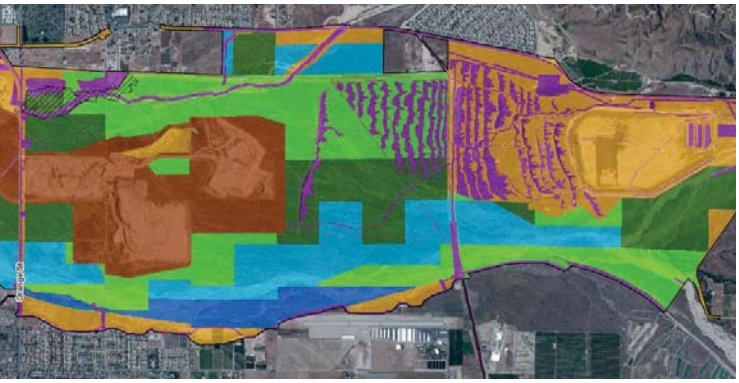

Wildlife Agency Screencheck:

Upper Santa Ana River Wash Plan Habitat Conservation Plan

May 2015

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Wildlife Agency
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Upper Santa Ana River
WASH PLAN HABITAT CONSERVATION PLAN

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May 2015

WashPlan
UPPER SANTA ANA RIVER

Table of Contents

Figures

Appendices

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 Wildlife
Cemex	Cemex Inc.
CEQA	California Environmental Quality Act of 1970
CESA	California Endangered Species Act
Conservation District	San Bernardino Valley Water Conservation District
CWA	Clean Water Act
BGEPA	Bald and Golden 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
Flood Control	San Bernardino County Flood Control District
SBKR	San Bernardino kangaroo rat
SBVMWD	San Bernardino Valley Municipal Water 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	Woolly-Star Preserve Area

Overview of the Wash Plan HCP

The primary goal of the Wash Plan Habitat Conservation 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.

The Wash Plan HCP has been prepared as a part of the incidental take permit application submitted by the San Bernardino Valley Water Conservation District (Conservation District) and other permittees (City of Redlands; City of Highland; San Bernardino County Flood Control District [Flood Control]; Cemex, Inc.; and Robertson's Ready-Mix) to the U.S. Fish and Wildlife Service (USFWS). USFWS is being asked to authorize incidental take under Section 10 of the federal Endangered Species Act (FESA) for the Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*, [woolly-star]), Slender-horned spineflower (*Dodecahema leptoceras*, [spineflower]), California gnatcatcher (*Polioptila californica californica*, [gnatcatcher]), San Bernardino kangaroo rat (*Dipodomys merriami parvus*, [SBKR]) and Coastal cactus wren (*Campylorhynchus brunneicapillus*, [coastal cactus wren]). Woolly-star and spineflower are also state-listed species. The Conservation District also is seeking state authorization (Section 2081 permit under the California Endangered Species Act [CESA]) for take of these state-listed species from the California Department of Fish and Wildlife (CDFW).

This HCP will do the following:

1. Provide for the conservation of populations of the five covered 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 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.
3. Support the Conservation District's request to CDFW for an ITP pursuant to Section 2081(b) of the CESA.
4. 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).
5. 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 five species (see Overview of the Wash Plan HCP, below).

Regulatory Framework

The Wash Plan HCP is specifically designed to comply with the FESA and CESA, and it is not intended to meet the regulatory permit requirements of other federal and state regulations. However, it has been designed to be consistent with those other regulations. Compliance with other state and federal regulations should be coordinated with the implementation of the HCP

to maximize the efficiency of regulatory requirements such as mitigation, monitoring, and reporting. Other state and federal regulations that may apply to one or more covered activities include:

- 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

The Conservation District will act as permit holder for the ITPs and will convey the permit authority to the other permittees under Certificates of Inclusion. Each Certificate will be associated with a single permittee and will address one or a group of closely related covered activities.

The HCP will be implemented in three 10-year phases. The phasing of conservation and take is outlined in Table S-1, below.

Table S-1. Phasing of the Wash Plan HCP

Phase	Conservation	Take
Phase 1 (years 1–10)	• Land dedication of all HCP Preserve areas identified as Newly Conserved Lands • Management and Monitoring of all Newly Conserved Lands	• Mining identified for Phase 1 (Table 2-2) • Construction of all non-mining covered activities • Ongoing operations and maintenance
Phase 2 (years 11–20)	• Completion of BLM land transfer • Management and monitoring of all Additionally Managed Lands • Ongoing management and monitoring of Newly Conserved Lands	• Mining identified for Phase 2 • Ongoing operations and maintenance
Phase 3 (years 21–30)	• Ongoing management and monitoring of whole HCP Preserve System	• Mining identified for Phase 3 • Ongoing operations and maintenance

Plan Area

The Plan Area of the HCP is in southwestern San Bernardino County, California, approximately 1 mile downstream of the Seven Oaks Dam, and encompasses approximately 4,892.2 acres, extending approximately 6 miles westward from Greenspot Road in the City of Highland to Alabama Street in the City of Redlands.

