

Screencheck Draft:

Wash Plan Habitat Conservation Plan



October 2014

Prepared for:

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Acronyms and Abbreviations

ACEC	Areas of Critical Environmental Concern
Act	Endangered Species Act
AMMP	Adaptive Management and Monitoring Plan
ATI	Agreement to Initiate
BLM	Bureau of Land Management
C.F.R.	Code of Federal Regulations
CalIPC	California Invasive Plant Council
CDFW	California Department of Fish and Game
Cemex	Cemex Inc.
CEQA	California Environmental Quality Act of 1970
CESA	California Endangered Species Act
CWA	Clean Water Act
Eagle Act	Eagle Protection Act
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EVWD	East Valley Water
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
HCP	Habitat Conservation Plan
HCP Handbook	Habitat Conservation Planning Handbook
HEP	Habitat Enhancement Plan
IA	Implementation Agreement
ITP	incidental take permit
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation Monitoring and Reporting Plan

MWD	Metropolitan Water District of Southern California
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NWPs	nationwide permits
O & M	operations and maintenance
or Basin Plans	Regional Water Quality Plans
PAC	Policy Action Committee
RAFS	Riversidian alluvial fan sage scrub
RNA	Research Natural Areas
Robertson's	Robertson's Ready-mix
SBCFCD	San Bernardino County Flood Control District
SBKR	San Bernardino kangaroo rat
SBVMWD	San Bernardino Valley Municipal Water District
SBVWCD	San Bernardino Valley Water Conservation District
SCRMP	South Coast Resource Management Plan
SCRMP	South Coast Resource Management Plan
SWANCC	Solid Waste Agency of Northern Cook County
TAC	Technical Advisory Committee
USACE	U.S. Army Corps of Engineers
USC	U.S. Government Code
USFWS	U.S. Fish and Wildlife Service
Wash Plan	Upper Santa River Wash Land Management Plan
WDRs	Waste Discharge Requirements
WoUS	Waters of the United States
WSPA	Woollystar Preserve Area

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Chapter 1

Introduction and Background

1.1 Overview and Background

1.1.1 Purpose

This Habitat Conservation Plan (HCP) is part of the permit application submitted by the San Bernardino Valley Water Conservation District (SBVWCD) to the U.S. Fish and Wildlife Service (USFWS) on behalf of the parties implementing the Upper Santa River Wash Land Management Plan (Wash Plan). USFWS is being asked to authorize incidental take of four federally listed species:

- Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*, Woollystar),
- Slender-horned spineflower (*Dodecahema leptoceras*, Spineflower).
- California gnatcatcher (*Polioptila californica californica*, Gnatcatcher),
- Coastal cactus wren (*Campylorhynchus brunneicapillus*, Cactus wren), and
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*, SBKR).

Woollystar and Spineflower are State as well as federally listed species, and the SBVWCD also is seeking State authorization for take of those species from the California Department of Fish and Game (CDFW).

The primary purpose of this HCP is to:

1. Provide for the conservation of populations of the four species and their habitat within the Wash Plan Area as mitigation for the effects of incidental take;
2. Fulfill the requirements for an incidental take permit (ITP) as specified in section 10(a)(1)(B) of the federal Endangered Species Act (FESA), FESA implementing regulations (50 CFR 17.22[b][2][i]), the 1996 Habitat Conservation Planning Handbook (HCP Handbook), and the 2000 Addendum to the HCP Handbook; and
3. Support the SBVWCD's request to CDFW for an incidental take permit pursuant to section 2081(b) of the California Endangered Species Act (CESA).

In addition, the HCP will be used to:

- Support a FESA section 7 consultation between USFWS and U.S. Bureau of Land Management (BLM) regarding incidental take on federal lands in connection with activities covered by the Wash Plan HCP (see "1.3.2 Regulatory Framework"); and
- Fulfill the requirements specified in the Wash Plan and its certified Environmental Impact Report (EIR) regarding compliance with FESA and CESA and the identification of measures to avoid, minimize, mitigate, and monitor effects on these four species (see "1.3.1 Wash Plan Overview").

1.1.2 Wash Plan HCP Program Goals and Objectives

The primary goal of the Wash Plan HCP is to balance the ground-disturbing activities of water conservation, aggregate mining, recreational activities, and other public services in the Plan Area with the conservation of natural communities and populations of special status plants and wildlife.

Specific objectives are to:

- Ensure the continued ability of the SBVWCD to replenish the Bunker Hill Groundwater Basin with native Santa Ana River water using existing and potential future water recharge facilities;
- Ensure the continued ability of the SBCFCD to protect land and property by managing the floodwaters of the Santa Ana River and its local tributaries (Mill Creek, Plunge Creek, and City Creek);
- Set aside and maintain habitat for sensitive, threatened, or endangered species and prevent colonization by non-native plants and animals, as mitigation for impacts from future land uses in the Wash;
- Accommodate the relocation and expansion of aggregate mining quarries to help ensure long-term availability of high quality aggregate reserves for local and regional use, consistent with the Mineral Resource Zone 2 designation for reserves in this area, and do so on land adjacent to existing quarries that have mostly been disturbed;
- Accommodate arterial roads and highways to provide safe modes of travel; and
- Provide trails for public enjoyment of the existing environment.
- To achieve these objectives, the Plan calls for a combination of habitat conservation strategies, and impact mitigation measures, compatible joint uses of lands, land use restrictions, and a land exchange with BLM.

1.1.3 History of the Wash Plan HCP Development

In 1993, representatives of water, mining, flood control, wildlife, and municipalities formed the Wash Committee to address local mining issues in the Upper Santa Ana River Wash. Subsequently, the role of the committee was expanded to address all the land functions in the Wash. The committee met on an as-needed basis with other stakeholders in the wash area, including representatives from the mining companies.

In 1997, the Wash Committee began meeting on a regular basis to determine how to accommodate all of the important functions within the Wash. A Policy Action Committee (PAC) was established consisting of elected officials from the County, Cities of Highland and Redlands, the SBVWCD, and the Field Manager from BLM. A Technical Advisory Committee (TAC) was formed with representatives of the PAC agencies and other water, mining, flood control, and wildlife interests. The SBVWCD chaired and provided staff support for the Committees.

The TAC initiated a fresh approach to decide how the land could best be used independent of land ownership boundaries. As a result of extensive workshops during 1998 and 1999, a general consensus of the TAC was reached in early 2000 on the areas within the Wash designated for the

specified land uses, which formed the basis for the Wash Plan. To optimize the land use for mining, water conservation, and biological conservation some land previously proposed for mining with high habitat value was proposed for conservation, while other land with lower biological value previously proposed for habitat conservation was proposed for mining.

The proposed designations for land use cross both land ownership (three public agencies and two private entities) land use designations and jurisdictions (City of Redlands, City of Highland, and San Bernardino County). The TAC determined that planned mining expansion would be best addressed by consolidating future mining activity into one area adjacent to existing mining operations within the western half of the Plan Area. This focuses extraction activities on lands currently in or near mining disturbance – lands with the least long-term wildlife habitat value. In addition, the TAC determined that portions of the BLM land designated as Areas of Critical Environmental Concern (ACEC) were previously disturbed or fragmented by adjacent mining activities, and thus would be better suited for mining expansion. Some of the most intact, viable wildlife habitat areas are contained within lands leased for future mining and currently used for water conservation. The TAC concluded that some of these lands were best suited for joint use as water and habitat conservation rather than mining.

A general consensus on the location of specified land uses within the Planning Area was reached by the TAC in early 2000. In order to create the framework for joint funding and governance from all participants, for the proposed land management plan, the Task Force was formed. Membership in the Task Force includes the County of San Bernardino, the Cities of Highland and Redlands, the SBVWCD, BLM, Cemex, Robertson's, SBCFCD, East Valley Water (EVWD), and RMUD. In 2014, the San Bernardino Valley Municipal Water District (SBVMWD) joined the Task Force. In recognition of the important roles they play in this process, USFWS, CDFW, U.S. Army Corps of Engineers (USACE), California Department of Water Resources, County of Orange, and Inland Valley Development Agency are advisory members to the Wash Plan Task Force. The SBVWCD operates as project manager and staff support for this body.

The Wash Plan, as described in CEQA documents, was adopted by the SBVWCD as lead agency in late 2008, following public review of the plan, preparation, and circulation of an Environmental Impact Report (EIR), and certification of the EIR.

Key implementing actions to date include:

- Adoption of the Wash Plan by the SBVWCD;
- The land exchange between the SBCFCD and Robertson's Ready Mix (Robertson's),
- The land exchange between BLM and SBVWCD and amendment of the BLM's South Coast Resource Management Plan (SCRMP), following analysis of these actions in an Environmental Impact Statement (EIS) on the exchange and amendment;
- Preparation of a Habitat Enhancement Plan (HEP) for the protection and management of multiple habitats and species in the Wash, as indicated in the Mitigation Monitoring and Reporting Plan (MMRP) for the Wash Plan EIR; and
- Preparation of the Wash Plan HCP.

- Creation of a detailed geodatabase providing additional covered activity detail from all land uses, including operations and maintenance activities; detailed descriptions of conservation activities at a vegetation community level, and; the addition of a covered species, the Cactus Wren.

1.2 Scope of the HCP

This section identifies the incidental take permit (ITP) holders, Plan Area, Covered Species, and Covered Activities. It also identifies the term of the ITP.

1.2.1 Permit Holders

The following parties will be covered by the incidental take permits from USFWS and CDFW:

- a. SBVWCD
- b. City of Redlands (including the Redlands Municipal Utility District)
- c. City of Highland
- d. San Bernardino County Flood Control District (SBCFCD)
- e. Cemex Inc. (Cemex)
- f. Robertson's Ready-mix (Robertson's)

The permits may be extended to other parties, subject to the amendment process described in Chapter 5 and the HCP Implementation Agreement (IA).

1.2.2 Plan Area

The area covered by the HCP (plan area) is located in southwestern San Bernardino County, California, approximately one mile downstream of the Seven Oaks Dam (Figure 1). The plan area encompasses approximately 4,816.4 acres, extending approximately six miles westward from Greenspot Road in the City of Highland to Alabama Street in the City of Redlands. The HCP and the Wash Plan cover the same area.

For planning and implementation purposes, the Plan Area is divided into seven subcomponents (Figure 2):

1. Newly Conserved Lands – lands that will be permanently conserved for the four species under the HCP. These areas include lands owned by SBVWCD and City of Redlands, lands transferred from BLM to SBVWCD, and lands transferred from Robertson's to SBCFCD.
2. Additionally Managed Lands – lands for which the HCP will provide additional management and monitoring for the benefit of the four species. These areas include lands managed by BLM (including SBVWCD lands transferred to BLM).
3. Mining Impact Areas – the areas in which mining operations by Robertson's and Cemex will continue and expand as delineated in the Wash Plan, its certified EIR, and the EIS for the land exchange between SBVWCD and BLM.



Figure 1
Regional Context and Plan Area Boundary
Wash Plan HCP

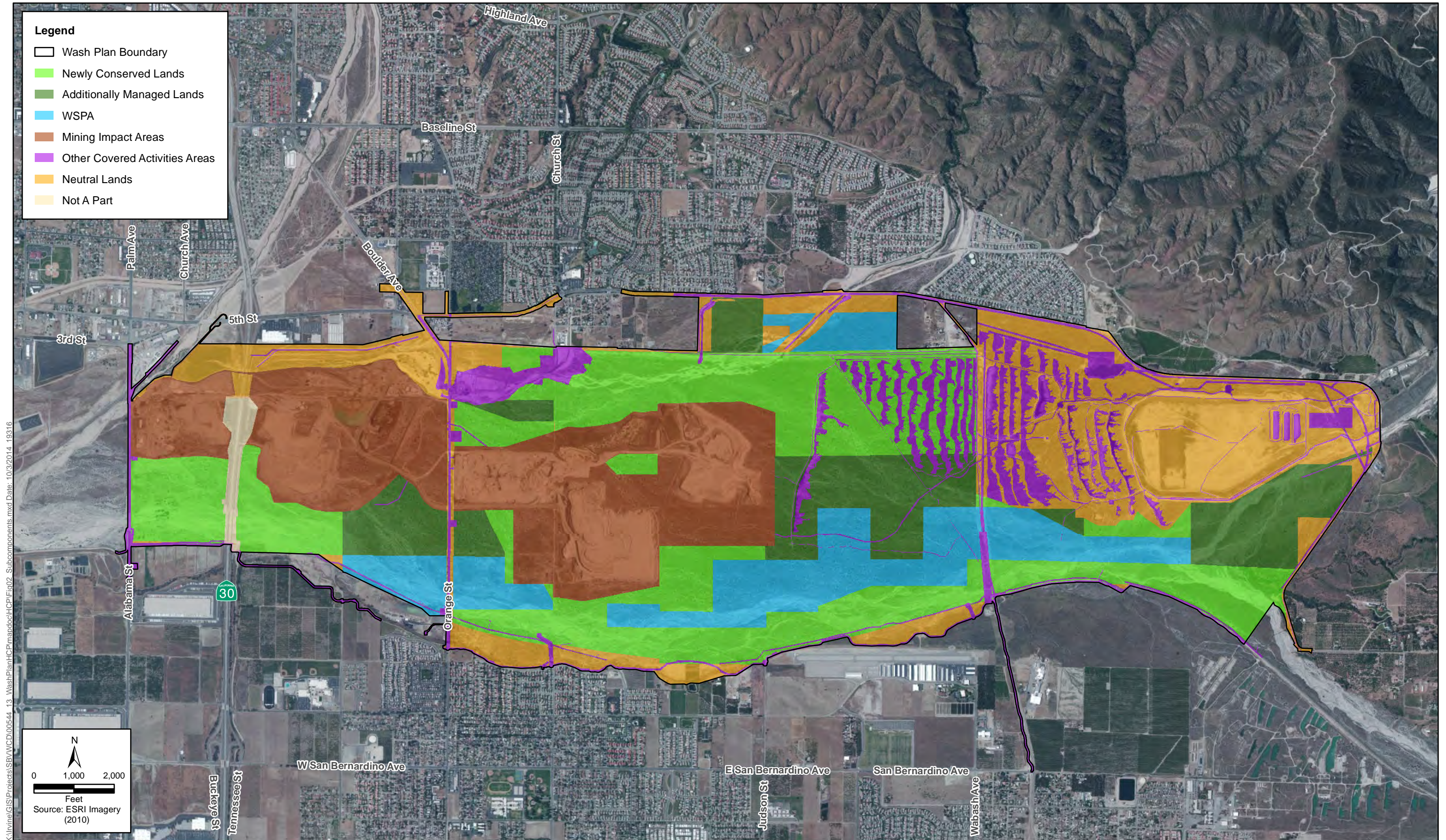


Figure 2
Plan Area Subcomponents
Wash Plan HCP

4. Other Covered Activities Areas – the areas where non-mining covered activities are planned, including operations and maintenance (O & M) of existing facilities and construction of new facilities (see Chapter 2, Covered Activities).
5. Neutral Lands – the areas that are within the Plan Area, but are not expected to be impacted by covered activities and are not designated as a conservation area (existing or proposed with the HCP).
6. Santa Ana River Woollystar Preserve Area (WSPA) – an existing preserve established as mitigation for the effects of the Seven Oaks Dam on Woollystar.
7. Not A Part – lands owned by other entities including areas within the Caltrans right-of-way along State Route 30 and other lands in private ownership who are not permittees under the Plan. These areas are inholdings in the Plan Area, but are not covered by the Plan.

1.2.3 Covered Species

The species covered by the HCP and the FESA incidental take authorization are Woollystar, Spineflower, SBKR, Gnatcatcher, and cactus wren. Federal authorization for incidental take of other species may be sought through the amendment process and in accordance with FESA sections 10(a) and 7.

The species covered by the State incidental take authorization are Woollystar and Spineflower. State authorization for incidental take of other species may be sought through the amendment process and in accordance with the applicable provisions of the California Fish and Game Code.

1.2.4 Covered Activities

The types of activities covered by the HCP (Covered Activities) are listed in Table 1-1, and include O&M of water resource and flood control facilities, roadway and trail improvements, mining activities, and HCP implementation activities. The Covered Activities are described in detail in Chapter 2 (Covered Activities), including the size of the impacted area, frequency of activity, and the type and intensity of impact.

Table 1-1. Covered Activity Types Included in the Wash Plan HCP

Activity Type	Description
Operation and Routine Maintenance	Routine operation and maintenance of facilities (such as water recharge basins, Flood Control channels and levees) can include site inspections, mechanized land clearing/excavation of sediment, stockpiling material, vegetation removal, repairing and maintaining access roads, culverts, canals, and diversion structures. Implementation of habitat management measures for the covered species, vegetation/fire management measures, signage, property management, and access control measures will also require periodic maintenance and repair.
Mining	The areas in which mining operations by Robertson's and Cemex will continue and expand as delineated in the Wash Plan, its certified EIR, and the Environmental Impact Statement (EIS) for the land exchange between SBVWCD and BLM.
Water Conservation	Activities related to water management for the conservation/recharge or extraction of potable water from groundwater basins as part of the regional water supply.
Wells and Water Infrastructure	Activities related to the creation of new wells and access roads and the maintenance of existing well and access roads

Activity Type	Description
Transportation	Activities related to the construction and maintenance of planned transportation facilities
Flood Control	Activities related to the construction of new flood control structures and the operation and maintenance of existing flood control facilities
Trails	The development of trails.
Restoration	Activities that support the restoration and maintenance of habitat values in the Wash.
Miscellaneous	The continued operations and maintenance of certain miscellaneous activities present on the site, such as citrus production and a demonstration area.

Activities not covered by the HCP and the incidental take authorizations include:

1. Utility construction and maintenance, such as electric transmission lines, gas pipelines, petroleum pipelines, telecommunications lines, or cellular telephone stations and associated access roads, if not specifically required as part of a Wash Plan HCP covered project and included as part of the Covered Project design.
2. Routine freeway operation and maintenance activities that occur within the 210 Freeway right-of-way within the Plan Area.
3. Take in connection with an activity that is not in compliance with applicable federal, state, and local laws and regulations;
4. Collection and handling of the covered species unless specifically required as a component of the biological monitoring and adaptive management. Separate authorization from USFWS and CDFW as appropriate is required for unrelated collection and handling of any listed species;
5. Take of a federally listed species not covered by the Wash Plan HCP ITPs, except as provided through the amendment process;
6. Take of a State listed species or candidate for State listing not identified in the HCP and 2081 permit, except as provided through the amendment process; and
7. Take of a covered species, species proposed for federal listing, State listed species, or State candidate species as a result of the use herbicides, pesticides, or other chemical agents.

1.2.5 Permit Duration

The SBVWCD is seeking a 30-year ITP, which would accommodate the expected schedule for completion of mining operations in the plan area and ongoing associated operations and maintenance. Water conservation covered activities and associated operations and maintenance are expected to extend beyond the 30- ITP. Prior to expiration of the take permits, the Permittees may apply to USFWS and CDFW to renew them. The permits may be renewed in accordance with applicable federal and state laws and regulations in effect at the time of the application for renewal. The permittees will initiate the Permit renewal process prior to the expiration of the initial 30-year period with ample time to allow for the review and processing of the Permit renewal application.

1.3 Regulatory Framework

The Plan is designed primarily to comply with the Federal and State Endangered Species Acts. The Plan is also consistent with other state and federal wildlife and related laws and regulations, each of which is referenced below and described in greater detail in subsequent sections.

- California Fish and Game Code Sections 3511, 4700, 5050, and 5515 (Fully Protected Species)
- California Fish and Game Code Section 3503 (Bird Nests)
- California Fish and Game Code Section 3503.5 (Birds of Prey)
- Migratory Bird Treaty Act (MBTA)
- Bald Eagle and Golden Eagle Protection Act (Eagle Act)
- California Environmental Quality Act of 1970 (CEQA)
- National Environmental Policy Act of 1969 (NEPA)
- CWA Sections 401, 402, and 404
- Porter-Cologne Water Quality Control Act
- Fish and Game Code Sections 1601–1607 (Lake or Streambed Alteration Agreement)
- National Historic Preservation Act

1.3.1 Federal Endangered Species Act (FESA) (16 USC 153 et seq.)

Section 9

Section 9 of the Endangered Species Act (Act) and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by USFWS as intentional or negligent actions that create the likelihood of injury to listed species by annoying them to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Pursuant to section 11(a) and (b) of the Act, any person who knowingly violates this section 9 of the ESA or any permit, certificate, or regulation related to section 9, may be subject to civil penalties of up to \$25,000 for each violation or criminal penalties up to \$50,000 and/or imprisonment of up to one year.

Section 10

Individuals and State and local agencies proposing an action that is expected to result in the take of federally listed species are encouraged to apply for an incidental take permit under section 10(a)(1)(B) of the ESA to be in compliance with the law. Such permits are issued by USFWS when

take is not the intention of and is incidental to otherwise legal activities. An application for an incidental take permit must be accompanied by an HCP. The regulatory standard under section 10(a)(1)(B) of the ESA is that the effects of authorized incidental take must be minimized and mitigated to the maximum extent practicable. Under section 10(a)(1)(B) of the Act, a proposed project(s) also must not appreciably reduce the likelihood of the survival and recovery of the species in the wild, and adequate funding for a plan to minimize and mitigate impacts must be ensured.

Section 10(a)(1)(B) Process - Habitat Conservation Plan Requirements and Guidelines

The Section 10(a)(1)(B) process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit processing phase; and (3) the post-issuance phase.

During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit application must include the following information:

- impacts likely to result from the proposed taking of the species for which permit coverage is requested;
- measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances;
- alternative actions considered that would not result in take; and
- additional measures Service may require as necessary or appropriate for purposes of the plan.

The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package consists of 1) an HCP, 2) an Implementing Agreement (IA), 3) a permit application, and 4) a \$100 fee from the applicant. USFWS must also publish a Notice of Availability of the HCP package in the Federal Register to allow for public comment. USFWS also prepares an Intra-Service Section 7 Biological Opinion; and prepare a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application as in the context of permit issuance criteria (see below). An Environmental Action Statement, Environmental Assessment, or Environmental Impact Statement serves as USFWS's record of compliance with the National Environmental Policy Act (NEPA), which has gone out for a 30-day, 60-day, or 90-day public comment period. An implementing agreement is required for HCPs unless the HCP qualifies as a low-effect HCP. A Section 10(a)(1)(B) incidental take permit is granted upon a determination by USFWS that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit specify that:

- the taking will be incidental;
- the impacts of incidental take will be minimized and mitigated to the maximum extent practicable;
- adequate funding for the HCP and procedures to handle unforeseen circumstances will be provided;

- the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;
- the applicant will provide additional measures that USFWS requires as being necessary or appropriate; and
- USFWS has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the Permittee and other responsible entities implement the HCP, and USFWS monitors the Permittee's compliance with the HCP as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register.

The required key elements to be included in the HCP document include the following:

1. Area, time-frame, species, and activities covered by the plan and permit;
2. An estimate of the incidental take and associated impacts;
3. A conservation plan (with all of the items below);
 - a. Biological goals and objectives
 - b. Measures to avoid, minimize, mitigate, and monitor take and its effects
 - c. Implementation and effectiveness monitoring
 - d. Adaptive management provisions
 - e. Measures for changed and unforeseen circumstances
 - f. Provisions for amending the plan and permit
 - g. Funding provisions and assurances
 - h. Implementation assurances
 - i. Alternatives to the taking of listed species and the reasons why not selected.

The Wash Plan HCP has been developed to address and include all of these key elements.

