 1536[a][2]).

Interagency Consultation and Biological Assessments

Section 7 of ESA provides a means for authorizing the "take" of threatened or endangered species by federal agencies, and applies to actions that are conducted, permitted, or funded by a federal agency. The statute requires federal agencies to consult with the USFWS or National Marine Fisheries Service (NMFS), as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. If a Proposed Project "may affect" a listed species or destroy or modify critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the potential effect.

Habitat Conservation Plans

Section 10 of the federal ESA requires the acquisition of an Incidental Take Permit (ITP) from the USFWS by non-federal landowners for activities that might incidentally harm (or "take") endangered or threatened wildlife on their land. To obtain a permit, an applicant must develop a Habitat Conservation Plan that is designed to offset

any harmful impacts the proposed activity might have on the species.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. Sections 661 to 667e et seq.) applies to any federal Project where any body of water is impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (The Eagle Act) (1940), amended in 1962, was originally implemented for the protection of bald eagles (*Haliaeetus leucocephalus*). In 1962, Congress amended the Eagle Act to cover golden eagles (*Aquila chrysaetos*), a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. This act makes it illegal to import, export, take (molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than that of the bald eagle.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 implements international treaties between the United States and other nations created to protect migratory birds, any of their parts, eggs, and nests from activities, such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code (CFGC).

However, on December 22, 2017 the U.S. Department of the Interior (DOI) issued a memorandum concluding that MBTA's prohibitions on take apply "[…] only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" (DOI 2017). Therefore, take of migratory birds or their active nests (i.e., with eggs or young) that is incidental to, and not the purpose of, an otherwise lawful activity does not constitute a violation of the MBTA. Then, on April 11, 2018, the USFWS issued a guidance memorandum that provided further clarification on their interpretation:

> "We interpret the M-Opinion to mean that the MBTA's prohibitions on take apply when the purpose of an action is to take migratory birds, their eggs, or their nests. Conversely, the take of birds, eggs or nests occurring as the result of an activity, the purpose of which is not to take birds, eggs or nests, is not prohibited by the MBTA" (USFWS 2018).

Therefore, the MBTA is currently interpreted to prohibit the take of birds, nests or eggs when the *purpose* or *intent* of the action is to take birds, eggs or nests, not when the take of birds, eggs or nests is incidental to but not the intended purpose of an otherwise lawful action.

Executive Orders (EO)

> *Invasive Species – EO 13112 (1999)*: Issued on February 3, 1999, promotes the prevention and introduction of invasive species and provides for their control and minimizes the economic, ecological, and human health impacts that invasive species cause through the creation of the Invasive Species Council and Invasive Species Management Plan.

Migratory Bird – EO 13186 (2001): Issued on January 10, 2001, promotes the conservation of migratory birds and their habitats and directs federal agencies to implement the Migratory Bird Treaty Act. Protection and Enhancement of Environmental Quality—EO 11514 (1970a), issued on March 5, 1970, supports the purpose and policies of the National Environmental Policy Act (NEPA) and directs federal agencies to take measures to meet national environmental goals.

Migratory Bird Treaty Reform Act

The Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447) amends the Migratory Bird Treaty Act (16 U.S.C. Sections 703 to 712) such that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the Act. It defines a native migratory bird as a species present in the United States and its territories as a result of natural biological or ecological processes. This list excluded two additional species commonly observed in the United States, the rock pigeon (*Columba livia*) and domestic goose (*Anser domesticus*).

Birds of Conservation Concern

Birds of Conservation Concern (BCC) is a USFWS list of bird species identified to have the highest conservation priority, and with the potential for becoming candidates for listing as federally threatened or endangered. The chief legal authority for BCC is the Fish and Wildlife Conservation Act of 1980 (FWCA). Other authorities include the FESA, the Fish and Wildlife Act of 1956, and the Department of the Interior U.S Code (16 U.S.C. § 701). The 1988 amendment to the FWCA (Public Law 100-653, Title VIII) requires the Secretary of the Interior, through the USFWS, to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973" (USFWS, 2008a).

State Regulations

California Fish and Game Code Sections 1600 through 1606 of the CFGC

This section requires that a Streambed Alteration Application be submitted to the CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the Department and the applicant is the Streambed Alteration Agreement. Often, Projects that require a Streambed Alteration Agreement also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

California Endangered Species Act

The California Endangered Species Act (CESA) (Sections 2050 to 2085) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats by protecting "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation." Animal species are listed by the CDFW as threatened or endangered, and plants are listed as rare, threatened, or endangered. However, only those plant species listed as threatened or endangered receive protection under the California ESA.

CESA mandates that state agencies do not approve a Project that would jeopardize the continued existence of these species if reasonable and prudent alternatives are available that would avoid a jeopardy finding. There are no state agency consultation procedures under the California ESA. For Projects that would affect a species that is federally and State listed, compliance with ESA satisfies the California ESA if the California Department of Fish

and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with the California ESA under Section 2080.1. For Projects that would result in take of a species that is state listed only, the Project sponsor must apply for a take permit, in accordance with Section 2081(b).