Existing land uses in the Plan Area consist of water conservation and storage facilities, flood control, habitat conservation, aggregate mining/mineral extraction, agriculture, roadways, and airport operations. Aggregate mining is conducted in the western half of the Plan Area, while the Conservation District maintains water spreading basins in the eastern section. Flood Control maintains flood control facilities along the Santa Ana River, Plunge Creek, and City Creek.

The Bureau of Land Management (BLM) in the process of exchanging federal lands for equivalent lands owned by the Conservation District within the Plan Area. The transfer will allow BLM to dispose of areas of fragmented BLM ownership and consolidate ownership on high-quality habitat to improve the management of these lands. The BLM land transfer must be completed before the initiation of Phase 2 of the HCP.

Covered Species

The five species covered by the Wash Plan HCP are listed in Table S-2, below. The vegetation communities in the Plan Area that support these species are quantified with other land cover types in Table S-3, below.

Table S-2. Species Covered by the Wash Plan HCP

		Status	
Common Name	Scientific Name	Federal	State
Slender-horned spineflower	*Dodecahema leptoceras*	Endangered	Endangered
Santa Ana River woolly-star	*Eriastrum densifolium* ssp. *sanctorum*	Endangered	Endangered
Coastal cactus wren	*Campylorhynchus brunneicapillus anthonyi*	None	None
Coastal California gnatcatcher	*Polioptila californica californica*	Threatened	SSC
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	Endangered	SSC

SSC = California Department of Fish and Wildlife Species of Special Concern

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

Vegetation Community / Land Cover Types	Acres
Riversidean Alluvial Fan Sage Scrub - Pioneer	466.2
Riversidean Alluvial Fan Sage Scrub - Intermediate	1,070.6
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	1,039.5
Riversidean Alluvial Fan Sage Scrub - Mature	536.8
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	109.2
Riversidean Upland Sage Scrub	9.4
Willow Thickets	11.5
Mule Fat Scrub	1.4
Aquatic Vegetation	1.0
Non-Native Grassland (NNG)	160.8
Perennial Pepper Weed	20.0
Tamarisk Thickets	30.1
Recharge Basin	68.9
Active Sedimentation Basin	13.2
Developed/Ruderal	1,353.5
Total	4,892.2

Covered Activities

The Wash Plan covers two types of activities: 1) new or expanded facilities planned in the Plan Area, and; 2) activities related to the operations and maintenance of existing facilities or associated with new facilities constructed as a covered activity.

All covered activities have been subdivided into the following categories:

1. Mining—the areas in which mining operations by Robertson's Ready-Mix (Robertson's) and Cemex, Inc. (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 Conservation District 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, operation, 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 and new flood control facilities.
6. Trails—the development of trails.

7. Restoration—activities that support the restoration and maintenance of habitat values in the Wash.
8. Agriculture—the continued operations and maintenance of existing citrus groves.

Acreages reported represent the area of ground disturbance, including the project or activity footprint associated with construction or operation and maintenance. All covered activities associated with new or expanded facilities will be implemented during Phase 1 of the HCP, with the exception of the mining activities scheduled for implementation in Phases 2 and 3. Operations and maintenance covered activities will occur in all three phases.

There are a number of activities that are not covered by the Wash Plan HCP, including utility infrastructure construction and maintenance by entities that are not HCP permitees (e.g., electric transmission lines, gas pipelines, petroleum pipelines, telecommunications lines, or cellular telephone stations); freeway operation and maintenance activities that occur within the 210 Freeway right-of-way; recreation activities (e.g., hiking, wildlife observation, equestrian use, and non-motorized bicycling); or other general urban development. Any potential take of species associated with these activities is not covered by the incidental take permits of the Wash Plan HCP.

Potential for Take and Estimating Impacts

The estimated amount of take of each covered species associated with the covered activities must be quantified so that USFWS and CDFW can make their findings that the proposed conservation (mitigation, management, and monitoring) is sufficient to offset the take authorized under the ITPs. 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. Potential impacts of covered activities on acres of species habitats and on vegetation communities are summarized in Table S-4 and S-5, respectively. Potential impacts on occurrence record locations and critical habitat are shown in the figures in Chapter 4 of the HCP.