Section 7

Section 7 of the ESA requires Federal agencies to ensure that their actions, including issuing permits, do not jeopardize the continued existence of listed species or destroy or adversely modify listed species' critical habitat. "Jeopardize the continued existence of..." pursuant to 50 CFR 402.2, means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Issuance of an incidental take permit under section 10(a)(1)(B) of the ESA by USFWS is a Federal action subject to section 7 of the Act. As a Federal agency issuing a discretionary permit, USFWS is required to consult with itself (i.e., conduct an internal consultation). Delivery of the HCP and a section 10(a)(1)(B) permit application initiates the section 7 consultation process within USFWS.

The requirements of section 7 and section 10 substantially overlap. Elements unique to section 7 include analyses of impacts on designated critical habitat, analyses of impacts on listed plant species, if any, and analyses of indirect and cumulative impacts on listed species. Cumulative effects are effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area, pursuant to section 7(a)(2) of the Act. The action area is defined by the influence of direct and indirect impacts of covered activities. The action area may or may not be solely contained within the HCP boundary. These additional analyses are included in this HCP to meet the requirements of section 7 and to assist USFWS with its internal consultation.

For the Wash Plan HCP, USFWS will conduct an internal section 7 consultation and prepare a biological opinion. Where Covered Activities would occur on BLM lands, a section 7 consultation between BLM and USFWS also would occur. The measures to avoid, minimize, mitigate, and monitor effects on the covered species in the HCP are designed to address the similar requirements of these section 7 consultations.

1.3.2 California Endangered Species Act (CESA)

CESA is part of the California Fish and Game Code (Section 2050 et seq.) and is administered by the CDFW as the trustee for fish and wildlife resources in the State of California. CESA authorizes the California Fish and Game Commission to establish a list of endangered and threatened species.

Section 2081

Section 2081(b) of CESA authorizes the CDFW to allow, by permit, the take of an endangered, threatened or candidate species. Such a "Section 2081 permit" may be issued only if the following permit issuance criteria are met:

1. The take is incidental to an otherwise lawful activity.
2. The impacts of the authorized take shall be minimized and fully mitigated. The measures required to meet this obligation shall be roughly proportional in extent to the impact of the authorized taking on the species. Where various measures are available to meet this obligation, the measures required shall maintain the applicant's objectives to the greatest extent practicable. All required measures shall be capable of successful implementation. For purposes of this section only, impacts of taking include all impacts on the species that result from an act that would cause the proposed taking.
3. The permit is consistent with regulations adopted pursuant to Sections 2112 and 2114.
4. The applicant shall ensure adequate funding to implement the measures required by paragraph (2), and for monitoring compliance with, and effectiveness of, those measures. [CESA Section 2081(b)]

CESA further requires that no permit may be issued if issuance of the permit would jeopardize the continued existence of the species, a determination that CDFW must make based on the best scientific and other information that is reasonably available. This must include consideration of the species' capability to survive and reproduce in light of known population trends, known threats to

the species, and reasonably foreseeable impacts on the species from other related projects and activities. The conditions and measures in the Wash Plan HCP meets the issuance criteria for 2081 permits for all covered species.

1.3.3 Other Federal and State Wildlife Laws and Regulations

Federal Migratory Bird Treaty Act (MBTA)

The MBTA of 1918, as amended, implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful as is taking of any parts, nests, or eggs of such birds (U.S. Government Code [USC], Title 16, Section 703). The definition of *taking* is different under the MBTA than under the ESA and includes only the death or injury of individuals of a migratory bird species or its eggs. *Take* under the MBTA does not include the concepts of harm and harassment as defined by the ESA. The MBTA defines migratory birds broadly; all covered birds in this NCCP/HCP are considered migratory birds under the MBTA.

USFWS provides guidance regarding the incidental take of ESA-listed migratory birds (Appendix 5 in the HCP Handbook). According to these guidelines, an incidental take permit can function as a Special Purpose Permit under the MBTA (50 CFR 21.27) for the take of all ESA-listed covered species in the amount and/or number and subject to the terms and conditions specified in an HCP. Any such take will not be in violation of the MBTA of 1918, as amended (16 USC 703-12). The following Covered Species are protected by the MBTA.

- Coastal California gnatcatcher (*Polioptila californica californica*)
- Cactus wren (*Campylorhynchus brunneicapillus*)

Only the coastal California gnatcatcher is listed under the ESA. Accordingly, once issued, the incidental take permit will automatically function as a Special Purpose Permit under the MBTA, as specified under 50 CFR 21.27, for this species for a 3-year term subject to renewal by the Wash Plan HCP permittees. The cactus wren is not listed under the ESA, and, therefore, no MBTA coverage can be provided for this species through the Plan. Should the cactus wren become listed under the ESA during the permit term, the ESA permit would also constitute an MBTA Special Purpose Permit for this species for a 3-year term as specified under 50 CFR 21.27, subject to renewal.

The cactus wren as well as other migratory birds not covered by the permit would benefit from seasonal restrictions on construction and other conservation measures described in the Plan. The designation of conservation easements and funding of monitoring and management also will be a significant “benefit to the migratory bird resources” as required by the Special Purpose Permit. However, until a covered bird is listed under the ESA, it will be the responsibility of the HCP permittees to comply fully with the MBTA.

Bald Eagle and Golden Eagle Protection Act

The Eagle Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions. Under the Eagle Act, it is a violation to “...take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly

known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof....” Here, *take* is defined as to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, and disturb. *Disturb* is further defined in 50 CFR 22.3 as follows:

to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Recent revisions to regulations implementing the Eagle Act authorize take of bald eagles and golden eagles under the following conditions: (1) where the take is compatible with the preservation of the bald eagle and golden eagle, (2) is necessary to protect an interest in a particular locality, (3) is associated with but not the purpose of an otherwise lawful activity, (4) for individual instances of take where the take cannot be avoided or (5) for programmatic take where the take is unavoidable even though advanced conservation practices are being implemented (50 CFR 22.26). Permits issued under this regulation usually authorize disturbance only; however, in limited cases a permit may authorize lethal take that results from but is not the purpose of an otherwise lawful activity.

Neither the bald nor the golden eagle is a Covered Species under the Plan. The Plan does not seek a permit under the Eagle Act because disturbance, injury or death of eagles or eggs, or disturbance of nests is not anticipated in association with Covered Projects and Activities or overall Plan implementation.

California Fully Protected Species

In the 1960s, before the CESA was enacted, the California Legislature identified species for specific protection under the California Fish and Game Code. These fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. Fully protected species are described in Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These protections state that “...no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird], [mammal], [reptile or amphibian], [fish].” No fully protected species are covered by the Plan and CDFW cannot issue a 2081 permit for fully protected species. Fully protected species expected to occur in the Plan Area include, but are not restricted to, those listed below.

- White-tailed kite (*Elanus leucurus*)
- Golden eagle (*Aquila chrysaetos*)
- Bald eagle (*Haliaeetus leucocephalus*)

California Fish and Game Code 3503 (Bird Nests)

Section 3503 of the Fish and Game Code makes it “unlawful to take, possess or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” Therefore, CDFW may issue permits authorizing take pursuant to CESA. The Plan

contains conservation measures to avoid such take to the maximum extent practicable in order to comply with Section 3503. However, some take of covered birds still may occur; the 2081 permit will serve as the authorization for take of nests or eggs of covered birds pursuant to Section 3503.

California Fish and Game Code 3503.5 (Birds of Prey)

Section 3503.5 of the Fish and Game Code prohibits the take, possession, or destruction of any birds of prey or their nests or eggs “except as otherwise provided by this code or any regulation adopted pursuant thereto.” CDFW may issue permits authorizing take pursuant to CESA. There are no birds of prey covered by the Plan. However, the Plan contains conservation measures to avoid such take in order to comply with Section 3503.5.

California Fish and Game Code 1900 – 1913 (Native Plant Protection Act)

The Native Plant Protection Act prohibits taking of endangered and rare plants from the wild and requires that CDFW be notified at least 10 days in advance of certain specified changes in land use that would adversely impact listed plants. There are two rare and endangered plants that occur in the Plan Area and are protected by the Native Plant Protection Act. Both plants are Covered Species (Woollystar and Spineflower), therefore take of these species will be covered by the 2081 permits.

1.3.4 National Environmental Policy Act (NEPA)

The purpose of the NEPA is two-fold: to ensure that Federal agencies examine environmental impacts of their actions (in this case deciding whether to issue an incidental take permit) and to provide a mechanism for public participation. NEPA serves as an analytical tool on direct, indirect, and cumulative impacts of the proposed project alternatives to help USFWS decide whether to issue an incidental take permit. NEPA analysis must be done by USFWS as the lead agency for each HCP as part of the incidental take permit application process.

1.3.5 California Environmental Quality Act (CEQA)

CEQA is similar to but more extensive than NEPA in that it requires that significant environmental impacts of proposed projects be reduced to a less-than-significant level through adoption of feasible avoidance, minimization, or mitigation measures unless overriding considerations are identified and documented. CDFW’s action on a 2081 permit is subject to CEQA, and will be addressed by the NEPA/CEQA environmental review process for the Plan.

1.3.6 Federal and State Wetland Laws and Regulations

The Clean Water Act (CWA) is the primary federal law that protects the physical, chemical, and biological integrity of the nation’s waters, including lakes, rivers, wetlands, and coastal waters. Programs conducted under the CWA are directed at both point-source pollution (e.g., waste discharged from outfalls and filling of waters) and nonpoint-source pollution (e.g., runoff from roads, freeways, and bridges). Under Sections 401, 402, and 404 of the CWA, the U.S. Environmental Protection Agency (EPA), federal agencies, and state agencies set effluent limitations and issue permits. These permits are the primary regulatory tools of the CWA. The EPA oversees all CWA permits.

Definition of Jurisdictional Wetlands and Waters

The term *jurisdictional wetlands and waters* is used to refer to state and federally regulated wetlands and other water bodies that cannot be filled or altered without permits from USACE under Section 404 of the CWA, the State Water Board or the RWQCBs under either Section 401 of the CWA or Porter-Cologne, or CDFW under Fish and Game Code Section 1602.

Federal regulations define the waters that are subject to federal jurisdiction or Waters of the US (WoUS), which are waters that cannot be filled without permits from the USACE under Section 404 of the CWA, as follows:

- (1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which 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 including any such waters...;
- (4) all impoundments of waters otherwise defined as waters of the United States under the definition;
- (5) tributaries of waters identified in paragraphs (1)–(4) of this section;
- (6) the territorial seas; and
- (7) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1)–(6) of this section. (33 CFR 328.3)

The USACE publishes protocols for delineating WoUS and certifies the adequacy of such delineations. The USACE delineation protocols require that an area meet three criteria to be designated as a jurisdictional wetland:

1. Wetland hydrology (inundation or saturation)
2. Hydric soils
3. Hydrophytic vegetation

Streams and other drainages and water bodies such as lakes or ponds do not have to meet these three criteria to be considered a WoUS, but they do have to meet other criteria established by federal law and regulations.

The State Water Board and RWQCBs regulate impacts on waters covered by federal regulations as well as some additional waters. The State Water Board and RWQCBs also regulate the fill of wetland areas that meet the federal definition in CFR Section 328.3, above, but are outside of federal jurisdiction because they are isolated, intrastate, nonnavigable waters, as stated in the U.S. Supreme Court ruling in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) (SWANCC), or because they do not meet the standard for regulation identified by the U.S. Supreme Court in *Rapanos et ux., et al. v. United States*, 547 U.S. 126 S. Ct. 2208 (2006) (Rapanos).

The CDFW regulates impacts on lakes and within the banks of streams. Waters subject to CDFW regulation typically are delineated more broadly than the USACE-supervised delineation process. For example, federal jurisdiction extends to the ordinary high water mark, and CDFW jurisdiction will extend up to the top of the bank or out to the edge of the riparian zone (whichever is farther).

Mitigation or payment of fees would be required for the fill of any waters that are considered jurisdictional under either Sections 401 and 404 of the CWA (plus any isolated, nonnavigable intrastate waters no longer regulated by the USACE in light of SWANNC or Rapanos and currently regulated by the State Water Board or RWQCBs) or Section 1602 of the Fish and Game Code.

CWA Section 404

Pursuant to Section 404 of the CWA, the USACE regulates the discharge (temporary or permanent) of dredged or fill material into WoUS, including wetlands. A discharge of fill material includes activities such as grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material into WoUS. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, performing certain drainage channel maintenance activities, constructing temporary mining and farm/forest roads, and excavating without stockpiling.

USACE issues two types of permits under Section 404: general permits (either nationwide permits [NWP] or regional permits) and standard permits (either letters of permission or individual permits). General permits are issued by USACE to streamline the Section 404 process for nationwide, statewide, or regional activities that have minimal direct or cumulative environmental impacts on the aquatic environment. Standard permits are issued for activities that do not qualify for a general permit (i.e., that may have more than a minimal adverse environmental impact). The Los Angeles District of the USACE will review and consider issuing permits for projects in the HCP Plan Area that propose to fill WoUS.

The Plan will not provide permits under Section 404 of the CWA for impacts on wetlands or other waters from Covered Activities. However, the 404 permitting process is expected to be streamlined substantially as a result of the Plan. Issuance of a Section 404 permit often requires the USACE to consult with USFWS to comply with Section 7 of the ESA. This consultation would address the federally listed species covered by the Plan. Accordingly, provided that Covered Activities requiring Section 404 permits are consistent with the Plan, it is expected that USFWS will not require any mitigation beyond that already required by the Plan. The Section 7 BO issued for the Plan also can serve as the basis for any future BOs in the Plan Area for Covered Activities. In addition, the conservation actions for impacts on wetlands in the Plan may fully satisfy USACE requirements for wetland mitigation.

CWA Section 401 and the Porter-Cologne Water Quality Control Act

Under CWA Section 401, states have the authority to certify federal permits for discharges to waters under state jurisdiction. States may review proposed federal permits (e.g., CWA Section 404 permits) for compliance with state water quality standards. A permit cannot be issued if the state denies certification. In California, the State Water Board and the RWQCBs are responsible for the issuance of CWA Section 401 certifications. The Plan Area is within the Santa Ana RWQCB.

Porter-Cologne is the primary state law concerning water quality. It authorizes the State Water Board and RWQCBs to prepare management plans such as Regional Water Quality Plans (or Basin Plans) to address the quality of groundwater and surface water. Porter-Cologne also authorizes the RWQCBs to issue Waste Discharge Requirements (WDRs) defining limitations on allowable discharge to waters of the state. In addition to issuing CWA Section 401 certifications on CWA Section 404 applications to fill waters, the RWQCBs may issue WDRs for such activities. Because the authority for WDRs is derived from Porter-Cologne and not the CWA, WDRs may apply to a somewhat different range of aquatic resources than do CWA Section 404 permits and CWA Section 401 Water Quality Certifications. Applicants that obtain a permit from the USACE under Section 404 also must obtain certification of that permit from the RWQCB.

The Plan does not include certifications under Section 401 or WDRs under Porter-Cologne, however, Plan permittees implementing Covered Activities that comply with the terms of the Plan should find their permit process streamlined with the RWQCB or State Water Board because the Plan provides a comprehensive means to address the needs of threatened and endangered species in the Plan Area.

Clean Water Act Section 402, National Pollutant Discharge Elimination System

CWA Section 402 controls direct discharges into navigable waters. Direct discharges or “point-source” discharges are from sources such as pipes and sewers. National Pollutant Discharge Elimination System (NPDES) permits are issued by the state with oversight by EPA. A facility that intends to discharge into the nation's waters must obtain a permit before initiating a discharge. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent. The 402 permit then will set forth the conditions and effluent limitations under which a facility may make a discharge. The Plan does not include certifications under Section 402 or NPDES permits under the CWA. These authorizations, if required, must be obtained separately.

Lake or Streambed Alteration Agreement

CDFW has jurisdictional authority over streams and lakes and wetland resources associated with these aquatic systems under California Fish and Game Code Section 1600 et seq., which was repealed and replaced in October 2003 with the new Section 1600–1616 that took effect on January 1, 2004 (Senate Bill 418 Sher). CDFW has the authority to regulate work that will “substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.”

Activities of any person, state or local governmental agency, or public utility are regulated by CDFW under Section 1602 of the California Fish and Game Code. CDFW enters into a streambed or lakebed alteration agreement with the project proponent and can impose conditions on the agreement to ensure no net loss of values or acreage of the stream, lake, associated wetlands, and associated riparian habitat.

The lake or streambed alteration agreement is not a permit, but rather a mutual agreement between CDFW and the project proponent. Because CDFW includes under its jurisdiction streamside habitats that may not qualify as wetlands under the federal CWA definition, as well as a broader definition of the lateral jurisdiction, CDFW jurisdiction may be broader than USACE jurisdiction.

A project proponent must submit a notification of streambed alteration to CDFW before construction. The notification requires an application fee for streambed alteration agreements, with a specific fee schedule to be determined by CDFW. CDFW can enter into streambed alteration agreements that cover recurring operation and maintenance activities and can enter into long-term agreements to cover development and other activities described in regional plans. Many of the concerns raised by CDFW during streambed alteration agreement negotiations are related to special-status species. Activities covered by the Plan that need a streambed alteration agreement are expected to partially or fully meet the standards of the streambed alteration agreement through compliance with the Plan.

The CDFW Streambed Program Guidance outlines the process for project-level Lake or Streambed Alteration Agreement (LSAA) notifications for the Covered Activities pursuant to California Fish and Game Code (sections 1600–1616). The Streambed Program will guide streambed permitting within the Plan Area through individual project review and the associated CEQA process. For unavoidable permanent impacts on streambeds and associated riparian habitat, compensatory mitigation will be required to achieve no-net-loss standards. Additionally, for temporary impacts on streambed and associated riparian habitat, compensation should occur on site, when appropriate, to achieve no-net-loss standards.

As appropriate, CDFW and USFWS will attempt to align the conservation measures for CDFW 1600 agreements, USFWS Section 7 consultations, and USACE permit requirements with the commitments in the Plan.

1.3.7 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.), requires federal agencies to take into account the effects of their proposed actions on properties eligible for inclusion in the National Register of Historic Places. *Properties* is defined as cultural resources, which includes prehistoric and historic sites, buildings, and structures that are listed on or eligible for listing on the National Register of Historic Places. An *undertaking* is defined as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency. The issuance of an incidental take permit is an undertaking subject to Section 106 of the NHPA. The USFWS has determined that the area of potential effects for the present undertaking is that area where on-the-ground covered activities will result in take of species. The NHPA and the potential effects of the conservation and mitigation actions on resources subject to the NHPA are addressed in the NEPA/CEQA environmental documentation.

2.1 Identification of Covered Activities

This chapter describes the activities covered under the Plan that could result in take of covered species within the Plan Area, and that will be covered by the ESA Section 10 and CESA 2081(b) incidental take permits.

Covered Activities include both specific projects and on-going activities (e.g., operations and maintenance actions).

- *Projects* are well-defined actions that occur once in a discrete location (e.g., mining, construction of new facilities, infrastructure development, capital improvement projects).
- *O&M activities* are actions that occur repeatedly in one area or over a wide area (e.g., bank stabilization, storm-damage repair, maintenance of roads and facilities).

For an activity to be covered, it must meet all of these criteria:

- **Location.** The Covered Activity will occur within the Plan Area.
- **Timing.** The Covered Activity will occur during the permit term.
- **Impact.** The Covered Activity has a reasonable likelihood of resulting in take¹ of one or more covered species.
- **Project Definition.** The location, footprint, and type of impacts resulting from the activity are reasonably foreseeable and can be evaluated in the Plan to the satisfaction of the Wildlife Agencies.
- **Practicability.** The activity can be included in the Plan without substantially increasing the scope and cost of Plan development or implementation (e.g., adding significant complexity to the analysis, or adding significant new controversy).

Activities can only be covered by the Plan permits if they are under the direct control or jurisdiction of the permittees.

2.2 Description of Covered Activities

The Wash Plan covers two types of activities: 1) activities related to the operations and maintenance of existing facilities or land uses already in operation in the Plan Area, and; 2) new or expanded facilities planned in the Plan Area. Figure 2 shows the generalized areas where covered activities are expected to occur, and Figure 2a shows the specific location of each covered activity.

¹ As defined by the federal Endangered Species Act (ESA). Under ESA, take is defined as to “harass, harm,

All covered activities have been subdivided into the following categories:

1. Mining - the areas in which mining operations by Robertson's and Cemex will continue and expand as delineated in the Wash Plan, its certified EIR, and the EIS for the land exchange between SBVWCD and BLM;
2. Water Conservation- activities related to water management for the conservation/recharge or extraction of potable water from groundwater basins as part of the regional water supply;
3. Wells and Water Infrastructure-activities related to the creation of new wells and access roads and the maintenance of existing well and access roads.
4. Transportation - activities related to the construction and maintenance of planned transportation facilities;
5. Flood Control - activities related to the construction of new flood control structures and the operation and maintenance of existing flood control facilities;
6. Trails - the development of trails
7. Restoration - activities that support the restoration and maintenance of habitat values in the Wash, and;
8. Miscellaneous - the continued operations and maintenance of certain miscellaneous activities present on the site, such as citrus production.

Acreages reported represent the area of ground disturbance including permanent project or activity footprint and/or the temporary impacts associated with construction or operation and maintenance.

In order to track covered activities in tabular impact calculations and locate projects in the figures in this document, the covered activities have been assigned a unique identification code. Table 2-1 lists the covered activity code associated with each covered activity.