Fully Protected Species

Four sections of the California Fish and Game Code (CFGC) list 37 fully protected species (CFGC Sections 3511, 4700, 5050, and 5515). These sections prohibit take or possession "at any time" of the species listed, with few exceptions, and state that "no provision of this code or any other law will be construed to authorize the issuance of permits or licenses to 'take' the species," and that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession.

Bird Nesting Protections

Bird nesting protections (Sections 3503, 3503.5, 3511, 3513 and 3800) in the CFGC include the following:

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (new world vultures, hawks, eagles, ospreys, and falcons, among others), and Strigiformes (owls).
- Section 3511 prohibits the take or possession of Fully protected birds.
- Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, it is generally required that Project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle.
- Section 3800 prohibits the take of any non-game bird (i.e., bird that is naturally occurring in California that is not a gamebird, migratory game bird, or fully protected bird).

Native Plant Protection Act

The Native Plant Protect Act (NPPA) (1977) (CFGC Sections 1900-1913) was created with the intent to "preserve, protect, and enhance rare and endangered plants in this State." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as endangered or rare and to protect endangered and rare plants from take. CESA (CFGC 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

Appendix C. USFWS IPaC, CNDDB & CNPSEI Lists

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: October 04, 2021
Consultation Code: 08ECAR00-2022-SLI-0003
Event Code: 08ECAR00-2022-E-00014
Project Name: IEUA RP-4 AWPF Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2022-SLI-0003
Event Code: Some(08ECAR00-2022-E-00014)
Project Name: IEUA RP-4 AWPF Project
Project Type: WASTEWATER FACILITY
Project Description: Existing IEUA RP-4 wastewater treatment plant improvement project.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.0845719,-117.52586521817223,14z

Counties: San Bernardino County, California

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2060	Endangered

Birds

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened

Insects

NAME	STATUS
Delhi Sands Flower-loving Fly *Rhaphiomidas terminatus abdominalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1540	Endangered
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
San Diego Ambrosia *Ambrosia pumila*	Endangered

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/8287

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Guasti (3411715))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Anniella stebbinsi Southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Calochortus plummerae Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2
Chaetodipus fallax fallax northwestern San Diego pocket mouse	AMAFD05031	None	None	G5T3T4	S3S4	SSC
Chorizanthe parryi var. parryi Parry's spineflower	PDPGN040J2	None	None	G3T2	S2	1B.1
Cladium californicum California saw-grass	PMCYP04010	None	None	G4	S2	2B.2
Dipodomys merriami parvus San Bernardino kangaroo rat	AMAFD03143	Endangered	Candidate Endangered	G5T1	S1	SSC
Dipodomys stephensi Stephens' kangaroo rat	AMAFD03100	Endangered	Threatened	G2	S2	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G4G5T4	S3S4	SSC
Horkelia cuneata var. puberula mesa horkelia	PDROS0W045	None	None	G4T1	S1	1B.1
Lasiurus xanthinus western yellow bat	AMACC05070	None	None	G4G5	S3	SSC
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Muhlenbergia californica California muhly	PMPOA480A0	None	None	G4	S4	4.3
Muhlenbergia utilis aparejo grass	PMPOA481X0	None	None	G4	S2S3	2B.2
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.2
Neotoma lepida intermedia San Diego desert woodrat	AMAFF08041	None	None	G5T3T4	S3S4	SSC
Perognathus longimembris brevinasus Los Angeles pocket mouse	AMAFD01041	None	None	G5T2	S1S2	SSC

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Phacelia stellaris Brand's star phacelia	PDHYD0C510	None	None	G1	S1	1B.1
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T3Q	S2	SSC
Pseudognaphalium leucocephalum white rabbit-tobacco	PDAST440C0	None	None	G4	S2	2B.2
Rhaphiomidas terminatus abdominalis Delhi Sands flower-loving fly	IIDIP05021	Endangered	None	G1T1	S1	
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2

Record Count: 26

Inventory of Rare and Endangered Plants of California

California Native Plant Society

Search Results

13 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**3411715:**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	None	None	G3G4	S3S4	4.2
Calochortus plummerae	Plummer's mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G4	S4	4.2
Chorizanthe parryi var. parryi	Parry's spineflower	Polygonaceae	annual herb	Apr-Jun	None	None	G3T2	S2	1B.1
Cladium californicum	California saw-grass	Cyperaceae	perennial rhizomatous herb	Jun-Sep	None	None	G4	S2	2B.2
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov	None	None	G4	S4	4.2
Horkelia cuneata var. puberula	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	None	None	G4T1	S1	1B.1
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	None	None	G4	S4	4.2
Muhlenbergia californica	California muhly	Poaceae	perennial rhizomatous herb	Jun-Sep	None	None	G4	S4	4.3
Muhlenbergia utilis	aparejo grass	Poaceae	perennial rhizomatous herb	Mar-Oct	None	None	G4	S2S3	2B.2
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2
Phacelia stellaris	Brand's star phacelia	Hydrophyllaceae	annual herb	Mar-Jun	None	None	G1	S1	1B.1
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)	None	None	G4	S2	2B.2
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov	None	None	G2	S2	1B.2

Showing 1 to 13 of 13 entries

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Send questions and comments to rareplants@cnps.org.

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