Table S-4. Species Habitats Potentially Impacted by Covered Activities (acres)

Species	Habitat Type	Cumulative Impacts from All Covered Activities
Santa Ana River Woolly-Star	Occupied	47.3
Slender-Horned Spineflower	Occupied	7.3
	Potentially Suitable	410.2
California Gnatcatcher	Nesting	11.5
	Foraging	615.2
Coastal cactus wren Habitat	Nesting	14.0
	Foraging	613.1
San Bernardino Kangaroo Rat	High Potential	26.3
	Medium Potential	78.2
	Low Potential	132.5
	Trace	375.1
	Ecological Process Area	44.9
	Total SBKR Habitat	657.0

Table S-5. Potential Impacts to Vegetation Communities

Land Cover Type	Impacts (acres)
Natural Habitats	
Riversidean Alluvial Fan Sage Scrub - Pioneer	38.6
Riversidean Alluvial Fan Sage Scrub - Intermediate	155.4
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	262.2
Riversidean Alluvial Fan Sage Scrub - Mature	139.8
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	23.0
Riversidean Upland Sage Scrub	7.8
Willow Thickets	0.5
Mule Fat Scrub	1.4
Aquatic Vegetation	0.8
Non-Native Grassland (NNG)	49.6
Perennial Pepper Weed	0.0
Tamarisk Thickets	7.6
Recharge Basin	44.3
Active Sedimentation Basin	10.3
Developed/Ruderal	864.7
Total Area of Covered Activities	**1,605.9**

Conservation Program

The Conservation Program (Chapter 5) describes the actions that the Conservation District and other permittees will implement to avoid, minimize, monitor, and mitigate the effects of incidental take of the covered species and contribute to their survival and recovery. The biological goals and objectives of the Wash Plan HCP conservation program are stated below.

The biological goals of the Wash Plan HCP are:

1. To conserve and enhance populations of covered species in the Plan Area through land conservation and an adaptive habitat management program.
2. To minimize and mitigate the effects of take.
3. To meet and comply with the requirements of the FESA.

The biological objectives are:

1. To conserve habitats in the Wash Plan area in a configuration and amount that will sustain populations of federally-listed species covered by the Plan, including the SBKR, the slender-horned spine flower, the Santa Ana River woolly-star, and the gnatcatcher, as well as the coastal cactus wren and other special-status-species also covered by the Plan.
2. To conserve habitat linkages across and to areas outside the Plan Area in order to provide connectivity between populations of covered species and provide opportunities for wildlife movement through the Plan Area.
3. To develop a robust, science-based experimental program to address issues unique to the maintenance and enhancement of existing slender-horned spineflower populations and the potential establishment of new populations within the Wash Plan conservation areas.
4. To actively manage conserved lands within the Plan Area for the benefit of covered species, including control of non-native plant species, selective vegetation thinning, and habitat enhancement.

The biological goals and objectives of the HCP will be accomplished through the implementation of conservation, management, and monitoring actions.

- *Conservation actions* are actions taken to set aside land for conservation of covered species that is suitable for the species and is in patches that are large enough and well-connected within the preserve and to areas outside the preserve such that the species can maintain sustainable populations within the preserve.
- *Management actions* are those actions taken to improve the suitability of the habitat for a covered species by restoring or enhancing the habitat, or by reducing, removing, or preventing threats that may degrade the habitat.
- *Monitoring actions* are those actions that are taken to track the status and trend of covered species populations and of their habitat within the preserve. Monitoring actions should be conducted within an adaptive management context so that monitoring results can be linked to management actions to inform and improve the efficacy and efficiency of future management actions.

The conservation, management, and monitoring actions that will be implemented under the Wash Plan HCP are described in Chapter 5.

Plan Implementation

Implementation of the Wash Plan HCP begins when the Implementing Agreement (IA) is executed and the incidental take permits are issued. Primary responsibility for Plan implementation rests with the Conservation District and other permittees, with support by USFWS and CDFW for review of annual reports and guidance and input as needed.

The HCP must be monitored over time to determine if conservation, management, and monitoring measures are achieving goals and objectives of the Plan. Two tracking processes will be undertaken: quantification of impacts over time (tracking of take) and biological monitoring (tracking of species and habitat condition). As Program Administrator, the Conservation District will be responsible for tracking impacts and biological monitoring. The annual accounting of the acreage, type, and location of vegetation communities and species habitat conserved and impacted by permitted land uses and other covered activities within the Plan Area will be summarized at the end of each annual reporting period. The Conservation District will tabulate and summarize all take that has occurred by vegetation community and species habitat type. The acreages will be accompanied by GIS figures documenting the location of covered activity impacts and will be included in the annual report for the Wildlife Agencies.