Table 2-1. Covered Activity ID Codes and Names

Unique ID	Owner	Project Name	Project Class	Project Type
CD.01	Conservation District	Existing Recharge Basins	Water Conservation	Maintenance
CD.02	Conservation District	Existing Access Roads	Water Conservation	Maintenance
CD.03	Conservation District	SBVWCD Canal	Wells and Water Infrastructure	Maintenance
CD.04	Conservation District	Existing Wells	Wells and Water Infrastructure	Maintenance
EVWD.03	East Valley Water District	Grove Maintenance	Miscellaneous	Maintenance
EVWD.04-.06	East Valley Water District	EVWD Planned Spreading Basin	Water Conservation	New construction
EVWD.07	East Valley Water District	EVWD Pipe 125	Wells and Water Infrastructure	Maintenance
EVWD.08	East Valley Water District	EVWD No 125	Wells and Water Infrastructure	Maintenance
FC.01	San Bernardino County Department of Public Works	Plunge Creek Sediment Removal	Flood Control	Routine Maintenance
FC.03-.04	San Bernardino County Department of Public Works	Existing Levees	Flood Control	Routine Maintenance
FC.09	San Bernardino County Department of Public Works	Elder/Plunge Creek Restoration-Reasonably Foreseeable Project	Flood Control	New construction
High.01	City of Highland	Greenspot Road Bridge Improvements	Transportation	New construction
High.02	City of Highland	Alabama Street Improvements	Transportation	New construction
High.03	City of Highland	Greenspot Road Improvements	Transportation	New construction
High.04	City of Highland	Orange Street Improvements	Transportation	New construction
High.10	City of Highland	Weaver Street Channel Sediment Removal	Flood Control	Routine Maintenance
High.11	City of Highland	Greenspot Rd. Drain Outlets	Flood Control	Routine Maintenance
High.12	City of Highland	Church Street Channel	Flood Control	Routine Maintenance
High.13	City of Highland	Alabama Street Trail	Trails	New designation
High.14	City of Highland	Boulder Avenue / Orange Street Trail	Trails	New designation

Unique ID	Owner	Project Name	Project Class	Project Type
High.15	City of Highland	Cone Camp Road Trail	Trails	New designation
High.16	City of Highland	Greenspot Road Trail	Trails	New designation
High.17	City of Highland	Old Greenspot Road Horse Trail	Trails	New designation
High.18	City of Highland	Old Greenspot Road Trail	Trails	New designation
High.19	City of Highland	Old Rail Line Trail	Trails	New designation
High.20	City of Highland	Plunge Creek Trail	Trails	New designation
High.21	City of Highland	Pole Line Trail	Trails	New designation
High.22	City of Highland	Weaver Street Trail	Trails	New designation
Redl.02	City of Redlands	Church Street Drainage	Flood Control	New drainage facility
Redl.03	City of Redlands	Judson Street Drainage	Flood Control	New drainage facility
Redl.04	City of Redlands	Orange Street Drainage	Flood Control	New drainage facility
Redl.05	City of Redlands	Wabash Street Drainage	Flood Control	New drainage facility
Redl.06	City of Redlands	Borrow Pit South Rim Trail	Flood Control	New designation
Redl.07	City of Redlands	Redlands Aqueduct Tunnel	Wells and Water Infrastructure	Maintenance
Redl.08	City of Redlands	Redlands Well Connector Pipeline	Wells and Water Infrastructure	New construction
Redl.08	City of Redlands	Redlands Well Connector Pipeline	Wells and Water Infrastructure	New construction
Redl.09	City of Redlands	Santa Ana River Trail	Trails	New construction
Redl.10	City of Redlands	Orange Street Well Access Road	Wells and Water Infrastructure	Maintenance
Redl.11	City of Redlands	N Orange 2, N Orange 1, and Orange Street Wells	Wells and Water Infrastructure	Maintenance
Redl.12	City of Redlands	Trail across WSPA	Trails	New construction
Redl.13	City of Redlands	N Orange 3 Well and Connector Pipeline	Wells and Water Infrastructure	New construction
Mine.01	Robertson's and Cemex		Mining	New
Ceme.01	Cemex	Proposed Haul Road	Mining	New construction

Unique ID	Owner	Project Name	Project Class	Project Type
VD.01	Valley District	Planned Spreading Basins and associated infrastructure	Water Conservation	New construction
VD.02	Valley District	East Branch Extension, Phase 2	Wells and Water Infrastructure	Maintenance
VD.03	Valley District	Foothill Pipeline	Wells and Water Infrastructure	Maintenance
VD.04	Valley District	Orange Street Connector	Wells and Water Infrastructure	New construction
VD.05	Valley District	Plunge Pool Pipeline	Wells and Water Infrastructure	New construction
VD.06	Valley District	SARC Pipeline and turnout	Wells and Water Infrastructure	Maintenance
VD.07	Valley District	Santa Ana Low Turnout Rebuild	Wells and Water Infrastructure	New construction
VD.09	Valley District	Wells and Connector Pipeline	Wells and Water Infrastructure	New construction
VD.10	Valley District	Alabama Street Connector Pipeline	Wells and Water Infrastructure	New construction

2.2.1 Aggregate Mining

Currently, aggregate mining and associated support activities, such as haul roads, occur on 804.2 acres. As part of the implementation of the Wash plan, an additional 280.6 acres of lands will be covered for aggregate mining. An expansion of the existing haul road will also occur. Mining and construction of the haul road would result in permanent removal of the habitats that overlap the footprint. Mining infrastructure such as buildings, parking lots, lighting, settling ponds, pits, and haul roads will be operated 24 hours a day. Table 2-2 indicates the approximate phasing of mining activities.

Aggregate mining activities include:

- Construction and Maintenance of Expanded Facilities (xx total acres)
- CEMEX expanded mining operations (xx acres)
- CEMEX haul road extension (xx acres of new impact)
- Robertson's expanded mining operations (xx acres)

Table 2-2. Expected Phasing of Mining Activity Covered by Wash Plan HCP

Year	New Mining Activity	Acreage
1-5	no additional impacts	Within existing 804.2 acres
6-10	20% of remaining acreage	56.12 acres
10-15	20% of remaining acreage	56.12 acres
15-20	20% of remaining acreage	56.12 acres
20-25	20% of remaining acreage	56.12 acres
25-30	20% of remaining acreage	56.12 acres
Total New Mining	100% of remaining acreage	280.6 acres

2.2.2 Water Management Activities

Water conservation and management activities, both ongoing and planned future activities are comprised of all activities needed to support the conservation/recharge of water into the Bunker Hill groundwater basin for consumptive use, the monitoring of groundwater basins, and pumping to meet customer demands. The facilities required to support those water management efforts are also included. These facilities include pipeline easements, canals, maintenance roads, tanks and recharge basins, and the construction of groundwater wells.

San Bernardino Valley Municipal Water District-Enhanced Recharge Project (VD.01)

Construction

Newly constructed recharge basins (spreading grounds) are planned on the northwestern portion of the Wash Plan to be operated by San Bernardino Valley Municipal Water District on Conservation District lands. Phase A is comprised of 11 basins consisting of 73 acres and Phase B is comprised of 14 basins consisting of 89 acres. The total required construction footprint, including construction access roads and staging areas, is estimated at xxx acres. Construction of Phase A will be initiated in [add date] and construction is expected to last approximately xx days. Construction of Phase B will be initiated in [add date] and construction is expected to last approximately xx days. Construction of a basin or spreading ground typically requires (list of all standard construction equipment) and a maximum of approximately xx personnel could be onsite at any one time. Construction would occur during daylight hours only. The construction stages would first include having professional surveyors clearly marking all limits of disturbance, followed by clearing and grubbing of the vegetation between September 15 and February 15. Scrapers and bulldozers would then begin to remove the necessary soil to achieve the approximate maximum depth of xx feet with contoured sides. All soils removed from the basins will be transported and deposited [where]. No earthen or rock stockpiles will be placed within the Wash Plan or other habitat areas. Boulder rows may be placed in areas where unauthorized access occurs frequently or to prevent unauthorized vehicle access.

The new water conservation facilities will require construction of an enhanced recharge canal downstream from the Valley District Santa Ana Low turnout to the new recharge basins. Other activities would include modification of the existing diversion structure, which could include the installation of a mechanical trash rack and/or mechanical gate on the existing Cuttle Weir diversion structure to more efficiently flush debris downstream and control the water surface elevation in front of the intake, as needed.

To maintain flows and improve hydraulic function, channel improvements to enhance flow at Greenspot Road are planned. As the transportation improvements at Greenspot move forward, channel improvements at the road crossing to prevent damage to the road corridor and enhance flows to the Santa Ana River spreading basins are anticipated. In addition, to improve functionality of existing Santa Ana spreading basins, the 200 linear feet on the north end of the existing D levee will be raised approximately 2 feet and an outlet allowing water to scour the area west of the levee will be constructed.

The footprint for the Enhanced Recharge Project is summarized below:

- VD.01 Construction and Maintenance of Enhanced Facilities (xx total acres)
- VD.01.1 Enhanced Recharge Facilities (162.2 acres)
- VD.01.2 Enhanced Recharge Canal (12.7 acres)
- VD.01.3 Greenspot Channel Improvements (1 acre)

Maintenance

Basins

These expanded facilities, like the existing facilities, will be maintained to allow the continued infiltration of surface water into the groundwater basin. Maintenance activities include direct inspection and repair of facilities, as well as periodic in basin removal of fine materials or other activities needed to maintain a high level of infiltration. The condition of the basins is routinely assessed to determine when debris, silt and vegetation may be reducing percolation rates, prevent accessibility, or causing blocks to the weirs or overflows, and the banks are inspected for leakage and debris. The removal of such objects and grading of banks occurs regularly throughout the spreading grounds. Natural flows into the basins bring sediment that must be removed on a regular schedule depending on where the basin is located, its use and the quality of the water recharged in the basin. Precipitation also determines how often sediment must be removed from basins, with years of higher precipitation requiring annual clean out. Within the wetted area of the percolation basins, cleaning and maintenance is conducted on a less frequent basis, on a one, two or three year interval based on the amount of usage of the basins and the quality of the water recharged. Basins are occasionally cleaned of silts and aggregate materials, leveled, and reshaped to restore the basin boundaries or change basin dynamics in order to optimize percolation rates. Rock, sand, silt and other materials impacting infrastructure are stockpiled on site for later transport or nearby in existing storage areas. This aggregate is then processed and removed for use in the local area. Existing stockpile and processing areas are well defined disturbed areas.

Weir gates that control water between basins must be regularly inspected for damage and have their wheels and stems greased to facilitate their opening and closing. When necessary, debris such as tree branches, broken boards, and algae must be removed from the well gates that may restrict the flow of water. These materials must be stockpiled nearby and or hauled to storage areas and eventually transported offsite or sold.

Within both the Santa Ana and Mill Creek spreading grounds, trespass, vandalism, theft, and trash are major issues that must be managed and maintained on a near daily basis. The facilities are patrolled as frequently as possible to identify and repair damage to fences, gates and locks and dispose of illegally dumped trash. Warning/trespassing signs and stencils are constructed and strategically placed throughout all of the recharge facilities to warn and deter trespassing and vandalism. Property access is limited through the use of gates and fencing. Gates and fencing are regularly vandalized and require frequent maintenance. Boulder placement is less frequent, but security provided by boulder placement requires less maintenance.

Roads

Unpaved maintenance roads used in accessing different areas throughout the Wash require constant attention in order to make many operations possible. Most of the roads are unpaved and maintenance includes removal of vegetation, grading, and filling damaged spots in roads. Increased use or storm events can accelerate the deterioration of these roads. These roads are all unpaved and are typically about twelve feet in width.

The roads are all maintained as they reach a state that makes them difficult to maneuver. This involves a yearly clearing that typically takes place in the late spring after there has been a large amount vegetation growth. Mustard and other smaller plants tend to take over areas of the roads that are nearer basins with water or in areas that are less frequently traveled. On occasion, plants from the sides of the road begin to encroach onto the roads, and have to be knocked down either with a weed eater or a tractor. The roads closer to the Borrow Pit are currently in very good condition as they are frequently travelled by large vehicles. The roads that are further into the facility usually require more maintenance as they are less travelled. Grading is also done on the roads in order to keep the surfaces smoother and easier to travel. This involves using the bucket of the tractor or dragging tires or beams behind a vehicle to scrape the surface of the roads. This process is done on a quarterly basis for most of the roads, but some of the more travelled roads require less grading. The material on the surface of the road also has an effect on the required road maintenance. Roads that have a large amount of rock on the surface usually become rutted much faster and therefore require more regular maintenance. For these cases material with a higher composition of clay is added to the top of the roads to smooth them and make them more manageable.

San Bernardino Valley Water Conservation District- Maintenance of Existing Facilities (CD.01)

The maintenance of San Bernardino Valley Water Conservation District existing facilities is expected to occur over approximately 138 total acres. The maintenance activities will be as described above for Valley District and will consist of the following facilities:

- Santa Ana River Existing Basins (65.1 acres)
- Existing stockpile and processing areas (less than 12 acres)

Water Supply or Groundwater Monitoring Wells and Associated Facilities

There are currently ten wells, some with associated tanks and boosters, in use or proposed in the project area. Four are observation wells used to monitor groundwater levels as part of the management of the Bunker Hill Basin. There are also four supply wells operating in the plan area. There are two municipal potable water wells located adjacent to, and east of, Orange Street near the CEMEX plant.. The wells service pipeline is located in the Orange Street/ Boulder Avenue right of way.

San Bernardino Valley Municipal Water District

New Wells and Associated Infrastructure (VD.09, VD.04, VD.10)

San Bernardino Valley Municipal Water District plans to construct 8 new wells that will be located off of Alabama Street and Orange Street, which will include an access road, connector pipeline, and main pipeline to convey water produced by the new wells to the existing Texas Grove Reservoir and the Redlands Pump Station, located outside the Wash Plan area. Valley District Staff will coordinate with the USFWS to strategically locate the wells in order to avoid and minimize impacts to protected resources while optimizing well placement to meet the needs of Valley District's conjunctive use project.

Construction

Wells (VD.09)

The total required construction footprint, including staging areas, is estimated at 0.5 acre per well site. Each well site work area is 150 feet by 150 feet (0.5 acre), with a permanent footprint of the well site at 0.25 acre (approximate 120' x 80' permanent well pad boundary). In addition, eight (8) access roads will connect Orange Street or Alabama Street to each of the well sites for construction of the well sites. Each well access road will be approximately 600' x 30' or 0.4 acre (3.3 acres total) and would be considered permanent impact because they will also be used for access during maintenance activities.

The temporary impact area will be restored following construction activities per guidelines set forth in the HCP for temporary impacts to habitat. Construction will be initiated in [add date] and construction is expected to last approximately xx days. Construction of a well typically requires (list of all standard construction equipment) and a maximum of approximately xx personnel could be onsite at any one time. Construction would occur during daylight hours only. The construction stages would first include having professional surveyors clearly marking all limits of disturbance, followed by clearing and grubbing of the vegetation. A bulldozer would then rough grade the site. The new well site would then be drilled to an approximate depth of xx feet. [Add construction language on well connector pipeline to street-make sure to state if it will be an open trench or drilled?]. All soils removed from the well site will be transported and deposited offsite at approved

facilities. No earthen or rock stockpiles will be placed within the Wash Plan or other habitat areas. Power supply for the wells is provided by existing infrastructure and power lines to the wells meet the needs of the water production facilities.

Temporary Pipeline

As part of the construction of the Alabama Street wells and Orange Street wells, two temporary pipelines (16") will be placed aboveground in existing disturbed habitat in order to convey construction water in the east-west direction from the well sites to nearby mine pits or percolation basins. Each temporary pipeline, impact area will be approximately 2,640' x 20' or 1.2 acres within the existing disturbed habitat per pipeline for a total of 2.4 acres temporary impact. Placement of the temporary water pipe will be coordinated with the USFWS staff in order to avoid and minimize impacts to protected resources. Additional temporary connector pipeline will be placed within the existing right-of-way (ROW) in the north-south direction connecting to individual wells.

Connector Pipeline

Eight permanent connector pipelines (up to 30") will be placed belowground within the permanent well site access road impact area (described below). This pipeline will connect the individual well head to the transmission pipelines that will run parallel to and within Alabama and Orange Street ROW (also described below). The area of impact for construction of this pipeline will be approximately 600' x 30' or 0.41 acres per well site. All impacts will be confined to the footprint of the permanent access roads (described below).

Transmission Pipeline (VD.04 and VD.10)

A transmission pipeline (up to 36") will be constructed within Alabama and Orange Streets to convey water produced by the new wells to the existing Texas Grove Reservoir and the Redlands Pump Station, located outside the Wash Plan area. The transmission pipeline will be constructed wholly within the public road Right-of-Way (ROW) and no impacts will occur outside of those limits.

Maintenance

Long term maintenance activities necessary to operate the wells will be conducted as often as daily with visits by to the well by staff for inspection, sampling, repairs, etc. Weeding and other site maintenance activities would occur as needed within the 120' x 80' permanent well pad boundary as well as the access roads.

Santa Ana Low Turnout Rebuild (VD.07)

[Add description]

Alabama Street Connector Pipeline (VD.10)

A new service pipeline that will be located in the Alabama Street right of way. The water pipeline will use the superstructure of the Alabama Street bridge to cross the Santa Ana River. Occasional channel access is needed for inspection and maintenance. [Add description]

Orange Street Connector Pipeline (VD.10)

A new service pipeline that will be located in the Orange Street right of way. The water pipeline will use the superstructure of the Orange Street bridge to cross the Santa Ana River. Occasional channel access is needed for inspection and maintenance. [Add description]

Plunge Pool Pipeline (VD.05)

Will be constructed by Valley District and maintained by Conservation District]

East Branch Extension, Phase 2 Maintenance (VD.02)

[Add maintenance description]

Foothill Pipeline Maintenance (VD.03)

[Add maintenance description]

SARC Turnout at Santa Ana River Maintenance (VD.06)

[Add maintenance description]

City of Redlands***New Well- North Orange 3 (Redl.13)***

The City of Redlands plans to construct one new well that will be located off of Orange Street, although the final specific locations will be identified in consultation with the US Fish and Wildlife Service and the CA Department of Fish and Wildlife. The total required construction footprint, including construction access roads and staging areas, is estimated at 1.6 acres. The well site work area is 160 feet by 160 feet (0.9 acres), with a permanent footprint of the well site at 0.7 acre. Construction will be initiated in [add date] and construction is expected to last approximately xx days. Construction of the well will be consistent with the description provided above. This new well will be tied in to the service pipeline that is located in the Orange Street/ Boulder Avenue right of way.

Existing Well Maintenance (Redl.11)

The City of Redlands has three existing well sites where periodic maintenance will be required: North Orange 1, North Orange 2, and the Orange Street Well. The North Orange 1 and North Orange 2 wells are located near the CEMEX plant and are municipal potable water wells. The wells service pipeline is located in the Orange Street/ Boulder Avenue right of way.

Redlands Well Connector Pipeline (Redl.08)

Two existing well sites located immediately east of Orange Street will have a new connector pipeline to Orange Street constructed.

Redlands Aqueduct Tunnel Maintenance (Redl.07)

[Add maintenance description]

East Valley Water District**Pipe 125 Maintenance (EVWD.07)**

[Add maintenance description]

Well 125 Maintenance (EVWD.08)

[Add maintenance description]

San Bernardino Valley Water Conservation District**Canal Maintenance (CD.03)**

[Add maintenance description]

Existing Well Maintenance (CD.04)

San Bernardino Valley Water Conservation District operates four observation wells used to monitor groundwater levels as part of the management of the Bunker Hill Basin: Well 4-11H1, Well 2-7K1, Well 3-12J1, and Well 1-7B1.

2.2.3 Transportation Activities

Arterial road/ highway maintenance and expansion is planned at a number of locations in the Plan Area. Four of these projects, are proposed to obtain coverage under this agreement. Projects include the widening of two existing roadways and the construction or replacement of two additional roadway expansions across the Plan Area.

City of Highland**Greenspot Road (Bridge and Realignment (High.01))**

The S Curve and bridge/realignment project are completed and mitigated elsewhere. No impacts have been accounted for as part of this Plan.

Alabama Street Widening (High.02)

Within the Wash Plan Boundary, Alabama Street will be widened, which includes a full widening on the south side and an east-side only widening on the north side. [Add description]

Greenspot Road Improvements (High.03)

[Add description]

Orange Street Widening (High.06)

[Add description]

The projects in the City of Highland are offset by two projects which are currently mitigated outside the Wash Plan but were included in the Wash Plan for coverage in prior HCP and environmental documents. These projects are estimated to have a temporary construction impact of approximately 33 acres.

2.2.4 Flood Control

San Bernardino County Flood Control District maintains flood control levee structures on the Santa Ana River, Mill Creek, Plunge Creek and City Creek within the Plan Area. Regular and ongoing maintenance is required so these levees continue to provide flood protection to the public.

San Bernardino County Flood Control District

Elder/Plunge Creek Restoration- Reasonably Foreseeable Project (FC.09)

The Plunge and Elder Creek Multipurpose Habitat Enhancement and Flood Control Reasonably Foreseeable Project is intended to: 1) restore braided channel structure in Plunge Creek providing additional San Bernardino kangaroo rat habitat; 2) restore flows in Plunge and Elder Creeks above the Orange Street impeded by sedimentation in the stream channels; 3) reduce the probability of habitat type conversion in the Wash Plan area by diverting nuisance flows into a retention basin, and; 4) reducing flood risk in the Elder Creek watershed, specifically in the neighborhood adjacent to Abbey Way.

In order to construct the project, lead remediation will be required on a parcel within the Wash Plan that was once used as a shooting range. This HCP covers species impacts, primarily to SBKR, associated with ground disturbing activities required for remediation and does not cover potential impacts associated with the lead itself.

HCP coverage for this project through the Wash Plan is considered permissive or conditional and will also require the preparation of a lead remediation plan acceptable to the resource agencies and further consultation with the FWS and CA DFW in the development of final design drawings to further minimize species and habitat impacts. It is understood that species impacts resulting from further design refinement will be no greater than those described in the HCP and will provide an equivalent level of flood protection for local residents.

Plunge Creek Sediment Removal (FC.01)

[Add description]

Levee and Associated Maintenance (FC.03)

San Bernardino County Flood Control District maintains flood control levee structures on the Santa Ana River, Plunge Creek, and City Creek within the Wash area. The specific levees that will require maintenance includes: Borrow Pit Levee, Greenspot Levee, Santa Ana River Levee, Mill Creek Levee, the Plunge "NW" 2 Levee, and the Plunge Creek Levee. Regular and ongoing maintenance is required so these levees continue to provide flood protection to the public. Some levee maintenance activities are planned activities, such as weed control, and others are responses to storm flows associated with extreme weather events. The following activities are expected to occur

as part of levee maintenance activities: 1) weed control using herbicides and mechanized equipment including scrapers, loaders and bulldozers; 2) facility repair using mechanized equipment to place fill material and rock along levee toe and top; 3) erosion repair and/or sediment removal along levee toe and existing facility access roads; 4) rebuilding storm damaged facilities both as part of a routine maintenance program and as a response to specific emergencies; 5) maintenance of security structures, such as gates, barriers or fencing; 6) installation of drains, piping or utilities crossing flood control facilities, and; 6) earthwork to maintain the low-flow channel

Maintenance work associated with the Santa Ana River levee covers the entire south bank of the Santa Ana River from the confluence of Mill Creek to Alabama Street on the west. Future activities on the south bank may include maintenance, repairs, and construction to harden the face of the levee to prevent erosion of the embankment. Maintenance, repair, construction, and low-flow activities may also be required for the levee areas downstream of the Old Trestle Bridge Crossing at the mouth of the Santa Ana River Canyon to ensure that water flows travel safely into the Mill Creek/Santa Ana River confluence areas of the wash.

Maintenance activities along Mill Creek include repair, construction, grading, armor surfacing, and low-flow work along the reach of Mill Creek Levee and floodwall that occur in the Plan Area, which starts at Greenspot Road on the upstream end and extends along the south side of the creek to its confluence with the Santa Ana River. Accessibility is required along the entire south side. The levee on the north side of the creek is less improved and needs constant maintenance during the year.

Plunge Creek maintenance includes maintenance, repair, and construction to the levees downstream of the bridge at Greenspot Road. Low-flow channel work would be necessary to ensure the flow passes into the wash, away from the residents and properties along Greenspot Road. At Plunge Creek and Elder Creek outfall, maintenance, repair, construction, and low-flow channel work on and between levees on both sides of the outfall would be required to ensure the flows travel safely into Plunge Creek. Similar work in the Wash Plan area is anticipated to maintain flows in the Elder Creek channel and reduce risk of local flooding.

City Creek requires maintenance, repair, and construction work on both levees as well as low-flow channel work upstream and downstream of the Alabama Street Bridge. In addition, main City Creek requires maintenance, repair, and construction work on both levees as well as low-flow channel work upstream and downstream of the Alabama Street Bridge and 5th Street Bridge crossings over City Creek to keep the water flows within the confines of the channel on their way to the Santa Ana River. In addition, maintenance, repair, and construction for both sides of the confluence of City Creek and Plunge Creek as well as low-flow channel work would be necessary.

Flood control activities are summarized below:

- Maintenance of Existing Facilities (14.3 acres)
- Flood control levee maintenance in 30 foot buffer below the Santa Ana River Levee (13.2 acres)
- Maintenance of levees outside of County ownership (1.1 acres)

City of Highland

Weaver Street Channel Maintenance (High.10)

[Add description]

Greenspot Rd. Drain Outlets Maintenance (High.11)

[Add description]

Church Street Channel Maintenance (High.12)

[Add description]

2.2.5 Recreation, Trails, and Open Space

As the Wash Plan HCP area will provide recreational benefit to those in adjoining communities and will also provide an educational resource illustrating the benefits of species and open space protection, a carefully planned trail system that balances habitat and species conservation is extremely important. The Wash Plan HCP addresses listed species and their habitats associated with the development and operation of a trail system within the project area using only existing roads and access easements to minimize impacts to vegetated areas. The trail system is intended for non-motorized recreational use. Staging areas are intended to be developed outside the Wash Plan boundaries and are not considered in this HCP. Additionally, a proposed crossing of the Woollystar Preserve Area (WSPA) to connect a trail to the Santa Ana River Trail (SART) in Redlands is not considered a part of this HCP and approval of the crossing requires additional approval. The WSPA crossing is addressed to provide a full description of activities contemplated in the Wash Plan area.

HCP coverage through the Wash Plan for the construction and operation of trails is considered permissive or conditional and will also require the preparation of a detailed trails and recreation plan that is acceptable to the resource agencies and to those operating the trails. The plan at a minimum will detail how covered species and habitats will be protected. The plan will also detail public safety considerations associated with operating a trail system in an isolated area. All trails serving only bicyclists and pedestrians would be located on existing streets, service roads, or old railroad beds. Development of trails would be covered as a permissible future activity based on requirements from the Resource Agencies. Additionally, the placement of signs indicating that trails and service roads would serve a dual purpose would be required. No off-road vehicles or equestrian uses would be permitted as trail activities under this HCP. Native boulders or similar barricades may be placed to direct trail users away from habitat conservation, flood control, water conservation, and mining areas. Prior to implementation of the public access to the trail, certain activities will be required to discourage off-trail access: 1) explanatory signage; 2) barriers placed in or near areas of sensitive habitat where needed; 3) maintenance of existing grades, which provide separation from adjacent areas, and; 4) maintenance of surrounding area in natural conditions because boulders, topography, and soils are unsuitable for bicycle and off-road use.

Limited maintenance of the trails would be provided as either part of the road maintenance program, in the case of trails on existing roadways, or as part of the regular maintenance activities associated with water management in the Wash. Additional grading and maintenance above regular access road maintenance is assumed to occur on the road/trail footprint. Amenities necessary for a trail will be required prior to opening to the public such as the placement of trash pickup and the placement of trash receptacles and regular patrols to ensure recreational activities do not adversely impact sensitive areas would be provided by the cities. These activities are also assumed to occur on the road/trail footprint.

Use of the Wash for trail activities will likely require staging areas which are assumed to be outside project boundaries or as the result of other consultation with the Resource agencies. Trails segments whose designation and maintenance are covered in the HCP include:

- Alabama Street Trail (High.13)
- Borrow Pit South Rim Trail (Redl.06)
- Boulder Avenue / Orange Street Trail (High.14)
- Cone Camp Road Trail (High.15)
- Greenspot Road Trail (High.16)
- Old Greenspot Road Horse Trail (High.17)
- Old Greenspot Road Trail (High.18)
- Old Rail Line Trail (High.19)
- Plunge Creek Trail (High.20)
- Pole Line Trail (High.21)
- Weaver Street Trail (High.22)
- Santa Ana River Trail (Redl.09)

The Santa Ana River Trail, a significant regional trail system is planned on the southern border of the Plan Area. Portions of the Santa Ana River Trail pass outside the southern border of the project site as is reflected in the General Plans of the City of Highland and City of Redlands. The Santa Ana River Trail is planned to extend 110 miles and although not a part of the proposed project, the trail would intersect the Orange Street-Boulder Avenue Trail on the south side of the Santa Ana River, and also intersect the Greenspot Road Trail east of the project boundary.

Potential Trail Across WSPA (Redl.12)

A notable exception to the use of existing easements, a trail connection across the Santa Ana River was identified. This potential connection would cross the Woolly Star Preservation Area (WSPA) (0.87 acres of WSPA footprint) at Cone Camp Road and potentially impact 1.3 total acres. This connection could provide a valuable link to the Santa Ana River Trail and associated local trail systems.

Most trail maintenance will be associated with the routine maintenance of access roads in the Wash. Recreation, Trail and Open space activities are summarized below:

- Construction and Maintenance of Enhanced Facilities
 - Connection to Santa Ana River Trail across WSPA easement (1.3 acres)
 - Expanded use of existing facilities to accommodate trail access

2.2.6 Miscellaneous Activities

There are two additional activities in the Plan Area related to agricultural activities and demonstration projects.

East Valley Water District

Grove Maintenance (EVWD.03)

A 6.7 acre citrus grove is operated within the Wash area. Operation of the grove requires maintenance of access roads and irrigation infrastructure, including a sampling well, as well as, application of herbicide, insecticide, fungicide and fertilizer as needed. Vertebrate grove pests are also managed using procedures designed to avoid impacts on sensitive vertebrate species in adjoining areas.

Recharge Demonstration Activities

EVWD has constructed 3 wetland and demonstration facilities (basins) at their headquarter facility that require maintenance in an area of approximately 1.5 acres.

2.2.7 Habitat Restoration, Maintenance, and Monitoring

The conservation and mitigation strategy (Chapter 6) is designed to mitigate impacts of Covered Activities to the covered species within the Plan Area and to manage and monitor those species in the future. However, implementation of some conservation and mitigation actions may result in low levels of take that therefore require take permits. Therefore, some conservation and mitigation actions must also be named as Covered Activities. Activities related to implementation of the conservation and mitigation strategy that may require take authorization may include the following.

- Habitat enhancement, restoration, and creation.
- Operational changes to enhance in-stream habitat.
- Control of invasive species (e.g., mowing, hand clearing).
- Relocation of covered species from impact sites to conservation areas (e.g., in cases where impacts are unavoidable and relocation has a high likelihood of success).
- Monitoring activities in the Plan Area and mitigation areas.
- Species surveys and research.
- Vegetation management using livestock grazing, manual labor, herbicide application, or prescribed burning.
- Fire management including prescribed burning, mowing, and establishment of fuel breaks.

Habitat restoration and enhancement would generally be temporary and disruptive only in the short term; these activities could involve soil disturbance, removal of undesirable plants, and limited grading. All habitat restoration and enhancement is expected to result in a net long-term benefit for Covered Species and vegetation communities. However, these activities might have temporary or

short-term adverse effects and might result in limited take of Covered Species. All habitat enhancement and restoration activities conducted within Plan Area that are consistent with Plan requirements will be covered by the Plan.

Planning for all conservation, mitigation, restoration and enhancement, and management activities will include input from the Wildlife Agencies and Task Force participants. Specific covered conservation and mitigation activities include but are not limited to:

- Greenspot Road levee removal (4.6 acres)
 - Removal of the Santa Ana River levee near the eastern boundary (Greenspot Road) of the Plan Area that will restore regular flooding and scour to a significant habitat area on the site. Additional work is planned for Plunge Creek, where vegetation will be removed and thinned. In addition, the stream course will be widened. This project is intended to restore natural scour patterns on approximately 30 acres.
- Plunge Creek Habitat Management (110.0 acres)
 - Include brief description.
- Easement and Land Dedication, including management activities (390.5 acres)
 - Include brief description.
- Enhanced Spreading Basin Habitat Dedication (25 acres)
 - Include brief description.
- Flood Control Property Dedication (365.5 acres)
 - Include brief description.
- Other temporal impacts for restoration efforts (undefined)
 - Include brief description.

Species Surveys, Monitoring, and Research

Conservation area managers, monitoring biologists or their contractors will periodically conduct surveys for Covered Species, vegetation communities, and other resources within the Plan Area for monitoring, research, and adaptive management purposes. These surveys might require physical capture and inspection of specimens to determine identity, mark individuals, or measure physical features, all of which are considered take under the ESA. Surveys for all Covered Species will be conducted by qualified biologists. All such survey activity, consistent with the Plan, is covered by the Plan.

Research conducted by conservation area managers, monitoring biologists or their contractors on Plan Preserves will be covered by the Plan as long as the research projects have negligible effects on populations of Covered Species. Research resulting in take of Covered Species that is conducted by other individuals (e.g., academic scientists) will not be covered by the permits because the nature and impacts of these future research projects cannot be predicted at this time, and these researchers are not bound by the terms of the Wash Plan HCP permits.

2.4 Projects and Activities Not Covered by the Plan

During development of the Plan, other projects and activities were considered but rejected for coverage; these are discussed below. Take permits for these activities would require direct consultation with CDFW and USFWS.

2.4.1 Utility Construction and Maintenance

Public and private utility infrastructure maintained by entities that are not Wash Plan HCP permittees, such as electric transmission lines, gas pipelines, petroleum pipelines, telecommunications lines, or cellular telephone stations, might cross or need to cross the Plan Area. However, the construction of new utility infrastructure, including associated permanent and temporary access roads, or the maintenance of existing infrastructure in the Plan Area is not a Covered Activity. Additionally, routine and emergency maintenance and repairs to such existing utilities within the Plan Area are not covered by the Plan. If improvements to utilities are required as part of a Wash Plan HCP covered project and included as part of the Covered Project design, those improvements are covered as part of that Covered Project.

2.4.2 Freeway Operation and Maintenance

Routine freeway operation and maintenance activities that occur within the 210 Freeway right-of-way within the Plan Area are not covered by the Plan. Freeway operation and maintenance activities not covered by the Plan include, but are not limited to, these routine and emergency activities:

- Maintenance or replacement of signage
- Maintenance or replacement of traffic-control devices
- Inspection, maintenance, or replacement of guardrails, fences, or crash cushions (median or shoulder barriers should be replaced with structures that are both safe for vehicles and compatible with wildlife movement whenever possible; at a minimum, replacement should not make wildlife movement more difficult)
- Pavement maintenance or resurfacing
- Pavement striping or marker replacement
- Tree trimming or removal for safety
- Debris collection and removal on roads, trash racks, and shoulders
- Natural disaster damage repair
- Storm damage repair
- Vehicle accident repair and cleanup

2.4.3 Recreation

Low-intensity recreational use of Conservation Areas, including recreational activities, include hiking, wildlife observation, equestrian use, and non-motorized bicycling, is considered compatible and allowed on a case-by-case basis under the Plan guidelines (see Chapter [2.4.3](#)).

“Preserve Management and Monitoring Program”). Plan guidelines for compatible uses have a goal of minimizing disturbance to Covered Species from these activities. While low-intensity recreational use is conditionally allowed, take of Covered Species by recreational activities is not covered by the Plan.

2.4.4 General Urban Development

Any development project such as commercial, industrial, residential development or other urban transportation infrastructure (e.g., roadways, railways, bicycle paths) are not covered unless specifically listed as a Covered Activity, above.

Chapter 3

Plan Area and Biological Resources²

3.1 Physical Characteristics

3.1.1 Geology and Soils

The project site is located in the broad fluvial plain formed by the deposition of the Santa Ana River, Mill Creek, and City Creek as they flow southwest from the San Bernardino Mountains. Several fault bounded structural blocks saddle the general site area. The down dropped San Bernardino Valley block underlies the site and represents a buried rift between the San Andreas Fault to the northeast, and the San Jacinto Fault to the southwest. As the block subsided, alluvium derived from the San Bernardino Mountains filled the resulting depression, causing a maximum alluvial thickness of 600 to 1,200 feet east of the San Bernardino International Airport. It is this alluvium that is mined throughout the Wash Plan. The alluvial deposit is of the Quaternary Age and consists of igneous and metamorphic clasts whose rocks are found in the mountains and at Crafton Hills. The clasts' sizes vary from that of fine size to boulders in size. All materials on the project site are classified in the Soboba Series, specifically Soboba Stony loamy sand.

The site is subject to ground shaking from earthquakes but is not located within an Alquist-Priolo special studies zone. The area is gently sloping (3-6% slope) and is not subject to landslide hazards. Depth to ground water fluctuates with season and groundwater recharge activities. The area is subject to liquefaction though this is not considered hazardous for mining, reclamation, recharge, and flood control activities.

The Santa Ana River extends the length of the Plan Area; two tributaries to the Santa Ana River also occur within the Plan Area, Plunge Creek in the north and Mill Creek in the southeast. Soils within the Plan Area are mapped as Soboba stony loamy sand, 2 to 9% slopes, Psamments and Fluvents, frequently flooded, and Hanford coarse sandy loam, 2 to 9% slopes. Soils in and along the channels of the Mill Creek, the Santa Ana River, Plunge Creek, and an old channel between Plunge Creek and the Santa Ana River (roughly 15% of the Plan Area) are mapped as Fluvents and Psamments. These are recent soils with little or no evidence of horizon development. Fluvents are formed by recent water-deposited sediments in floodplains, fans, and stream or river deltas and consist of layers of various soil textures. Psamments formed on terraces or outwash plains and contain well sorted, freely draining soils that always contain sand, fine sand, loamy sand or coarse sand in subsoils between 10 and 40 inches depth.

² The information about the Plan Area in this section is drawn primarily from the biological technical reports prepared by URS, LSA, and Dudek in connection with preparation of the Wash Plan, the Wash Plan EIR, and the EIS for the BLM land exchange and SCRMP amendment.

Most of the Plan Area consists of Soboba stony loamy sand. This soil forms on alluvial fans in granitic alluvium and typically contains stony loamy sand, very stony loamy sand, and very stony sand to a depth of approximately 60 inches. Included within this soil are areas of Tujunga gravelly loamy sand. A small area of Hanford coarse sandy loam occurs in the northeastern part of the Plan Area. This is a well-drained soil formed in recent granitic alluvium on valley floors and alluvial fans that contains sandy loam to a depth of about 60 inches.

3.1.2 Climate

The San Bernardino Valley is characterized by a climate of long dry summers and short wet winters, commonly referred to as a Mediterranean climate. Annual average daily temperatures range from a low of 49° F. to an average high of 80° F. The average rainfall is about 15.6" per year, with approximately 90 percent falling from November through March.

3.1.3 Groundwater

The project site overlies the Bunker Hill Ground Water Basin. The Bunker Hill Basin is one of the largest ground water basins in the Santa Ana River Basin and is a ground water recharge zone. This basin, whose boundaries are generally defined by earthquake faults, which effectively act as subsurface dams trapping ground water, is bounded on the north and east by the San Bernardino Mountains, on the southeast by the Crafton Hills and the Badlands, and on the west by the San Jacinto fault. Because faults can act as barriers to the movement of ground water, the faults in the vicinity of the SBVWCD Mill Creek recharge facilities may restrict the movement of water into the larger Bunker Hill basin. Three subareas within the Bunker Hill Basin have been identified. These are commonly referred to as Bunker Hill I, Bunker Hill II, and the Pressure Zone. The project site overlies the Bunker Hill II subarea. The Pressure Zone to the west is an area where high ground water levels have historically existed.

Many natural and artificial phenomena such as rainfall, natural stream inflow, evaporation, ground water extractions through wells, and spreading operations for replenishment of the water supply influence ground water levels in the Bunker Hill Basin. The Bunker Hill Basin is artificially recharged by several agencies. Included are surface stream diversions made for ground water replenishment by the SBVWCD on the Santa Ana River and Mill Creek, and facilities operated by the SBCFCD on Devil Creek, Twin Creek, Waterman Creek, and Sand Creek, which may also be used for ground water recharge. The SBVWCD and its predecessors have been diverting water from the Santa Ana River and Mill Creek for over 90 years.

3.2 Land Use and Ownership

3.2.1 Existing Land Use

Existing land uses in the Plan Area (Figure 3) consist of water conservation/water storage facilities, flood control, habitat conservation, aggregate mining/mineral extraction, agriculture/orchards and vineyards, roadways, and airport operations. Aggregate mining is conducted in the western half of the Plan Area, while SBVWCD maintains water spreading basins in the eastern section. The SBCFCD

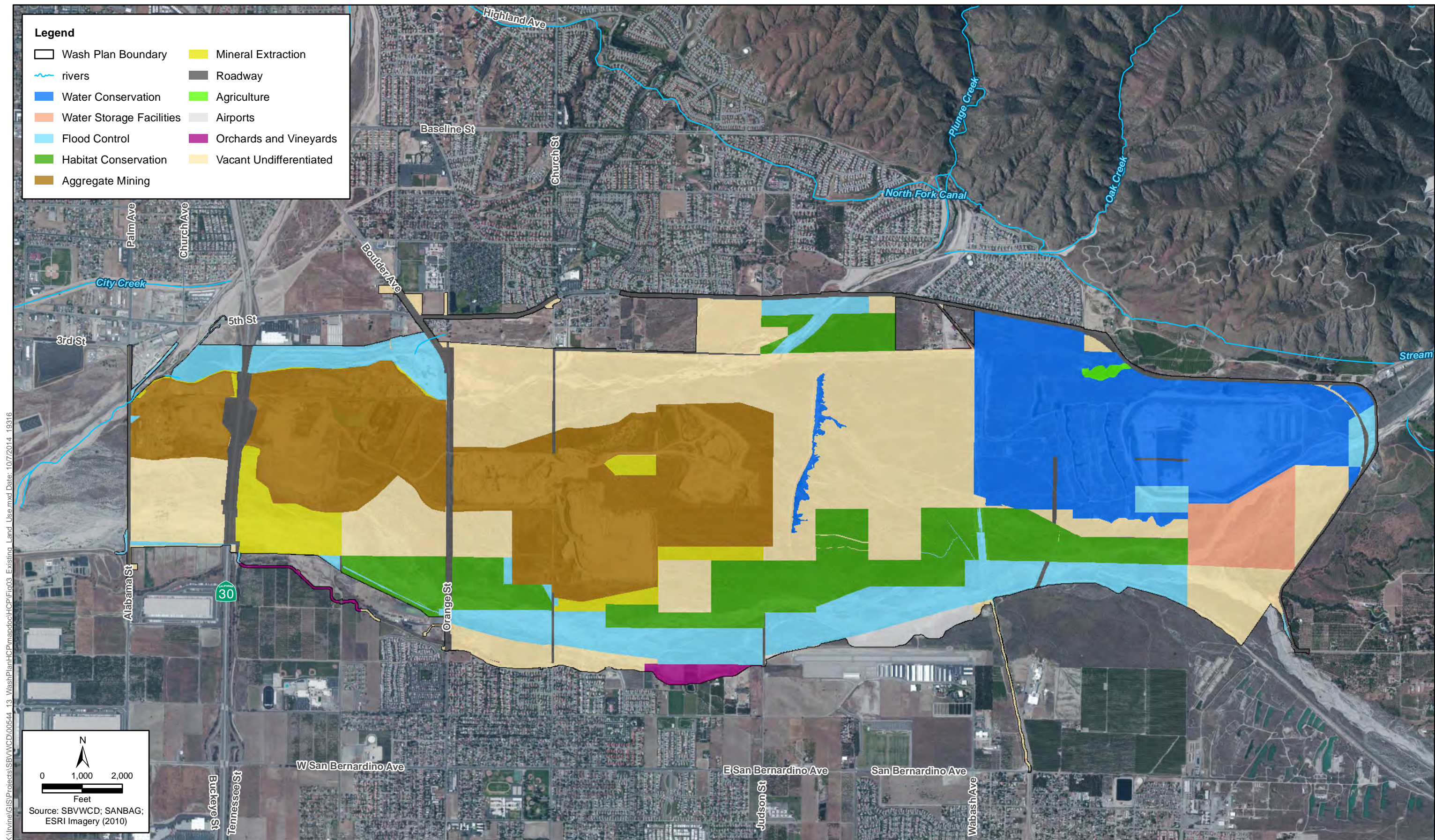


Figure 3
Existing Land Use
Wash Plan HCP

maintains flood control facilities along the Santa Ana River, Plunge Creek, and City Creek. The WSPA occurs in sections along the southern tier of the Plan Area, with one segment on the northern edge and another outside the Plan Area to the west. The Metropolitan Water District of Southern California (MWD) and Department of Water Resources have water pipelines within the general boundaries of the Plan Area. Inland Fish and Game Club maintains an abandoned shooting range on approximately 20 acres of land is located the northern part of the Plan Area on BLM land.

3.2.2 Ownership and Easements

The majority (1,906.2 acres) of the Plan Area is owned by the SCBWCD, with large contiguous parcels throughout most of the Plan Area (Figure 4). The San Bernardino County, mostly SBCFCD, owns the corridor along the Santa Ana River, and the parcels along Plunge Creek (1000.3 acres). The BLM owns large parcels through the center, north and eastern portions of the Plan Area (972.3 acres), including within and adjacent to the Santa Ana River main stem and Plunge Creek. The City of Redlands owns parcels of land on the farthest west and southern portions of the Plan Area (159.6 acres). The southern parcels are directly south and slightly overlapping the Santa Ana River mainstem. The City of Highland owns one parcel south of Greenspot Rd in the northeast portion of the Plan Area, as well as 2 parcels in the northcentral portion of the Plan Area just west of Plunge Creek. Of the private landowners, Robertson's Ready Mix Properties owns land both in the center and on the northwest portions of the Plan Area (338.8 acres). The center property is approximately 250 ft. north of the Santa Ana River mainstem and the northwest parcel can be found on either side of Interstate 210 south of Plunge Creek. The other large privately held parcel (131.5 acres) is owned by Sunbelt Acquisitions Inc. and occurs in the southwest portion of the Plan Area just west of Interstate 210 within and adjacent to the Santa Ana River mainstem. Arnott Poultry owns 4 parcels (24.4 acres) which lies directly adjacent and south of Greenspot Rd. The OCFCD owns land on the farthest southeast portion of the Plan Area (14.83 acres).

Easements that overlap the Plan Area include a Conservation District conservation easement established as mitigation for an aggregate vehicle haul road, the Santa Ana River Woollystar Preservation Area that was established as mitigation for the Seven Oaks Dam, and the City of Highland's biological mitigation areas (Figure 5). BLM also has designated portions of the parcels it owns in the Plan Area as areas of critical environmental concern (ACEC) where special management attention is needed to protect, and prevent irreparable damage to important wildlife resources and other natural processes. Secondary designations can also be attached to an ACEC depending on the type of resources contained in the area, and within the Wash Plan this includes Research Natural Area (RNA). The RNA program was created to (1) To preserve examples of all significant natural ecosystems for comparison with those influenced by man; (2) to provide educational and research areas for ecological and environmental studies; and (3) to preserve gene pools of typical and endangered plants and animals. In RNA, as in designated wilderness, natural processes are allowed to predominate without human intervention.

Table 3-1. Ownership in the Plan Area

Ownership	Acres in Plan Area
SBVWCD	1,906.2
County of San Bernardino FCD	979.8
BLM	972.3
City of Highland	39.9
City of Redlands	159.6
EVWD	25.0
County of San Bernardino [combine with flood control above]	20.5
SBVMWD	8.2
Bear Valley Mutual Water Co	0.5
Orange County Flood Control District	14.8
Metropolitan Water District of Southern California	5.4
City/County Roads	147.5
Other [incl. Robertson's Ready Mix to be split out in GIS]	536.6
Total	4,816.4

BLM Land Exchange

The Bureau of Land Management (BLM) is exchanging federal lands for equivalent lands owned by the San Bernardino Water Conservation District (SBVWCD) in the Wash Plan area. The transfer will allow BLM to dispose of fragmented federal lands and consolidate high-quality habitat to improve the management of the Santa Ana River Wash *Area of Critical Environmental Concern* (ACEC) and the portions of the Wash Plan multi-jurisdictional, multi-species Habitat Conservation Plan, which include current habitat conservation areas of BLM designated ACEC lands and Research Natural Areas (RNA); a District conservation easement area (established as mitigation for an aggregate vehicle haul road), the Santa Ana River Woollystar Preservation Area (established as mitigation for the Seven Oaks Dam), and the City of Highland Biological Mitigation Areas. The total acreage of these designated habitats conservation areas is 1,215 acres or approximately 27 percent of the Wash Plan area.