While the HCP will be implemented in three 10-year phases, the conservation actions to designate land as protected will occur during the first two phases. All primary conservation activities that are planned to generate credits to mitigate the covered activities will be complete by year 20 (end of Phase 2), and the final 10 years of the permit term (Phase 3) will be dedicated to ongoing management and monitoring.

Phase 1 Conservation Activities (years 1–10)

To generate sufficient conservation credit to accommodate covered activities early in the HCP implementation, the Conservation District will initiate "Jump Start" conservation activities within the first 7 years of implementation. These Jump Start activities will ensure that conservation can stay ahead of impacts by at least 5%, as is expected by USFWS.

Jump Start Activities (years 1–7)

Jump Start activities will provide for 200 acres of focused management to take place in the first seven years of implementation. These activities focus on:

1. Controlling invasive vegetation, primarily grasses, in areas known to support spineflower.
2. Enhancing the quality of the important biological corridor by thinning or controlling invasive vegetation along the corridor margins.

Other Phase 1 Conservation (years 1–10)

Within the first 5 years of HCP implementation, Conservation District and other permittees will designate as Newly Conserved 981.9 acres of habitat for permanent habitat conservation and management using a conservation easement or equivalent legal protection mechanism. Conservation District will also initiate additional management and monitoring on all Newly

Conserved identified for Phase 1 conservation. By the end of Phase 1 all of the Newly Conserved land shall be permanently protected.

Phase 2 Conservation Activities (years 11–20)

Conservation activities during Phase 2 must be initiated early enough to provide sufficient conservation credit for Phase 2 covered activities. The Phase 2 conservation activities must be in rough step and stay ahead of the Phase 2 impacts by at least 5%. By the end of Phase 2 (year 20), Conservation District and other permittees will fully manage and monitor 604.2 acres of Additionally Managed habitat. These areas of Additionally Managed habitat are on land involved in the BLM land transfer. Therefore, the BLM land transfer must be completed before the initiation of Phase 2 of the HCP.

Phase 3 Conservation Activities (years 21-30)

During Phase 3 the Conservation District and other permittees will continue to fully implement management and monitoring activities on all 1,586.1 acres of Newly Conserved and Additionally Managed land. These management and monitoring actions will continue in perpetuity even if the permit is not renewed after the initial permit term.

Changed and Unforeseen Circumstances

As specified in Section 10 of the FESA, an HCP must specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. The USFWS "No Surprises Rule" describes the obligations of the permittee and USFWS regarding changed and unforeseen circumstances.

Changed circumstances are defined as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by the permittees and USFWS. Unforeseen circumstances are defined as changes in circumstances that could not reasonably be anticipated by the permittee or USFWS, and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to the HCP permittees that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

The Wash Plan HCP has identified and addresses seven Changed Circumstances that can be reasonably anticipated in the Plan Area: Climate Change, Fire, Drought, Flood, Invasion of Exotic Species, Future Listing of Non-Covered Species, and Failure of Spineflower Enhancement and Relocation Program. The description and quantification of Changed and Unforeseen Circumstances are detailed in Chapter 6 (Plan Implementation).

Permit Amendments, Renewals, and Institutional Structure of the HCP

The process for amendments to the Plan, permit renewal (as well as permit suspension or revocation), and a description of the institutional structure of the Plan and the relationship between the Conservation District and the other permittees are also covered in Chapter 6.

Minor amendments are changes that would not appreciably affect the Wash Plan HCP's impacts associated with covered activities, implementation of the conservation strategy, or amount of take. The minor amendment process would be accomplished through an exchange of letters between Conservation District and USFWS. Major amendments to the HCP would also require

an amendment to the permit and would involve changes that do affect the amount of impact from covered activities, implementation of the conservation strategy, or increase in the amount of take. Major amendments often require amendments to the National Environmental Policy Act (NEPA) document, the biological opinion, and USFWS findings, and additional public review.

At the end of the 30-year permit term, the permit may be renewed without the issuance of a new permit, provided that the biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original Wash Plan HCP. USFWS may suspend or revoke the permit if the Conservation District and other permittees fail to implement the Wash Plan HCP in accordance with the terms and conditions of the permits or if suspension or revocation is otherwise required by law.