The BLM manages approximately 130,000 acres of surface land (referred to as BLM public land) and 167,000 acres of Federal mineral ownership where the surface is privately owned (referred to as BLM split estate land) as part of the South Coast Resource Management Plan (SCRMP), completed in 1994 and revised in 2014. Approximately 1,044 acres of public land in the vicinity of the Santa Ana River Wash area are included in the SCRMP, with approximately 1,019 acres within the Wash Plan area. These public lands are managed primarily for protection of sensitive species habitat, open space, and water conservation. Approximately 695.4 acres (14% of the Wash Plan area) are designated as ACEC and RNA. ACECs were authorized as part of the Federal Land Policy and Management Act of 1976 which gives priority to the designation and protection of areas of critical environmental concern. Secondary designations can be attached to an ACEC depending on the type

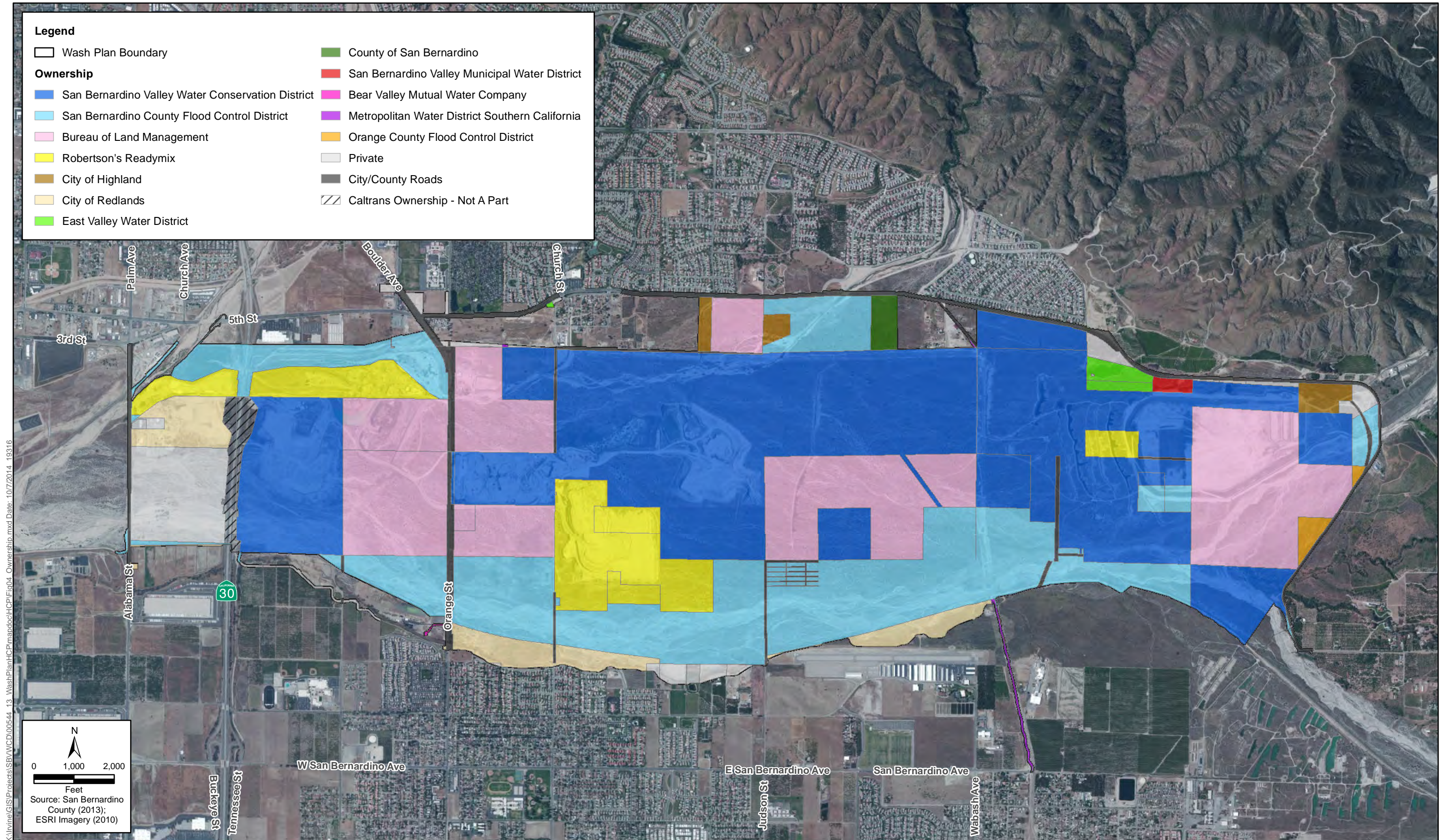


Figure 4
Ownership within the Plan Area
Wash Plan HCP

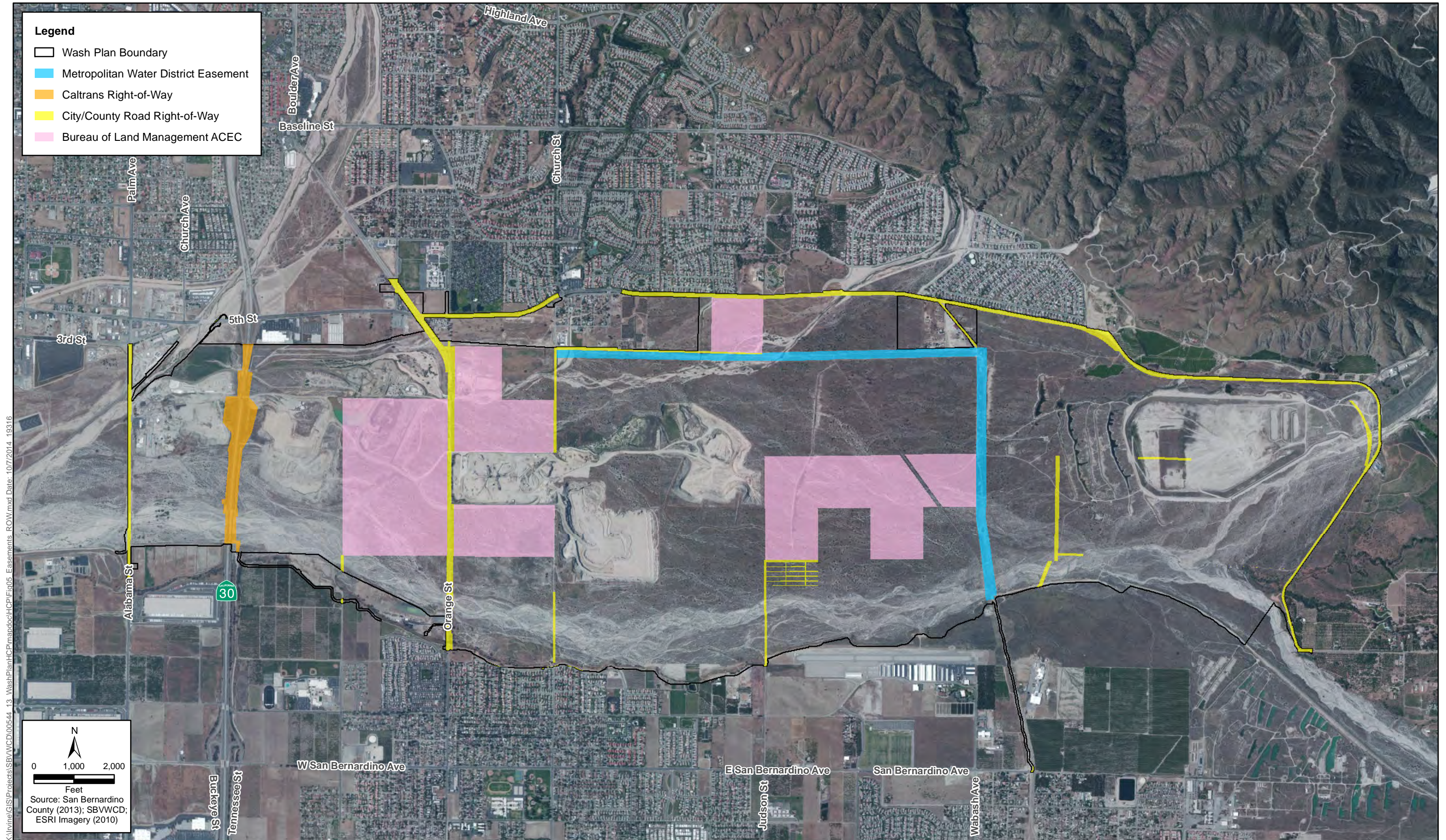


Figure 5
Easements, Right-of-Ways and ACEC
Wash Plan HCP

of resources contained within the given parcel. One of these secondary designations is RNA which is a physical and biological unit where natural conditions are maintained insofar as possible, and which is reserved for the primary purpose of research and higher education. These conditions are achieved by allowing ordinary physical and biological processes to operate without human intervention. Management prescriptions are imposed to limit the full range of multiple land uses otherwise authorized on Federal land. The BLM ACEC and RNA provides enhanced protection of two federally listed plant species: Santa Ana River woollystar and slender-horned spineflower, as well as many other sensitive species.

Besides providing environmental benefit to specific species and to the valuable Riversidian alluvial fan sage scrub (RAFS) habitat, existing Federal law and easements also provide for groundwater recharge operations on these lands. The Wash Plan HCP implementation transfer will exchange a maximum of 400 acres of BLM lands with a maximum of 380 acres of SBVWCD lands. The BLM will exchange public lands located within the Santa Ana River Wash ACEC for SBVWCD property to increase lands designated for managed habitat protection, improved connectivity for wildlife movement and gene flow for the San Bernardino kangaroo rat (SBKR), slender-horned spineflower, and Santa Ana River woollystar. The exchange will result in a minor loss of lands for water conservation. The SBVWCD proposes to transfer mining leases on lands containing sensitive habitat areas and areas necessary for long-term water conservation operations to land presently owned by BLM, which is immediately adjacent to existing mining operations. SBVWCD proposes to allow mining on the land to be received from BLM in the exchange according to the same terms as existing mining leases. The BLM proposes to designate the SBVWCD lands received from SBVWCD as ACEC for habitat preservation and water conservation purposes. Note that lands designated as conservation/resource lands will be managed as habitat for covered species regardless of ownership, and the land transfer will not result in an increase of mining in total area mined as described in this HCP.

The parcels for the land exchange involve 315 acres of BLM land and 320 acres of SBVWCD land (Figure 5a). Additionally, up to 85 acres of BLM land and up to 60 acres of SBVWCD land are identified as “equalization parcels” and available for exchange to equalize values, as required by law. The equalization parcels are intended to, where necessary, equalize land values exchanged so land values are approximately equal between the parties. The transfer of all or a portion of the exchange or equalization parcels will be based on the equalization requirements between parties and will not result in changes of designated land uses as represented in the Wash Plan HCP.

The land exchange was initiated in 2005 with an Agreement to Initiate (ATI) agreement between the SBVWCD and the BLM based on a proposal between developed between the two parties. Initial Environmental review was completed with the circulation of a draft EIS. The current HCP is, in part, a response to comments received on the draft document requesting more specificity regarding species and habitat management. During the EIS process for this HCP, an appraisal will be conducted such that at the Record of Decision for the EIS, the land title can be transferred to complete the exchange.

3.3 Vegetation and Land Covers

Six primary vegetation and land covers have been mapped onsite. In addition, seral stages of Riversidean alluvial fan sage scrub have been mapped along with an indication of nonnative grass abundance, which is of particular importance to SBKR habitat quality (Figure 6). Table 3-2 lists the acres of each vegetation or land cover type in the Plan Area.

Table 3-2. Vegetation and Land Cover Types in the Plan Area (acres)

Vegetation Community / Land Cover Types	Acres
Riversidean Alluvial Fan Sage Scrub - Pioneer	443.3
Riversidean Alluvial Fan Sage Scrub - Intermediate	1,065.7
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	1,039.6
Riversidean Alluvial Fan Sage Scrub - Mature	534.0
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	109.2
Riversidean Upland Sage Scrub	9.4
Non-Native Grassland (NNG)	159.7
Perennial Pepper Weed	20.0
Recharge Basin	68.9
Developed/Ruderal	1,366.6
Total	4,816.4

3.3.1 Riversidean Alluvial Fan Sage Scrub

Riversidean alluvial fan sage scrub is a shrubland type that occurs in washes and on gently sloping alluvial fans. Alluvial scrub is made up predominantly of drought-deciduous soft-leaved shrubs, but with significant cover of larger perennial species typically found in chaparral (Kirkpatrick and Hutchinson 1977). Scalebroom generally is regarded as an indicator of Riversidean alluvial scrub (Smith 1980; Hanes et al. 1989).

The Holland (1986) classification system describes three subclassifications of Riversidean alluvial fan sage scrub (RAFSS): pioneer, intermediate, and mature with their distribution typically based on differences in flooding frequency and intensity.

Pioneer Riversidean Alluvial Fan Sage Scrub

The most frequently flooded areas tend to be located adjacent to the active creek channel and are where early successional (or pioneer) plant species tend to establish and dominate the landscape. Vegetation tends to be sparse and of low species diversity and stature (Hanes et al. 1989). Burk et al. (2007) found that in the Santa Ana River, the pioneer stage of RAFSS was indicated by the presence of scale broom (*Lepidospartum squamatum*) and/or golden aster (*Heterotheca sessiliflora*) and where soils are characterized by high sand and low organic and clay content. Other plant species found in the pioneer stage included brittlebush (*Encelia farinosa*), Santa Ana River woolly

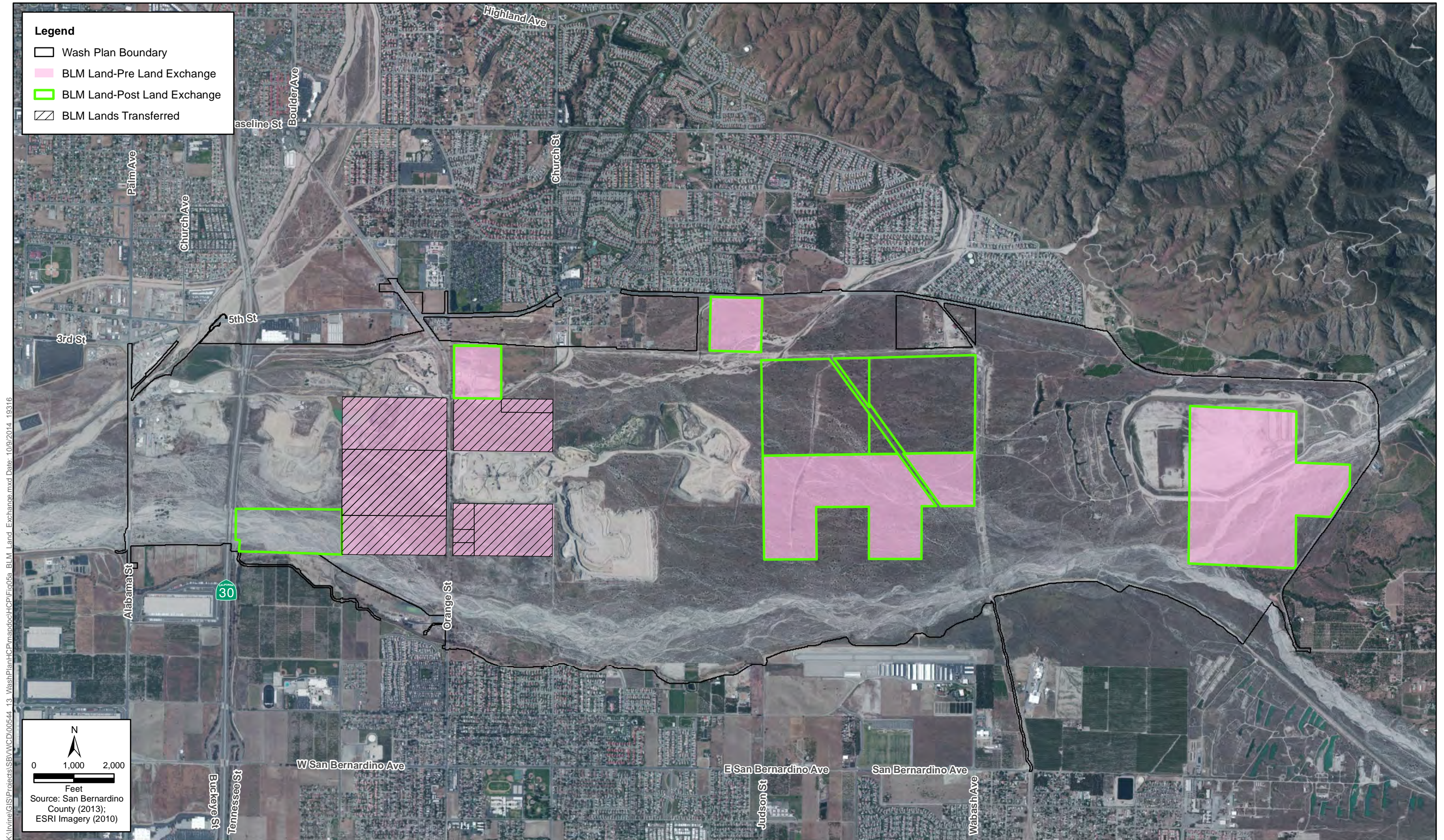


Figure 5a
BLM Land Exchange
Wash Plan HCP

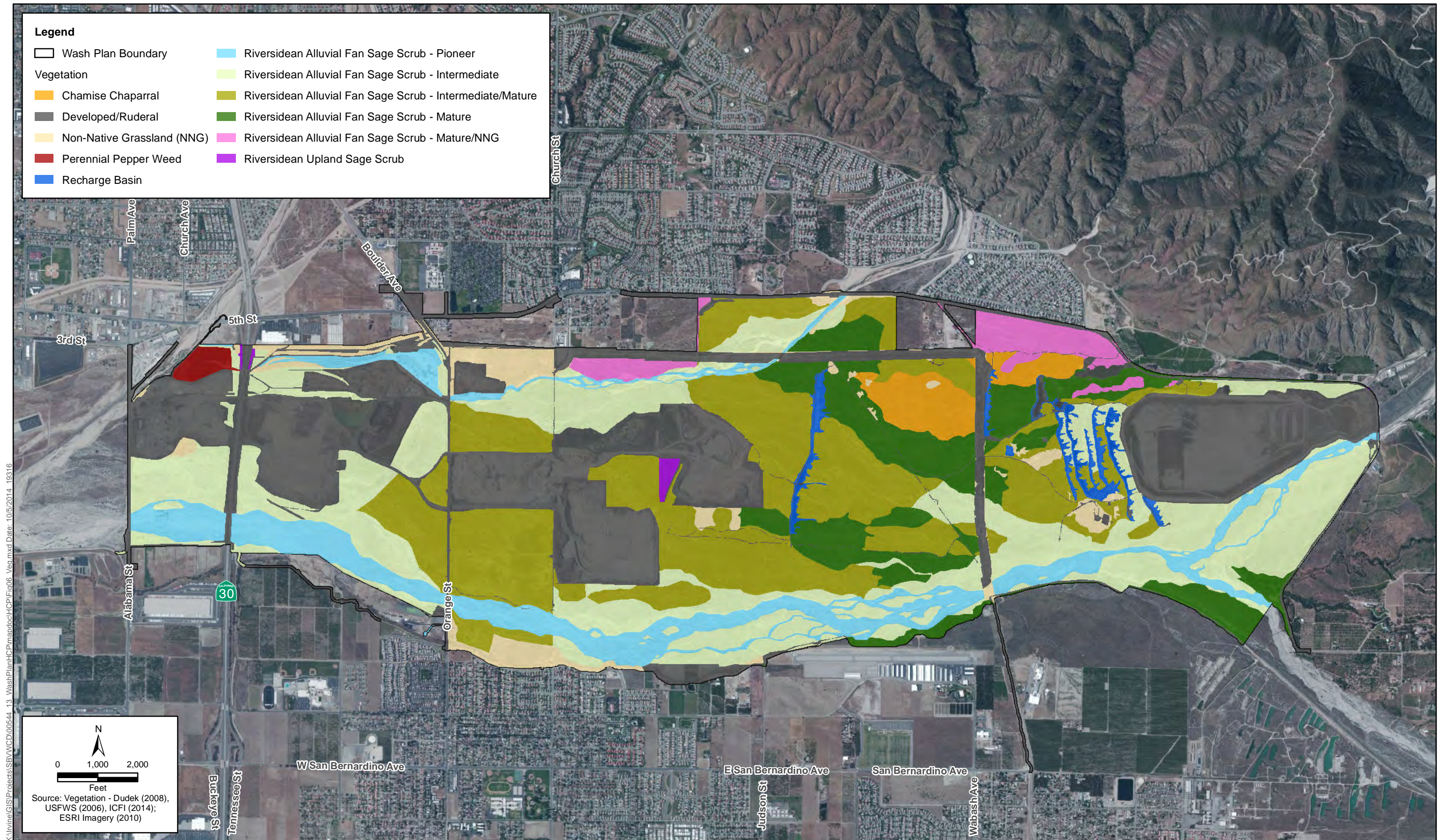


Figure 6
Vegetation Types in the Plan Area
Wash Plan HCP

star (*Eriastrum densifolium subsp. sanctorum*), sweet bush (*Bebbia juncea*), and California croton (*Croton californicus*) (Burk et al. 2007). Hanes et al. (1989) list the three representative plant species of the pioneer phase as scale broom, California buckwheat (*Eriogonum fasciculatum*), and mulefat (*Baccharis salicifolia*). Total vegetative cover in a pioneer phase ranges from 1-48% (Smith 1980, Wheeler 1991) and lasts approximately 30-40 years after flooding (Smith 1980).

Intermediate Riversidean Alluvial Fan Sage Scrub

Areas at mid-elevated locations above the active floodplain (or terraces) tend to be much less frequently flooded and support mid-successional (or intermediate) plant species. Vegetation can be rather dense and is composed mainly of subshrubs (Hanes et al. 1989). Burk et al. (2007) found that in the Santa Ana River the intermediate stage of RAFSS was indicated by the presence of senecio (*Senecio flaccidus var. douglasii*) and white sage (*Salvia apiana*). Other plant species found in the intermediate stage by Burk et al. (2007) were pine-bush (*Ericameria pinifolia*), matchweed (*Gutierrezia californica*), deerweed (*Lotus scoparius*), California juniper (*Juniperus californica*), and yucca (*Yucca whipplei*), as well as cryptogammic crusts. Hanes et al. (1989) list the three representative plant species of the intermediate phase as California buckwheat, yerba santa (*Eriodictyon trichocalyx*), and grassland goldenbush (*Ericameria palmeri*). USFWS (2010a) also lists valley cholla (*Cylindropuntia californica*) and coastal prickly pear (*Opuntia littoralis*) in the intermediate phase. Total vegetative cover in an intermediate phase ranges from 49-65% (Smith 1980) and lasts approximately 40-70 years after flooding (Smith 1980, Burk et al. 2007).

Mature Riversidean Alluvial Fan Sage Scrub

The highest elevated terraces are where flooding only occurs during extreme and rare events and supports late-successional (or mature) plant species. Vegetation is dense and is composed of fully developed subshrubs and woody shrubs (Hanes et al. 1989). Burk et al. (2007) found that in the Santa Ana River the mature stage of RAFSS was indicated by the presence of California sagebrush, prickly pear (*Opuntia parryi*), and wire lettuce (*Stephanomeria pauciflora*). Other plant species found in the mature stage by Burk et al. (2007) were yerba santa (*Eriodictyon angustifolium*), chamise (*Adenostoma fasciculatum*), deerweed, and California juniper. Hanes et al. (1989) list the four representative plant species of the mature phase as chamise, California buckwheat, yerba santa, and grassland goldenbush. USFWS (2010a) also lists sugar bush (*Rhus ovata*), holly-leaved cherry (*Prunus ilicifolia*) for the mature phase. Total vegetative cover in mature phase ranges from 66-88% (Smith 1980) and lasts approximately 70+ years after flooding (Burk et al. 2007). Some area of the Plan Area where non-native grasses predominate in the understory have been classified as mature RAFSS/non-native grassland.

3.3.2 Riversidean Upland Sage Scrub

Riversidean sage scrub is dominated by a characteristic suite of low-statured, aromatic, drought-deciduous shrubs and subshrub species. It is a more xeric expression of coastal sage scrub, occurring further inland in drier areas where moisture and climate are not moderated by proximity to the marine environment. Riversidean sage scrub typically occurs on steep slopes, severely drained soils or clays that are slow to release stored soil moisture (Holland 1986).

Species composition varies substantially depending on physical circumstances and the successional status of the habitat; however, characteristic species include California sagebrush, buckwheat, laurel sumac, California encelia, and several species of sage (Holland 1986). Other common species include brittlebush, lemonadeberry, sugarbush, yellow bush penstemon, Mexican elderberry, sweetbush, boxthorn, coastal prickly-pear, coastal cholla, tall prickly-pear, and species of dudleya.

Onsite, Riversidean sage scrub includes brittlebush, deerweed, spiny redberry, California sagebrush, California buckwheat, white sage, and laurel sumac. Physical characteristics include gravely, sandy and/or silty soil with few cobbles. Within the Plan Area, Riversidean sage scrub predominately occurs on cut slopes that have been revegetated where no alluvial processes are present.

3.3.3 Non-native Grassland

Disturbance by maintenance (e.g., mowing, scraping, discing, spraying, etc.), grazing, repetitive fire, agriculture, or other mechanical disruption may alter soils and remove native seed sources from areas formerly supporting native habitat. Within the Plan Area, non-native grassland consists of a sparse to dense cover of annual grasses as well as native and non-native annual forb species. Physical characteristics include clay soils or fine-textured loamy soils.

3.3.4 Perennial Pepper Weed

One area dominated by perennial pepper weed (*Lepidium latifolium*), an invasive species, has been identified in the northwestern portion of the plan area. It is dominated by an intermittent to continuous cover of perennial pepper weed, as well other species such as mustards (Brassica species) and wild radish (*Raphanus* species). Also present are emergent trees and shrubs that occur at a low cover, such as occasional Gooding's black willow (*Salix gooddingii*) and mulefat (*Baccharis salicifolia*). This community has established at this location due to levees that have created a hydrology pattern that constricts Plunge Creek as it enters City Creek and allows for seasonal flooding.

3.3.5 Recharge Basins

The recharge basins were constructed onsite by the SBVWCD. These basins contain standing water intermittently during the year. When dry, they can be characterized as similar to disturbed habitat described below.

3.3.6 Developed/Ruderal

Developed land refers primarily to existing mining pits, paved roads, facilities, and other similar areas throughout the Plan Area. However, developed land also includes previously graded areas, landscaped areas and areas actively maintained or utilized in association with existing developments. Ruderal refers to disturbed habitat that lacks vegetative cover or has vegetative cover dominated by non-native species, such as black mustard and red-stemmed filaree. These areas are generally the result of severe or repeated mechanical disturbance.

3.4 Species

This section provides a summary of the key elements of each covered species life history that is important for habitat conservation planning, monitoring, and adaptive management. These relevant details are included in the species profiles below for each of the five covered species (slender-horned spineflower, and Santa Ana woollystar, California gnatcatcher, cactus wren, SBKR), which also summarize what is known about their occurrence in the Plan Area. Other special status species that occur in the Plan Area, but that are not covered species under the Plan are identified at the end of this section.

3.4.1 Estimating Species Potential Distribution in the Plan Area

The approach for estimation of the distribution of habitat for each species varied depending on the types of information available regarding each species habitat associations, and on the types of survey data that was available and/or conducted for this HCP. For some species the distribution was primarily based on the known occurrences from field survey data, while for other species a habitat model to predict the species distribution was used in conjunction with occurrence data and for SBKR also with supplemental habitat assessment survey data.

Predicted Species Habitat Models

Species models are important tools to utilize when evaluating species effects at a landscape scale, especially when if it is not feasible to conduct comprehensive species surveys across the entire Plan area. These models tend to be conservative (i.e., over predict) and the results generally overstate the actual effects on species. Not all of the predicted suitable habitat is likely to be occupied by the subject species.

The basic assumptions used to develop the species models are described below. The species models are based on biological and physical factors that have been mapped in GIS at a regional scale. The most important factor driving the species models is generally the vegetation communities/ land cover mapping.

Known Species Occurrences

Effects were also assessed at the occurrence level using data from the California Natural Diversity Database (CNDDB) and [describe other databases]. For plants, occurrences were assumed to be equivalent to populations because of the stability of plant occurrence locations (i.e., plants move very slowly). Occurrences for wildlife species were assumed to represent habitat that was occupied historically (pre-2000) or recently (post-2000).

The approach to map and quantify species distribution in the Plan Area is described for each species, below.

Santa Ana Woollystar

Occurrences of Santa Ana River woolly star were compiled from a variety of sources:

- USFWS Carlsbad office occurrence database compiled based on positive Santa Ana River woolly star results that are reported.
- California Natural Diversity Database based on positive Santa Ana River woolly star results that are reported.
- Results of the 2006 Santa Ana River woolly star population grid surveys conducted by Cal State Fullerton and Psomas.
- Sunwest Robertson's Santa Ana River woolly star dataset 1996-1997

For mapping of the distribution of Santa Ana River woolly star, the 25 m x 25 m grid system that was established as part of the 2006 surveys conducted by Cal State Fullerton and Psomas was overlaid onto the Plan boundary. For the 2006 dataset, each grid cell that was positive for Santa Ana River woolly star was placed into one of four categories for abundance: >50, 25-50, 1-25, and not present. All other occurrences of Santa Ana River woolly star were mapped to determine if they were within grids marked as not present. If a recorded observation of Santa Ana River woolly star occurred with a not present grid, that grid was reassigned to "present, # unknown". All grid cells were considered occupied where one of these categories were present: >50, 25-50, 1-25, and present, # unknown.

Slender-horned Spineflower

Occurrences of slender-horned spineflower were compiled from a variety of sources:

- USFWS Carlsbad office occurrence database compiled based on positive slender-horned spineflower results that are reported.
- California Natural Diversity Database based on positive slender-horned spineflower results that are reported.
- Positive results from informal survey conducted by RBF in 2012.
- Sunwest Robertson's slender-horned spineflower dataset 1996-1997

For mapping the distribution of slender-horned spineflower, occurrence points were buffered by 100 feet. All habitat within the 100 foot buffer that was not classified as Riversidean alluvial fan sage scrub intermediate or intermediate-mature was removed as it was considered unsuitable. One occurrence fell within Riversidean alluvial fan sage scrub mature, and for that point only the 100-foot buffer included intermediate, intermediate-mature, and mature.

For mapping potentially suitable slender-horned spineflower habitat, the two preferred plant community types were selected: Riversidean alluvial fan sage scrub intermediate and intermediate-mature. These were selected based on the plant community types where all but one previous slender-horned spineflower occurrences has overlapped.

California Gnatcatcher

Occurrences of California gnatcatcher were compiled from a variety of sources:

- USFWS Carlsbad office occurrence database compiled based on positive California gnatcatcher results that are reported.
- California Natural Diversity Database based on positive California gnatcatcher results that are reported.

For mapping potentially suitable California gnatcatcher nesting habitat, the preferred plant community type was selected: Riversidean sage scrub. Additionally, aerial photo interpretation was completed for an area just outside the Plan area that is known to support breeding California gnatcatcher. An area within the Plan area mapped as Riversidean alluvial fan sage scrub mature was determined to support potential nesting opportunities based on the very similar aerial photo signature.

For mapping potentially suitable California gnatcatcher foraging habitat, the plant communities were selected broadly to include all plant community types except disturbed/developed.

Cactus Wren

Occurrences of slender-horned spineflower were compiled from a variety of sources:

- San Bernardino County Museum dataset
- 2014 field work completed specifically for the Wash Plan
- Cactus Wren Conservation Group dataset
- USGS cactus wren genetic study (2012)

For mapping potentially suitable cactus wren nesting habitat, field work was conducted in 2014 by Jericho Systems for the Plan Area. The focus of the field work was to map suitable cactus patches (over 75 cm in height), nesting evidence, and incidental cactus wren observations. All cactus patch points over 75 cm in height were determined to be potentially suitable nesting habitat, along with a 50-foot buffer in non-developed areas.

For mapping potentially suitable cactus wren foraging habitat, the plant communities were selected broadly to include all plant community types except disturbed/developed.

San Bernardino Kangaroo Rat

Occurrences of SBKR were compiled from a variety of sources:

- USFWS Carlsbad office occurrence database compiled based on positive SBKR trapping results that are reported.
- California Natural Diversity Database based on positive SBKR trapping results that are reported.
- Woolly Star Preserve Area SBKR trapping dataset 2005-2009 (USFWS 2010).
- Wash Plan SBKR trapping dataset 1999-2003 (URS 1999-2003)
- San Bernardino County Museum SBKR trapping dataset 1999-2003

Several factors were considered in evaluating the proposed conservation areas for SBKR within the HCP area. These included SBKR occurrence data, SBKR habitat quality based on habitat modelling, a qualitative habitat assessment, the presence or absence of functional ecological processes, existing conservation areas, i.e., The Woolly-star Preserve Area, and BLMs Area of Critical Environmental Concern, connectivity between conservation areas, and habitat type. Based on these factors, the primary focal areas for conservation were Mill Creek, the Santa Ana River, Plunge Creek and the connection between the Santa Ana River and Plunge Creek created by flooding in 1938 and 1969.

San Bernardino Kangaroo Rat Trapping Data

A number of presence/absence trapping surveys for SBKR have been conducted for various projects in the HCP area, including in and adjacent to the Woolly Star Preserve Area, on lands adjacent to the existing aggregate mines, and pre-construction surveys for projects related to water transport, i.e., East Branch Extension II pipeline, and ground water recharge. Both negative and positive survey results were used to assist in identifying the portions of the Plan area that are most important to SBKR conservation.

Existing Conservation Areas, Connectivity, and Representative Habitat Types

The potential contribution to the expansion of existing conservation areas, i.e., BLMs Area of Critical Environmental Concern (ACEC) and the U.S. Army Corps of Engineers Woolly Star Preserve Area and connectivity between conservation areas, was considered in determining which areas to conserve for SBKR in the Plan Area. The goal was to create large interconnected areas of SBKR habitat across the Plan Area. Another consideration was habitat function. The proposed conservation areas include both habitat preferred by SBKR, areas near the active channel with pioneer and intermediate Riversidean Alluvial Fan Sage Scrub (RAFSS), and habitat which supports refugia populations of SBKR,³ e.g., mature RAFSS on alluvial terraces above the main channel.

Ecological Processes

SBKR habitat is maintained by the interaction of hydrologic and geomorphic processes during flood events, including scouring and sediment deposition which can “refresh” habitat, removing mature vegetation and organic matter and depositing gravel and sand, creating conditions for the establishment of pioneer and intermediate RAFSS, the seral stages of vegetation most preferred by SBKR. Habitat areas were evaluated to determine if the hydrogeomorphic processes necessary to the maintenance and reestablishment of SBKR habitat were intact. Areas with intact processes were given a high conservation priority.

SBKR Habitat Model

An SBKR habitat model was generated using a series of four landscape variables (or data layers): topography, geology, vegetation, and aerial photography (although topography was eventually dropped from the model). Each GIS data layer consists of either categorical data (e.g., the different vegetation types and soil age) or continuous data (e.g., elevation or slope) that can be selected as

³ Local survival of SBKR may be dependent upon the presence of animals in areas not scoured out during storms (Service 2009).

being associated with the habitat of a given species. Based on the known biology of SBKR, a number of these landscape variables were combined with Boolean (and & or) operators to select areas with the specified combination of conditions. The model ranked potential SBKR habitat as having High, Moderate, or Low Potential Habitat Suitability. Other areas were identified as having No Potential Habitat Suitability

- Areas of high potential habitat suitability were modeled by including the most suitable vegetation types and the most suitable geologic substrates (including the areas mapped as Plunge Creek alluvium from the aerial photos).
- Moderate potential habitat quality was modeled where either more suitable vegetation types overlapped less suitable geology or where less suitable vegetation types overlapped more suitable geology.
- Low potential habitat suitability was modeled where less suitable vegetation and geology overlapped or where poorly suited vegetation was mapped (nonnative grassland (NNG), chamise chaparral, and chamise chaparral/NNG).

While this model was very useful in depicting the general potential habitat suitability in the Plan Area, it lacked detail and was found to over-predict habitat suitability and oversimplify the actual distribution of suitable habitat. Therefore, subsequent systematic surveys were initiated to refine the mapping of potentially suitable habitat.

A systematic survey of potentially suitable San Bernardino kangaroo rat in the HCP area was conducted by the Service and RBF Corporation. Survey points were selected using stratified random sampling across the HCP area. Sampling was stratified by proposed land use type, including existing conservation areas, e.g., the Woolly Star Preserve Area and the Bureau of Land Management's Area of Critical Environmental Concern, areas proposed for conservation through the HCP, and areas where covered activities were proposed such as mining and ground water recharge basins. Various indicators of habitat quality were recorded. These included substrate, i.e. the percent above ground cover of cobble and rocks versus sand and gravel, vegetation type, presence of non-native vegetation, vegetative cover, and cryptogamic soil cover. These data were subsequently used to assist in ranking habitat quality within the HCP area.

Each distinct polygon in the HCP area was mapped (heads up digitized) in ArcGIS using aerial imagery. Within each polygon, the percent cover of shrubs, grass, and bare ground was estimated. A habitat quality ranking of high, medium, low or very low (trace) was assigned to each polygon. SBKR densities are expected to generally correspond to the assessed quality of the habitat. A fifth category, ecological process area, was created for areas in the active channels of Mill and Plunge Creeks and the Santa Ana River. These areas, while important to the maintenance and renewal of SBKR habitat, contain little or no vegetation and typically are not utilized by SBKR for most of their life history needs.

Annual grass cover was the primary metric used to assign habitat quality rankings. Secondary considerations were the canopy cover of shrubs, and the surficial coverage of large rocks (boulders and cobble) versus sand, and gravel. These were secondary considerations because in most instances shrub cover was low, 40 percent or less, and areas with significant coverage of large rocks

were uncommon, being primarily in the east end of the HCP area in the active channel of the Santa Ana River. The presence of very heavy shrub cover, greater than 70 percent, or a very rocky substrate resulted in a lower quality ranking in some polygons.

In the absence of other factors that significantly affected habitat quality, the habitat rankings were as follows:

If the estimated percent cover of annual grasses was, 30 percent or less,⁴ the polygon was considered to be of high quality; if the estimated percent cover of annual grasses was 31 to 50 percent, the polygon was considered to be of medium quality, if the estimated cover of annual grasses was between 51 and 70 percent the polygon was of low quality, and if the percent cover of annual grasses was greater than 70 percent, the polygon was considered trace.

It should be emphasized that the habitat assessment was qualitative and, as stated above, it was one of several factors considered in determining which areas should be conserved for SBKR. In addition, because SBKR can be found in all types of habitat within the species' historic distribution (Braden and McKernan 2000), we considered all types of habitat within the HCP area to be occupied. We did, however, assume that differences in habitat quality would affect the relative abundance of SBKR at different sites, i.e., that there would generally be higher densities of animals in areas assessed as high quality than in areas assessed as being of medium or low quality.

⁴ The presence of dense annual grass appears to reduce SBKR habitat quality (McKernan 1997), possibly because it impedes SBKR movements (Reynolds 1958, Price 1978). Braden and McKernan (2000) reported that SBKR captures were greater in areas where annual vegetative cover was < 20%. We used 30 percent as the first classification break because field observations of kangaroo rat sign and documented SBKR occurrences suggested that areas with slightly greater cover of annual grasses than 20 percent were still of high quality.

Table 3-3. Slender-horned spineflower (*Dodecahema leptoceras*); Federally Listed as Endangered, California Listed as Endangered, California Rare Plant Rank 1B.1

Current Distribution: Range-wide/Plan Area	Habitat Affinities	Taxonomy and Genetics	Pollination/Seed Dispersal	Threats
Occurs in 22 known extant occurrences throughout coastal foothill drainages of Riverside, San Bernardino, and Los Angeles Counties. Within the Plan Area, occurrences only along the Santa Ana River (4). See Figure 7.	Typically found on alluvial terraces away from active channels in areas receiving little surface disturbance from flooding, but subject to sheet or overland flows. The association with older more stable alluvial terraces indicates the need for infrequent flood events to maintain suitable habitat conditions over the long-term. A few occurrences can be found on low alluvial benches or braids within active channels (as summarized in 3).	Was first described as <i>Centrostegia leptoceras</i> in 1870 and then published as <i>Chorizanthe leptoceras</i> in 1877. The original name is the name under which the species was listed by state and federal agencies. It was changed to its current name in 1989 (6) based on its morphological and phylogenetic distinctiveness (3). Genetic diversity is high for the entire population; however, this is due to the populations in Los Angeles County being genetically different than populations in Riverside and San Bernardino Counties (3). Plants are mostly outcrossing but also self-fertile (7).	Pollination information is limited. Thought to be pollinated by various small insects (3). The single-seeded fruits are located in involucre with hooked spines that may attach to wildlife for dispersal. Seeds are glabrous with no dispersal mechanisms of their own (1).	Primary threat is habitat modification or destruction from development, mining, proposed flood control measures and other hydrology alteration, off-highway vehicles, illegal dumping, and invasive non-native species. Other general threats include climate change and the small population size present at each occurrence location (3).

Current Distribution: Range-wide/Plan Area	Habitat Affinities	Taxonomy and Genetics	Pollination/Seed Dispersal	Threats
Life History/Demography	Seasonal Phenology			
Annual herb. Involucre number per individual varies and depends on climatic and genetic factors but has been observed to range from 1–169 involucre (3). Three flowers per involucre; one fruit per flower; one seed per fruit (1).	Typically germinates with a 6–52 percent survival rate in February (3, 7). Blooming period is typically from April to June (2). Seed banks are known to occur with this species and are relatively long-lasting, which helps maintain the species in dry years (3). Within each population, wide fluctuations in population size occur due to seasonal rainfall (3).			
Special Management Considerations				
With very few occurrences of this species within the Plan Area, each location has conservation value. This species has very particular micro-habitat requirements, which also adds value to the current extant occurrences. A management approach that can propagate the species in new areas and also allow the successful transplant will be required to secure future populations and allow development in currently occupied areas.				
Other Relevant Information				
Can be difficult to identify with certainty, especially in the field and outside of flowering and fruiting. As such, occurrences reported without voucher collections can be unreliable and unverifiable (3). Future discovered occurrences should always be vouchered to ensure certainty. It is also difficult to detect because they are small and occur in relatively small, isolated patches across often extensive floodplain habitat. Additionally, plant densities may be low during drought conditions.				

Current Distribution:

Range-wide/Plan Area

Habitat Affinities

Taxonomy and Genetics

Pollination/Seed Dispersal

Threats

Phenology

Life Stage/Activity Period	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Blooming period (2)												
Germination (3)												
Status	CRPR 1B.1, FE, SE											

Sources: Reveal 2005, CNPS 2014, USFWS 2010, CDFW 2014, CCH 2014, IPNI 2014, Ferguson & Ellstrand 1999

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Figure 7
Potentially Suitable Slender-horned
Spineflower Habitat and Occurrences
Wash Plan HCP

Table 3-4. Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*); Federally Listed as Endangered, California Listed as Endangered, California Rare Plant Rank 1B.1

Current Distribution: Range-wide/Plan Area	Habitat Affinities	Taxonomy and Genetics	Pollination/Seed Dispersal	Threats
Range-wide, occurs along the Santa Ana River, Mill Creek, Lytle Creek, and Cajon Creek. Within the Plan area, occur on the terraces associated with the Santa Ana River, Plunge Creek, Mill Creek, and City Creek. See Figure 8.	Found on the alluvial terraces of open floodplains with intermittent flooding, light surface disturbance, and relatively low cover of annuals or perennials. Occurs on nutrient-poor sands. Most competitive in early stage habitats with 97% or greater sand particles, but also competitive in moderate stage habitats with 90–97% sand particles. A pioneer plant that is outcompeted in more stable shrubby ecosystems (2). This habitat type is transient in nature and is an early-mid successional stage, which requires disturbance to maintain over a large scale.	Taxon was originally described as <i>Hugelia densiflorum</i> and changed to <i>Eriastrum</i> in 1945. Currently five total subspecies are described for this species (4). Also thought to intergrade with other subspecies, namely subspecies <i>elongatum</i> around Cajon Creek and Lytle Creek and subspecies <i>austromontanum</i> in Lytle Creek and La Cadeña Drive (2).	Self-incompatible and an obligate outcrosser (2). Primary pollinators vary with location and include the sphinx moth <i>Hyles lineata</i> , two bees, <i>Micranthophora flavocincta</i> and <i>Bombus californicus</i> , and two hummingbirds, black-chinned hummingbird (<i>Archilochus alexandri</i>) and Anna's hummingbird (<i>Calypte anna</i>) (2). 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 (2), but some stay in the capsule that can remain on the plant for several years (2). Seeds and capsules can be transported longer distances by floodwater (2).	The primary threat is habitat alteration from development, mining, flood control, off-highway vehicle activity, and hydrology changes. USFWS cites inadequacy of state and local plans to fully protect this species, specifically in that discretionary impacts are allowed by state and local laws and that most occurrences are not on conserved lands. More broadly, climate change and hybridization at ⅓ of the known locations could threaten this species (2).

Current Distribution: Range-wide/Plan Area		Habitat Affinities		Taxonomy and Genetics		Pollination/Seed Dispersal		Threats				
Life History/ Demography		Seasonal Phenology										
Perennial subshrub. Typically living 5 years but some individuals known to live to 10 years (2) ¹ . Each head typically produces 4–30 flowers, each flower 1 fruit (a capsule), each with 6–33 seeds (1). Seeds germinate with the first major fall rainfall (2).		Blooming is typically from April to September (3), but most heavily in June. Fruiting typically occurs from mid-July to mid-October (2).										
Special Management Considerations												
Requires maintenance of alluvial terraces that have some intermittent flooding that would create suitable conditions for this species. These scour events (light to heavy surface disturbance) are needed to keep >90% of soil substrate sand and to reduce cover of annuals and/or perennials.												
Other Relevant Information												
The building of the Seven Oaks Dam has reduced the Plan Areas natural flooding pattern that would create scour and suitable habitat for this species. Active management practices of redirecting flows to mature terraces can be an effective management technique, as can creating new sand lenses.												
Phenology												
Life Stage/Activity Period	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Blooming (3)												
Fruiting (2)												
Status	CRPR 1B.1, FE, SE											
Sources: De Groot 2014, USFWS 2010, CNPS 2014, IPNI 2014, CDFW 2014												

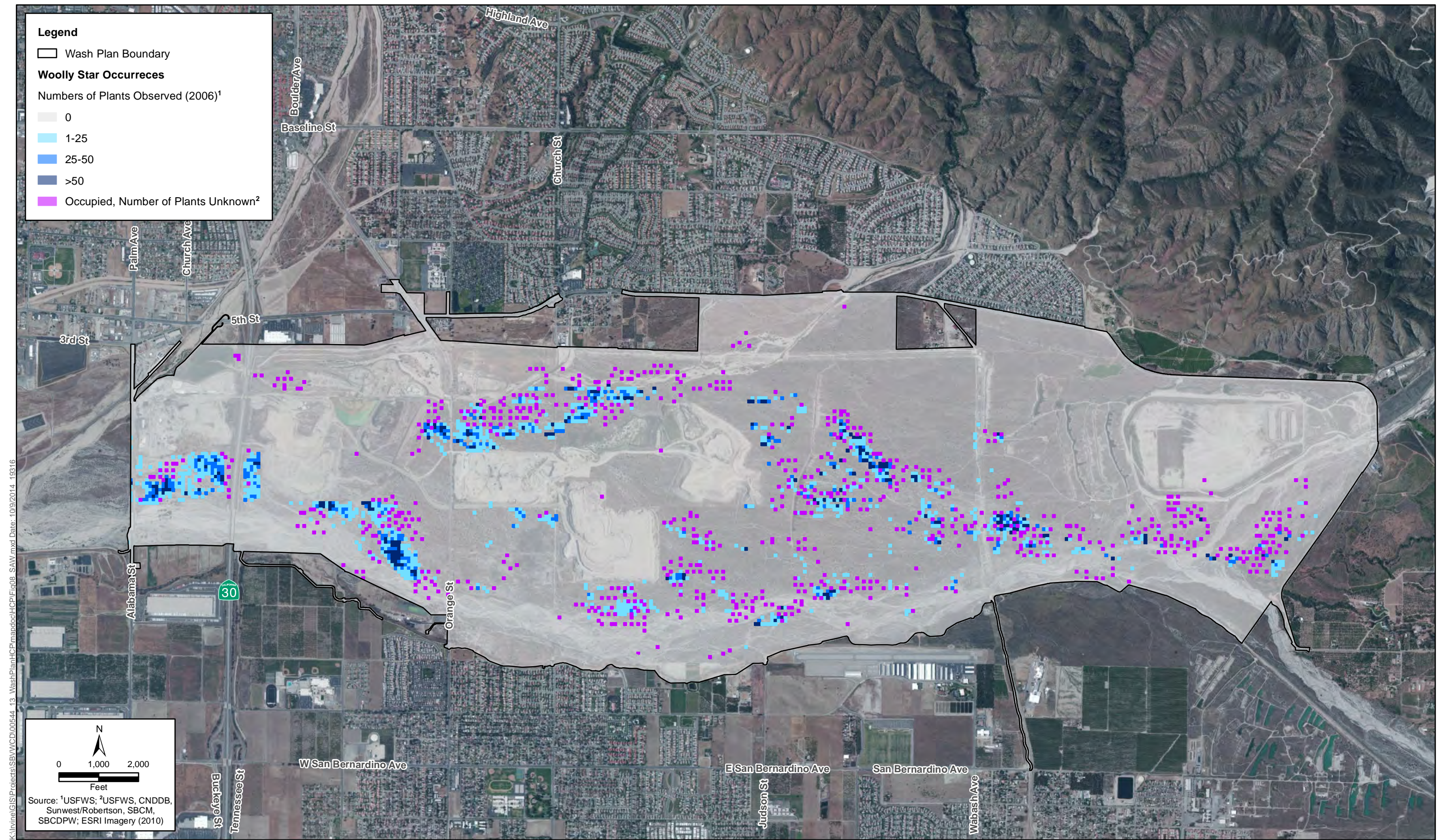


Figure 8
Santa Ana Woolly Star Occurrences
Wash Plan HCP

Table 3-5. California gnatcatcher (*Polioptila californica californica*); Federally Listed as Threatened, California Species of Special Concern

Current Distribution:				
Range-wide/Plan Area	Habitat Requirements	Reproduction	Dispersal	Threats
Distributed in parts of Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. Within Plan Area, it has been recorded sporadically within the Santa Ana River Wash and Mill Creek (1, 2, 3). A small breeding population also occurs just outside the Plan Area to the south from near Opal Avenue and eastward. See Figure 9.	Occurs in sage scrub and alluvial sage scrub habitats (4). Suitable sage scrub habitat includes canopy cover of 50% or greater with a height of approximately 1 meter and typically includes <i>Artemisia californica</i> , <i>Eriogonum fasciculatum</i> , <i>Encelia californica</i> , <i>E. farinosa</i> , and various species of <i>Salvia</i> (5).	Monogamous. 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. Chicks fledge 16 days after hatching (8). Reproductive success is dependent on habitat condition, predator populations, and food availability.	Permanent resident. Non-migratory. Tends to remain in same home range from year to year, but disperses away from where it is born (4). 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 (7).	Loss of habitat due to urban and agricultural development and wildfires. Nest predators and brood parasitism by brown-headed cowbirds have potential to debilitate population viability (4).
Daily/Seasonal Activity	Diet and Foraging	Systematics	Territoriality/Home Range	
Diurnal. Yearlong. Highest activity 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),	Gleans insects from vegetation, primarily <i>Artemisia</i> and <i>Eriogonum</i> (4). May eat some seeds (6). 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) (4).	One of three species of California gnatcatcher. <i>P.c. californica</i> is the northernmost subspecies of California gnatcatcher. Other subspecies (<i>P.c. pontilis</i> and <i>P.c. margaritae</i>) are located in Baja California (4).	Pair defends home range. Density of shrub cover, composition of plants, habitat quality, surrounding disturbances, and adjacent gnatcatcher territories dictate the size of a territory (6). The size of a territory ranges between 2–14 acres (8) and typically occurs on lower elevations along	

Current Distribution:

Range-wide/Plan Area

Habitat Requirements

Reproduction

Dispersal

Threats

especially in the non-breeding season. During the breeding season, home range becomes smaller (4).

coast ranges or on gentle slopes.

Special Management Considerations

Successful conservation of the species is dependent on maintaining sage scrub in the Plan area. Any sage scrub restoration areas could include higher density of *Artemisia californica* and *Eriogonum fasciculatum*, since there seems to be a strong correlation between these species and occupied habitat. Fire management in the Plan Area could be considered to help prevent a large plan-wide fire event.

Other Relevant Information

A breeding population of California gnatcatcher is known to occur just outside the Plan Area. Stands of suitable habitat that occur in the southeastern portion of the Plan Area should remain and could be enhanced for California gnatcatcher breeding. Also, areas within the southeastern portion of the Plan Area are expected to be more regularly used by dispersing juveniles or during the non-breeding season when territories tend to expand.

Phenology

Life Stage/Activity Period	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding (4)												
Dispersal (9)												
Molt (9)												

Sources: CNDDDB 2014, USFWS 2014, eBird 2012, Atwood 1993, Beyers and Wirtz 1997, Kucera 1997, Bailey and Mock 1998, USFWS 2010, Atwood and Bontrager 2001

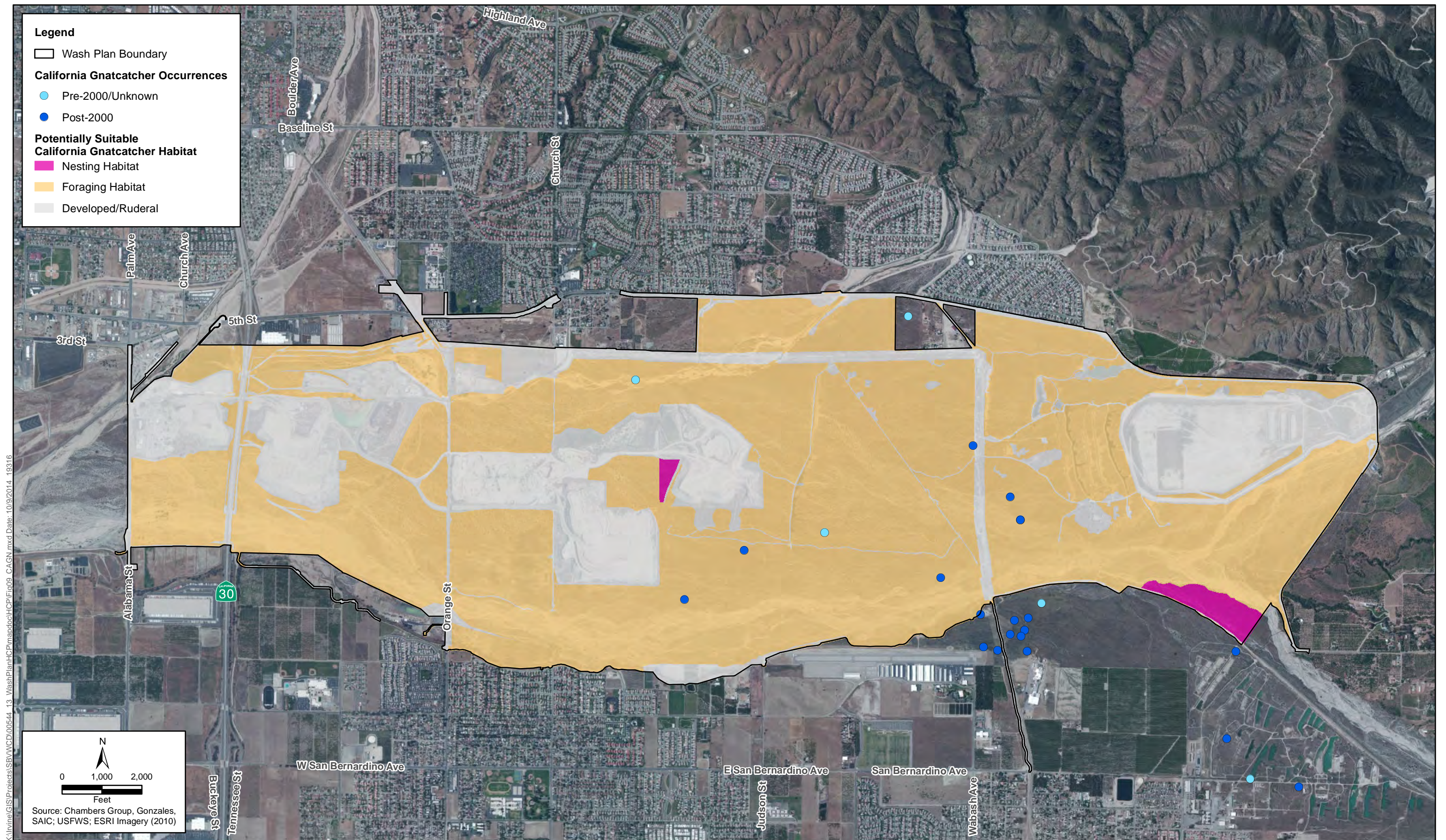


Figure 9
Potentially Suitable California
Gnatcatcher Habitat and Occurrences
Wash Plan HCP

Table 3-6. Cactus wren (*Campylorhynchus brunneicapillus*): coastal race, California Species of Special Concern

Current Distribution: Range-wide/Plan Area	Habitat Requirements	Reproduction	Dispersal	Threats
<p>Found in California east to Texas, extending south through Baja California and mainland Mexico (1). <u>Plan Area</u> Occurs along the alluvial plains of the Santa Ana River, Plunge Creek, and Mill Creek. See Figure 10.</p>	<p>Requires native scrub with extensive cholla (<i>Cylindropuntia</i>) or prickly-pear (<i>Opuntia</i>), (typically ≥ 1 m).. In preferred scrub, non-cactus shrubs are 0.5–1.0 m tall, especially California buckwheat (<i>Eriogonum fasciculatum</i>) and California sagebrush (<i>Artemisia californica</i>). Scrub types dominated by shrubs >2.0 m tall or sages (<i>Salvia</i> spp.) tend to be avoided (1).</p>	<p>Nests almost entirely in prickly pear or cholla between 3 and 6 feet tall (1), and averaging 4 to 5 feet tall (3) within southern California (3). Also uses chaparral yucca (<i>Yucca whipplei</i>) tops for nesting. Both male and female build the nest (1, 8). Lays 3–5 eggs per clutch (3). Only female incubates, which lasts for 16–17 days (1, 3), and eggs hatch asynchronously (1). Nestlings fledge 17 to 23 days after hatching (1). Cactus patches preferred for nesting have minimal percent cover of shrubs within the cactus, and those shrubs are normally below level of nest placement (1).</p>	<p>Adults show site fidelity to breeding areas, returning to the same area each year (3). Adults will lead juveniles to old breeding nests for use as roost nests, and eventually stop responding to begging calls to break dependency (1). Juveniles will disperse to nearby areas, the average distance approximately 1 mile, but the majority will stay within the site they were hatched and establish territories (7). Short-distance dispersal by juveniles may be constrained if it includes fragmented habitat, large areas of non-cactus (4).</p>	<p>Habitat loss and fragmentation have had the greatest effects (3, 7). 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 (1, 7). Anthropogenic increase in cover of exotic grasses and forbs in scrub understory may decrease foraging efficiency (1).</p>

Current Distribution:				
Range-wide/Plan Area	Habitat Requirements	Reproduction	Dispersal	Threats
Daily/Seasonal Activity	Diet and Foraging	Systematics	Territoriality/Home Range	
Year-round, non-migratory resident. Typically does not make long distance seasonal movements (1, 3). Breeds February to September (1, 6). Builds nests throughout the year for roosting (3).	Forages on the ground or low in shrubs (1, 3). Diet consists mainly of insects, such as grasshoppers, ants, beetles, and wasps (1). As summarized in (3), a stomach contents analysis concluded that vegetation may be important in the diet during months when insect prey is low.	Of the eight subspecies of <i>Campylorhynchus brunneicapillus</i> (1), two occur within southern California. <i>C.b. sandiegensis</i> is found in San Diego County and southern Orange County, whereas populations elsewhere on the coastal slope are classified as <i>C.b.anthonyi</i> (3). Current molecular evidence does not support historical separation of gene lineages between <i>C.b. sandiegensis</i> and <i>C.b. anthonyi</i> populations (4), but does indicate recent genetic differentiation of subpopulations, presumably due to habitat fragmentation (5).	Limited data available. Adult may disperse short distances to foraging areas during the non-breeding season. Adults have been documented moving between 0.19 and 0.31 miles from breeding areas (1). Within southern California, territories typically range from 0.5 to 2 ha (3). Larger territories have been recorded in drought conditions, when prey populations are depressed (1). Territories have been recorded as large as 6.7 ha (1).	
Special Management Considerations				
The presence of healthy mature cactus patches is the most important factor for cactus wren habitat. 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 (1). Long recovery times for cactus after fire limit the species' ability to recolonize suitable habitat for long periods after fire; use planted cactus patches or nest boxes may speed the process (1). These types of enhancement actions could also benefit cactus wrens in locations where cactus patches are in poor health (possibly due to disease and/or drought).				

Current Distribution:

Range-wide/Plan Area

Habitat Requirements

Reproduction

Dispersal

Threats

Other Relevant Information

Alluvial sage scrub that includes cholla and prickly pear cacti, as well as chaparral yucca, should have special consideration within the Plan Area because they are required for nesting opportunities. The cactus wren requires extensive stands of mature cactus, and to alter or remove cactus-containing scrub would further reduce suitable habitat.

Phenology

Life Stage/Activity Period	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding (1)												
Molt (1)												

Sources: Hamilton et al 2011, Santa Ana Watershed Association and San Bernardino County Museum Databases. Accessed 2014, Solek and Szijj 2004, Teutimez 2012, Barr and Kus 2013, Simons and Martin 1990, Preston and Kamada 2012, Cornell Lab of Ornithology 2014

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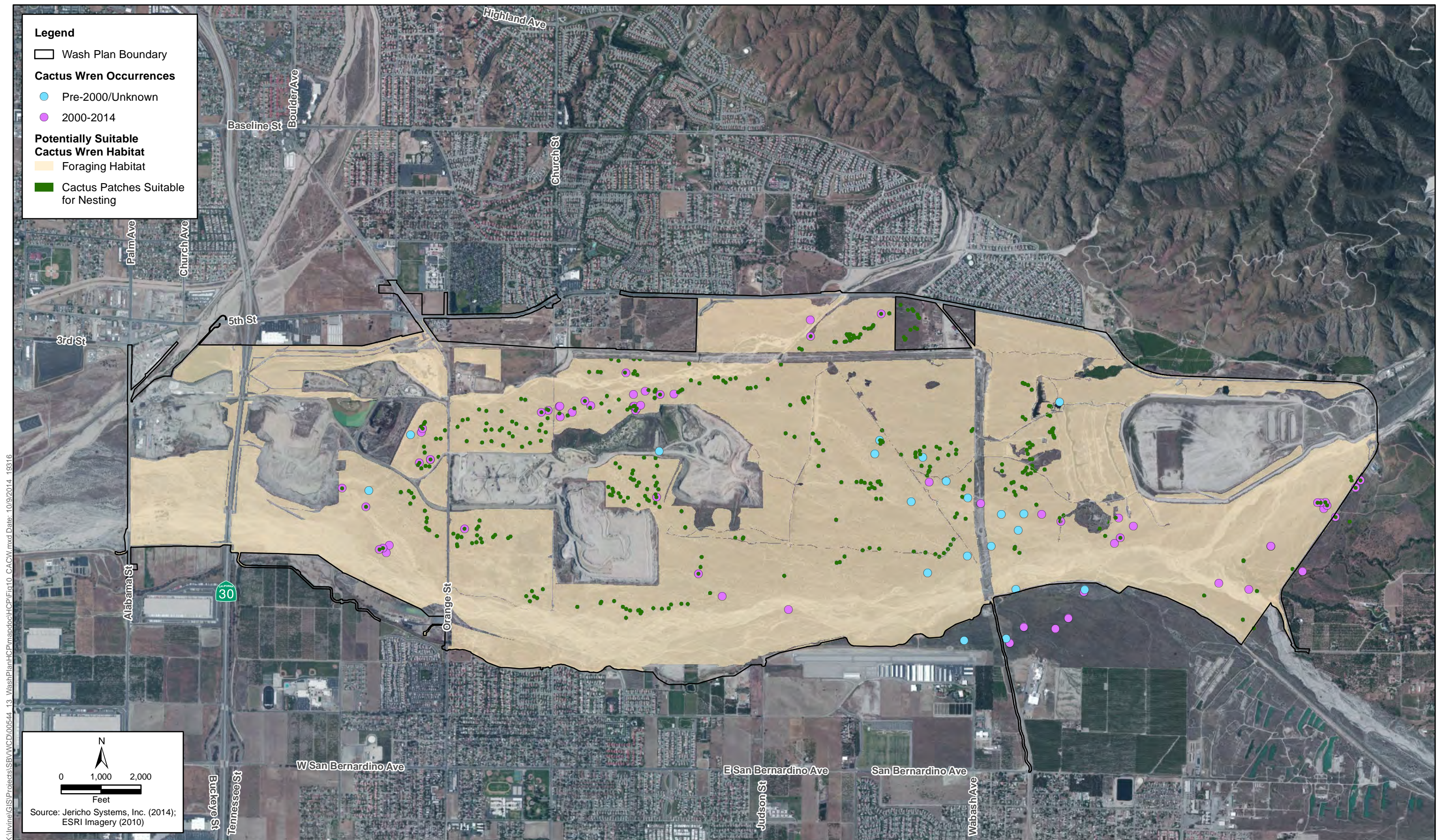


Figure 10
Potentially Suitable Cactus Wren
Habitat and Occurrences
Wash Plan HCP

Table 3-7. San Bernardino kangaroo rat (*Dipodomys merriami parvus*) Federally Listed as Endangered, California Species of Special Concern

Current Distribution:				
Range-wide/Plan Area	Habitat Requirements	Reproduction	Dispersal	Threats
Range-wide distribution includes Santa Ana River, Mill Creek, Plunge Creek, City Creek, Lytle Creek, Cajon Wash, Cable Creek, and the Etiwanda Fan, as well as the San Jacinto River and Bautista Creek. in Riverside County: (1). In the Plan Area occurs throughout the alluvial terraces within the Santa Ana River, Mill Creek, Plunge Creek, and City Creek. Designated critical habitat overlaps the Plan area. See Figure 11.	Primary habitat is Riversidean alluvial fan sage scrub within active alluvial floodplains (1). Each successional stage of this habitat (pioneer, intermediate, and mature) is used, but highest densities are often found in pioneer-intermediate. Mature habitat is the greatest elevation from the low flow channel and provides the most protection from inundation during storm events (3). A high density of non-native grass is the best negative predictor of occupancy (4).	Reproductive activities peak in June and July (2), but pregnant or lactating females can be present January to November (1). Capable of more than one litter per year and typical size is 2–3 individuals (16). Breeding varies in relation to ecological conditions, with individuals not breeding when plant productivity is poor (7).	Philopatric so tends to establish home ranges close to natal range (12). Movements of 40–60 m are common (1), and long-distance events can be over 240 m (14). However, more than 85% of individuals disperse less than 125 m (13). Dispersal is slightly male-biased (13).	Loss of habitat and habitat fragmentation. Flood control, dams, and water conservation projects that change the hydrology of a system are indirect long-term threats to fluvial process required for habitat.
Daily/Seasonal Activity	Diet and Foraging	Systematics	Territoriality/Home Range	
Unable to enter a state of torpor (7), and therefore can be active at the surface year-round. Crepuscular (emerging from burrows at dusk to forage and returning before dawn). Occupies burrows during daylight	Primarily granivores (seed eaters), but consume herbaceous material and insects when available (10). Collects seeds in cheek pouches and stores them in surface caches (11) or in burrow. Water requirements satisfied by	One of three subspecies of Merriam's kangaroo rat (<i>Dipodomys merriami</i>) in California (2). No genetic studies conducted (2). However, is the most highly differentiated subspecies of <i>Dipodomys merriami</i> (6).	Individuals are primarily solitary but have overlapping home ranges (15). Tend to tolerate familiar neighbors more than strangers and may have long-term associations with the same individuals (15).	

hours for shelter and to avoid high temperatures. Reproductive males travel farther than females or males with regressed testes (8). Surface activity reduced during full moon periods (9).

seeds and herbaceous material consumed (12).

Actively defend small core areas near burrows (16). Sand baths may be important to establish familiarity between individuals (17). Average male home ranges may be slightly larger than that of females (0.74 ha versus 0.26 ha) (13).

Special Management Considerations

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 Plan area. Pioneer- and intermediate-stage alluvial fan sage scrub, which tends to occur on the terraces above the low flow channel, provide 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. 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, whereby cycles of flooding and dry periods result in dynamic fluctuations of terraces and habitat, are crucial.

Other Relevant Information

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. The suitable habitat connection between City Creek and Plunge Creek is constrained at Interstate 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 constrained by maturing vegetation characteristics and the presence of non-native grasses.

Phenology

Life Stage/Activity Period	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Breeding (1, 2)												

Sources: USFWS 1998, USFWS 2009, USFWS 2002, USFWS 2010, Williams and Braun 1993, Lidicker 1960, Brown and Harney 1993, Behrends and Wilson 1986a, Daly et al 1992a, Reichman and Price 1993, Daly et al 1992b, French 1993, Jones 1989, Zeng and Brown 1987, Randall 1993, Jones 1993, Randall 1991

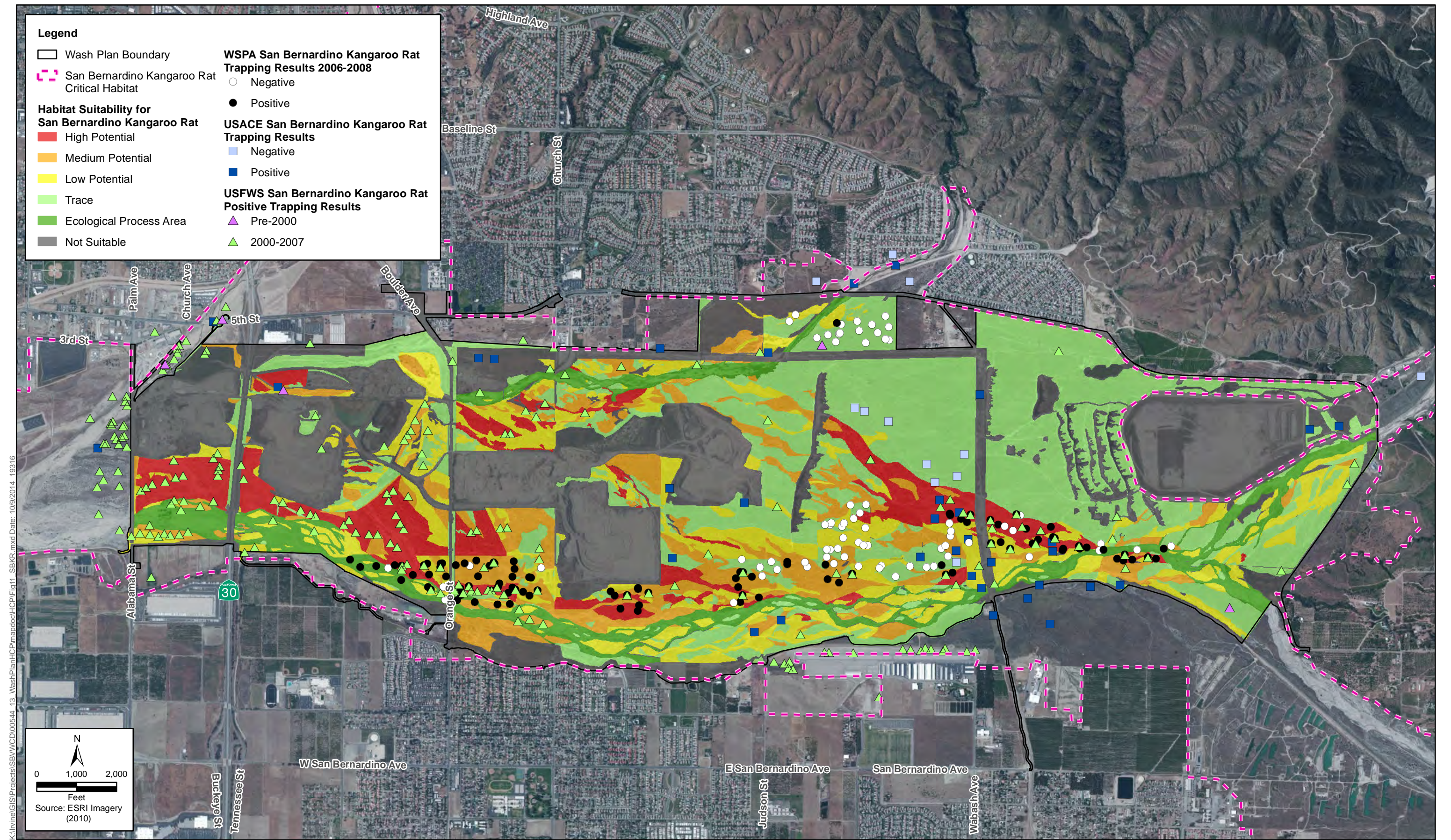


Figure 11
 San Bernardino Kangaroo Rat Habitat
 Suitability Survey Results and Trapping Data
 Wash Plan HCP

3.4.2 Observed Wildlife and Other Special Status Species

Based on surveys conducted in the Plan Area, seventy-seven wildlife species have been observed or detected. These species included 3 amphibians, 17 mammals, 11 reptiles, and 46 birds. The bird species include a variety of upland birds, such as mourning dove, killdeer, Say's phoebe, scrub jay, and house finch. Raptors include American kestrel, white-tailed kite, and red-tailed hawk. Amphibians included western toad, Pacific tree frog, and western spadefoot. Observed mammals include striped skunk, coyote, California ground squirrel, Virginia opossum, and desert cottontail. In addition, the California side-blotched lizard, western fence lizard, and silvery legless lizard were observed.

Table 3-8 identifies all special status species associated with the habitats in and near the Plan Area and indicates the probability of their occurrence within the Plan Area. The four covered species are the only federally and State listed species known to occur within the Plan Area. Other non-listed special status species known or with a high to moderate potential to occur in the Plan Area include: Parry's spineflower, Plummer's mariposa lily, Robinson's pepper-grass, western spadefoot, coastal western whiptail, silvery legless lizard, San Diego horned lizard, Bell's sage sparrow, burrowing owl, California horned lark, Cooper's hawk, loggerhead shrike, Southern California rufous-crowned sparrow, white-tailed kite, Los Angeles pocket mouse, northwestern San Diego pocket mouse, San Diego blacktailed jackrabbit, San Diego desert woodrat, and western mastiff bat.

Table 3-8. Special Status Plants and Wildlife Occurring in Southwestern San Bernardino County and the Probability of their Occurrence in the Plan Area

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
Plants				
<i>Berberis nevinii</i>	Nevin's barberry	FE/SE/CNPS 1B	Gravelly wash margins in alluvial scrub, or coarse soils in chaparral; typically 275 to 825 meters (900 to 2,700 feet) elevation; Los Angeles, San Bernardino, Riverside, and San Diego Counties.	Absent. Site is outside the expected range of this species. Nearest location of natural population is in canyons over 4 miles to southwest of site. Species not known from Santa Ana River.
<i>Calochortus plummerae</i>	Plummer's mariposa lily	-/SP /CNPS 1B	Sandy or rocky sites of (usually) granitic or alluvial material in valley and foothill grassland, coastal scrub, chaparral, cismontane woodland, and lower montane coniferous forest at 100 to 1,700 meters (300 to 5,600 feet) elevation. Known from the Santa Monica Mountains to San Jacinto Mountains in Riverside, San Bernardino, Los Angeles, and Ventura Counties.	Present. Known from the site.
<i>Carex comosa</i>	Bristly sedge	-/SP /CNPS 2	Bogs and fens, freshwater marshes and swamps, and lake margins below 425 meters (1,400 feet). Known from Lake, San Bernardino, Santa Cruz, San Francisco, Shasta, San Joaquin, and Sonoma Counties, and Idaho, Oregon, and Washington. The last known occurrence of this species in San Bernardino County was in 1882.	Absent. No marshes or similar habitats on the site. Believed to be extirpated.
<i>Centromadia pungens</i> ssp. <i>laevis</i>	Smooth tarplant	-/SP /CNPS 1B	Alkaline areas in chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland below 480 meters (1,600 feet) elevation. Known from Riverside and San Bernardino Counties, extirpated from San Diego County.	Absent. No alkaline soils on the site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's spineflower	-/SP/CNPS 3	Dry sandy soils in chaparral and coastal sage scrub at 40 to 1,750 meters (100 to 5,700 feet) elevation. Known only from Riverside and San Bernardino Counties and possibly extending into Los Angeles County.	Present. Known from the site.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower	-/SP/CNPS 1A	Marshes and swamps (coastal salt and freshwater) in elevations from 10 to 500 meters (30 to 1,600 feet). This species is historically known from Los Angeles, Orange and San Bernardino Counties, California. Last seen in 1937. Presumed extinct.	Absent. No suitable habitat.
<i>Horkelia cuneata</i> ssp. <i>puberula</i>	Mesa horkelia	-/SP/CNPS 1B	Sandy or gravelly soils in chaparral, or rarely in cismontane woodland or coastal scrub at 70 to 825 meters (200 to 2,700 feet) elevation. Known from San Luis Obispo, Santa Barbara, Los Angeles, and Orange Counties. Believed extirpated from Ventura, San Bernardino, Riverside, and San Diego Counties.	Absent. Known only historically from site vicinity. Believed extirpated from region.
<i>Imperata brevifolia</i>	California satintail	-/-/CNPS 1	Wet areas below 500 meters (1,600 feet) elevation. Widespread in California and the western U. S. Also occurs in Mexico.	Low. On-site habitat marginal.
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	-/SP/CNPS 1B	Dry soils in coastal sage scrub and chaparral, typically below 500 meters (1,600 feet) elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and San Diego Counties. This species is small, inconspicuous, relatively difficult to identify, and often overlooked in biological surveys.	Present. Known from the site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<i>Lycium parishii</i>	Parish's desertthorn	-/SP/CNPS 1	Deciduous shrub of coastal scrub and Sonoran desert scrub at 305 to 1,000 meters (1,000 to 3,300 feet) elevation. In California, known from Imperial and San Diego Counties. Report from Riverside County is based on a misidentification. Known only historically from San Bernardino County (benches and/or foothills north of San Bernardino).	Absent. Nearest occurrence was from 1885, approximately 10 miles from site. Believed extirpated in San Bernardino County.
<i>Malacothanmus parishii</i>	Parish's bush mallow	-/SP/CNPS 1A	Known only from one occurrence in 1895, in chaparral and coastal sage scrub at 490 meters (1,600 feet) elevation in vicinity of San Bernardino. Presumed extinct.	Absent. Known only historically from site vicinity. Presumed extinct.
<i>Monardella pringlei</i>	Pringle's monardella	-/SP/CNPS 1A	Sandy hills in coastal sage scrub at 300 to 400 meters (980 to 1,300 feet) elevation. Known only from two occurrences west of Colton. Last seen in 1941. Habitat lost to urbanization. Presumed extinct.	Absent. Nearest record approximately 8 miles from the site. Habitat on site marginal or absent. Presumed extinct.
<i>Rorippa gambelii</i>	Gambel's watercress	FE/SE/CNPS 1B	Freshwater or brackish marshes and swamps; 5 to 330 meters (20 to 1,100 feet) elevation. Known from Los Angeles, Orange, San Diego, and San Luis Obispo Counties and Baja California.	Absent. No marshes or swamps on-site.
<i>Sidalcea neomexicana</i>	Salt spring checkerbloom	-/SP/CNPS 2	Alkaline springs and marshes below 1,530 meters (5,000 feet) elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and Ventura Counties.	Absent. No alkaline springs or marshes on site.
<i>Sphenopholis obtusata</i>	Prairie wedge grass	-/SP/CNPS 2	Cismontane woodland, meadows and seeps/mesic, in elevations ranging from 300 to 2,000 meters (1,000 to 6,600 feet), in Amador, Fresno, Inyo, Mono, Riverside, San Bernardino, and Tulare Counties.	Absent. No woodlands, meadows, or seeps on site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<i>Symphyotrichum defoliatum</i> (<i>Aster defoliatum</i>)	San Bernardino aster	-/SP/CNPS 1B	Vernally wet sites (such as ditches, streams, and springs) in many plant communities below 2,040 meters (6,700 feet) elevation. In California, known from Ventura, Kern, San Bernardino, Los Angeles, Orange, Riverside, and San Diego Counties.	Low. No records of recent occurrences in project vicinity. Habitat on site is marginal or absent.
Invertebrates				
<i>Carolella busckana</i>	Busck's gallmoth	-/SA	Habitat requirements unknown.	Low. Only known occurrence from project vicinity was in Loma Linda and is believed to be extirpated.
<i>Rhaphiomidas terminatus abdominalis</i>	Delhi sands flowerloving fly	FE/SA	Restricted to Delhi series sands in western Riverside and San Bernardino Counties.	Absent. No Delhi soils on site.
Fishes				
<i>Catostomus santaanae</i>	Santa Ana sucker	FT/CSC	The Santa Ana sucker's historical range includes the Los Angeles, San Gabriel, and Santa Ana River drainage systems located in southern California. An introduced population also occurs in the Santa Clara River drainage system in southern California. Found in shallow, cool, running water.	Absent. No perennial water on site.
<i>Gila orcutti</i>	Arroyo chub	-/CSC	Perennial streams or intermittent streams with permanent pools; slow water sections of streams with mud or sand substrates; spawning occurs in pools. Native to Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita River systems; introduced in Santa Ynez, Santa Maria, Cuyama, and Mojave River systems and smaller coastal streams.	Absent. No perennial water on site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	-/CSC	Found in riffles in small streams and shore areas with abundant gravel and rock within the headwaters of the Santa Ana and San Gabriel River drainages. Currently not found in the project site, but still found in Plunge Creek upstream from Greenspot Road Bridge. Historically found in Santa Ana River, Plunge Creek, City Creek, and Mill Creek, but has been extirpated.	Absent. No perennial water on site.
Amphibians				
Rana muscosa	Mountain yellowlegged frog	FE/CSC	Ponds, lakes, and streams at moderate to high elevation; appears to prefer bodies of water with open margins and gently sloping bottom. Sierra Nevada Mountains and Transverse Ranges.	Absent. No perennial water on site.
Spea (=Scaphiopus) hammondii	Western spadefoot	-/CSC	Grasslands and occasionally hardwood woodlands; requires vernal pools (persisting for at least three weeks) for breeding; burrows in loose soils during dry season. Occurs in the Central Valley and adjacent foothills, the non-desert areas of southern California, and in Baja California.	Present. Observed on site.
Reptiles				
Anniella pulchra Pulchra	Silvery legless lizard	-/CSC	Inhabits moist loose soil and humus from central California to northern Baja California.	Present. Observed on site.
Aspidoscelis tigris stejnegeri	Coastal western whiptail	-/SA	Wide variety of habitats including coastal sage scrub, sparse grassland, and riparian woodland; coastal and inland valleys and foothills; Ventura County to Baja California.	High. Relatively widespread and common.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<i>Crotalus ruber ruber</i>	Northern reddiamond rattlesnake	-/CSC	Desert scrub, thornscrub, open chaparral and woodland; occasional in grassland and cultivated areas. Prefers rocky areas and dense vegetation. Morongo Valley in San Bernardino and Riverside Counties to the west and south to Baja California.	Moderate. Relatively widespread and common.
<i>Diadophis punctatus modestus</i>	San Bernardino ringneck snake	-/SA	Under surface objects along drainage courses, in mesic chaparral and oak and walnut woodland communities. Moist habitats of southwestern California from about Ventura to Orange Counties.	Absent. Suitable mesic chaparral and oak and walnut woodland communities not present on site.
<i>Phrynosoma coronatum blainvillei</i>	San Diego horned lizard	-/CSC	Occurs in annual grassland, coastal sage scrub, chaparral, and woodland communities. Prefers open country, especially sandy areas, washes, and floodplains. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs in non-desert areas from Santa Barbara, Ventura, Kern, and Los Angeles Counties south to Baja California at elevations below 1,830 meters (6,000 feet).	Present. Known from the site.
<i>Thamnophis hammondi</i>	Two-striped garter snake	-/CSC	Highly aquatic. Only in or near permanent sources of water. Streams with rocky beds supporting willows or other riparian vegetation. From Monterey County to northwest Baja California.	Absent. No perennial water on site.
Birds				
<i>Accipiter cooperii</i> (nesting)	Cooper's hawk	-/CSC	Primarily forests and woodlands throughout North America. Increasingly common in urban habitats. Nests in tall trees, especially pines. Occasionally nests in isolated trees in more open areas.	Low (nesting). Marginally suitable habitat is present for nesting. Present (foraging). This species has been observed foraging on the site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<i>Aimophila ruficeps canescens</i>	Southern California rufous crowned Sparrow	-/CSC	Steep, rocky coastal sage scrub and open chaparral habitats, particularly scrubby areas mixed with grasslands. From Santa Barbara County to northwestern Baja California.	Present. Known from the site.
<i>Amphispiza belli belli</i>	Bell's sage sparrow	-/CSC	Occupies chaparral and coastal sage scrub from west central California to northwestern Baja California.	Present. Known from the site.
<i>Aquila chrysaetos</i>	Golden eagle	-/CSC, CFP	Generally open country of the Temperate Zone worldwide. Nesting primarily in rugged mountainous country. Uncommon resident in southern California.	Absent (nesting). Nesting habitat is not present. Low (foraging). This species has been seen flying over the site. May occasionally forage on site.
<i>Athene cunicularia</i>	Burrowing owl	-/CSC	Open country in much of North and South America. Usually occupies ground squirrel burrows in open, dry grasslands, agricultural and range lands, railroad rights-of-way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles.	Present. Known from the site.
<i>Coccyzus americanus occidentalis</i> (nesting)	Western yellowbilled cuckoo	-/SE	Breeds and nests in extensive stands of dense cottonwood/willow riparian forest along broad, lower flood bottoms of larger river systems at scattered locales in western North America; winters in South America.	Absent. No riparian forest on site.
<i>Dendroica petechia brewsteri</i> (nesting)	California yellow warbler	-/CSC	Riparian woodland while nesting in the western U.S. and northwestern Baja California; more widespread in brushy areas and woodlands during migration and winter, when occurring from western Mexico to northern South America. Migrants belonging to other subspecies are widespread and common.	Absent (nesting). No riparian woodlands on site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
Elanus leucurus (nesting)	White-tailed kite	-/CFP	Typically nests in riparian trees such as oaks, willows, and cottonwoods at low elevations. Forages in open country. Found in South America and in southern areas and along the western coast of North America.	Low (nesting). Typical nesting habitat does not occur on-site. Present (foraging) . Species was observed foraging on site.
Empidonax traillii extimus	Southwestern willow flycatcher	FE/SE	Rare and local breeder in extensive riparian areas of dense willows or (rarely) tamarisk, usually with standing water, in the southwestern U.S. and (formerly?) northwestern Mexico. Winters in Central and South America.	Absent . No riparian habitat on site.
Eremophila alpestris actia	California horned lark	-/CSC	Open grasslands and fields, agricultural area, open montane grasslands. This subspecies is resident from northern Baja California northward throughout non-desert areas to Humboldt County, including the San Joaquin Valley and the western foothills of the Sierra Nevada (north to Calaveras County). During the breeding season, this is the only subspecies of horned lark in non-desert southern California; however, from September through April or early May, other subspecies visit the area.	Present . Observed on site.
Falco mexicanus (nesting)	Prairie falcon	-/CSC	Open country in much of North America. Nests in cliffs or rocky outcrops; forages in open arid valleys and agricultural fields. Rare in southwestern California.	Absent (nesting) . Nesting habitat is not present. Low (foraging) . This species has been seen flying over the site. May occasionally forage on site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<i>Icteria virens</i> (nesting)	Yellow-breasted chat	-/CSC	Riparian thickets of willow, brushy tangles near watercourses. Nests in riparian woodland throughout much of western North America. Winters in Central America.	Absent. No riparian habitat on site.
<i>Lanius ludovicianus</i> (nesting)	Loggerhead shrike	-/CSC	Open fields with scattered trees or shrubs, open country with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Found in open country in much of North America.	Present. Known from the site.
<i>Vireo bellii pusillus</i>	Least Bell's vireo	FE/SE	Riparian forests and willow thickets. Nests from central California to northern Baja California. Winters in southern Baja California.	Absent. No riparian habitat on site.
Mammals				
<i>Chaetodipus fallax</i>	Northwestern San Diego pocket mouse	-/CSC	Found in sandy herbaceous areas, usually associated with rocks or coarse gravel in coastal scrub, chaparral, grasslands, and sagebrush, from Los Angeles County through southwestern San Bernardino, western Riverside, and San Diego Counties to northern Baja California.	Present. Known from site.
<i>Eumops perotis</i>	Western mastiff bat	-/CSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in vertical cliff faces, high buildings, trees, and tunnels, and travels widely when foraging.	Low (roosting). Roosting habitat may be present. Present (foraging). Observed foraging over site.
<i>Lasiurus xanthinus</i>	Western yellow bat	-/SA	Occurs in southern California in palm oases and in residential areas with untrimmed palm trees. Roosts primarily in trees, especially the dead fronds of palm trees. Forages over water and among trees.	Absent. No palm habitat on site.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<i>Lepus californicus bennettii</i>	San Diego blacktailed jackrabbit	-/CSC	Variety of habitats including herbaceous and desert scrub areas, early stages of open forest and chaparral. Most common in relatively open habitats. Restricted to the cismontane areas of southern California, extending from the coast to the Santa Monica, San Gabriel, San Bernardino, and Santa Rosa Mountain ranges.	Present. Known from the site.
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	-/CSC	Frequents poorly vegetated arid lands and is especially associated with cactus patches. Occurs along the Pacific slope from San Luis Obispo County to northwest Baja California.	Present. Known from the site.
<i>Onychomys torridus Ramona</i>	Southern Grasshopper mouse	-/CSC	Arid habitats, especially scrub habitats with friable soils. Coastal scrub, mixed chaparral, sagebrush, low sage, and bitterbrush habitats. Arid portions of southwestern California and northwestern Baja California.	Moderate. Habitat on site appears suitable.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	-/CSC	Prefers sandy soil for burrowing, but has been found on gravel washes and stony soils. Found in coastal scrub in Los Angeles, Riverside, and San Bernardino Counties.	Present. Known from the site.
<i>Taxidea taxus</i>	American badger	-/CSC	Primary habitat requirements seem to be sufficient food and friable soils in relatively open uncultivated ground in grasslands, woodlands, and desert. Widely distributed in North America.	Low. No recent records from project vicinity.

Scientific Name	Common Name	Status	Habitat and Distribution	Probability of Occurrence
<p>Codes</p> <p>Status Codes = federal/state/CNPS</p> <p>FE: Federally-listed as Endangered.</p> <p>FT: Federally-listed as Threatened.</p> <p>CFP: California Fully Protected</p> <p>CSC: California Species of Special Concern.</p> <p>SA: Special animal</p> <p>SE: State-listed as Endangered.</p> <p>SP: Special Plant.</p> <p>ST: State-listed as Threatened.</p> <p>CNPS (California Native Plant Society) Designations:</p> <p>1A Plants presumed extinct in California.</p> <p>1B Plants considered by CNPS to be rare, threatened or endangered throughout its range.</p> <p>2 Plants considered by CNPS to be rare, threatened or endangered in California, but more common elsewhere.</p> <p>3 Plants suggested by CNPS for consideration as endangered but about which more information is needed.</p> <p>Sources: Database records for the Redlands, Yucaipa, and San Bernardino South U.S. Geological Survey 7.5-minute quadrangles; Wash Plan EIR (LSA 2008).</p>				

Chapter 4

Potential for Take and Estimated Impacts

4.1 Approach

Implementation of covered activities may result in some incidental take of covered species. This chapter examines the potential for the Covered Activities to result in such take of covered species and loss or degradation of their habitat. To meet regulatory requirements and properly mitigate effects, the amount of take must be discussed and, if possible, quantified. Figures 12-17 shows where the covered activities are expected to occur relative to vegetation communities and the potential distribution of each of the covered species. The anticipated amount of take associated with the covered activities was quantified by overlaying the covered activity footprints on vegetation communities, species habitat, species occurrences data, and designated critical habitat. The results of these analyses are summarized in tables that are included in the sections below.

4.2 Potential Impacts to Vegetation Communities

To estimate effects resulting from implementation of covered activities over the course of the permit term, the covered activity footprints were overlaid on the vegetation community mapping data. Potential impacts of covered activities on each vegetation community are summarized in Table 4-1. The potential impact of each covered activity individually on the vegetation communities is summarized in Table 4-2. Figure 12 depicts the covered activities footprint on vegetation communities. Table 4-3 summarizes impacts by individual covered activity, this time relative to the amount of habitat of each covered species that is affected.

Table 4-1. Potential Impacts to Vegetation Communities

Land Cover Type	Impacts (acres)
Riversidean Alluvial Fan Sage Scrub - Pioneer	16.5
Riversidean Alluvial Fan Sage Scrub - Intermediate	155.9
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	263.9
Riversidean Alluvial Fan Sage Scrub - Mature	85.0
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	25.8
Riversidean Upland Sage Scrub	7.8
Chamise Chaparral	50.9
Non-Native Grassland (NNG)	45.0
Perennial Pepper Weed	0.0
Recharge Basin	44.3
Developed/Ruderal	920.3
Total	1,615.3