Implementation of the Wash Plan HCP will be coordinated and managed by the Conservation District, who will be the Program Administrator for the Wash Plan HCP. The Conservation District will establish an HCP Implementation Team to include an Executive Director, Habitat Conservation Program Manager, Biological Consultants, and a Wash Plan Advisory Committee.

The Habitat Conservation Program Manager will be responsible for overseeing development and implementation of the management programs for conserved habitat, preparation of annual reports, consultation with the USFWS and CDFW as needed, preparation of annual work programs, and the completion of implementation actions in fulfillment of HCP commitments. The Program Manager will also review all covered activities prior to ground-breaking by the permittees to ensure consistency with the HCP and authorized level of take.

The Wash Plan Advisory Committee will include representatives of the covered parties and one at-large member. The USFWS, CDFW, BLM, and a Santa Ana River Woolly-Star Preserve Area (WSPA) Management Committee representative will participate as ad hoc members. The Committee will provide advice to the Conservation District on HCP activities.

The Conservation District will be the primary permit holder. All other covered permittees will be required to notify the Conservation District of specific activities covered by the HCP prior to receiving a Certificate of Inclusion (to convey the permit authority) authorizing take associated ground-disturbing covered activities. Each Certificate of Inclusion will be associated with a single permittee and will address one or a group of closely related covered activities. Certificates will specify the required mitigation of impacts in advance of the covered activity and will identify and collect payment of any associated costs for conservation, management, monitoring, and program administration. The permittee will provide documentation to Conservation District demonstrating the activity will be in compliance with the terms and conditions of the ITP, and demonstrating the party's performance will be in compliance with ITP requirements. The permittee will identify the lands where the impacts will occur, the required impact avoidance and minimization measures, the process by which the measures will be implemented, and post-impact monitoring requirements. The covered activity documentation will be reviewed for conformance with the approved HCP by the Program Manager and will be certified by the Executive Director before issuance of a Certificate of Inclusion.

Funding

There are three components of HCP implementation that requiring funding assurances for direct and indirect costs: 1) land acquisition; 2) habitat management, and; 3) monitoring and

reporting. Financial assurances are important for the ongoing conservation and management activities during the 30-year permit duration, but also critical is a non-wasting endowment to fund management and monitoring activities in perpetuity.

The majority of the 2,136.4 acres conserved and managed in the Plan Area (including Newly Conserved, Additionally Managed, and Existing Conservation) are in public ownership and all of the land is owned by members of the Wash Plan Task Force. Current land value estimates of $25,000 per acre, place the value of the land contributed to the plan at approximately $53.4 Million.

Habitat management includes two general groups of activities: 1) the general land management required to maintain a property in its current state (i.e., general land stewardship), and; 2) activities and actions related to the management of habitat for listed and other covered species through the Wash Plan HCP. Some ongoing costs of the program will be directly funded by the participants, while other costs will be funded through income generated by a non-wasting endowment. The estimated endowment to fund the ongoing management and monitoring of the Wash Plan HCP preserve lands is $10 million (in 2015 dollars).

It is important that adequate conservation actions occur early in HCP implementation to establish credit to mitigate early Phase 1 impacts. The Wash Plan HCP implementation will provide a "jump start" on conservation actions to ensure that sufficient mitigation credit is available in the early years of Phase 1. Jump Start conservation actions will include controlling invasive vegetation, and enhancing the quality of an important biological corridor. These activities are estimated to cost $33,000 per year for the first seven years.

Chapter 7 identifies the costs associated with each component of implementation and describes the mechanisms to ensure adequate funding including the establishment of an endowment. The estimated annual costs of HCP implementation are summarized in Table S-6, below.

Table S-6. Summary of Estimated Costs for HCP Implementation

HCP Implementation Activity	Estimated Cost per year
Stewardship	$43,710
Habitat and Species Management	$149,373
Habitat and Species Monitoring	$70,595
Reporting and Data Management	$23,250
Emergency, Contingency, and Overhead	$101,840
Total Annual Cost	$388,768

Alternatives

As required by the FESA, multiple alternatives were considered regarding ways to avoid take of listed species or to minimize take through other alternative conservation strategies. Four alternatives were evaluated but rejected in favor of the approach in this HCP.

Alternative 1: Complete Avoidance of Take

Under this alternative, activities in the Wash Plan Area would be conducted to avoid take of SBKR, gnatcatcher, woolly-star, and spineflower. This alternative would require substantial changes to existing and future operations and maintenance activities and to the design and

implementation of planned projects, which was not practical for the Conservation District and other permittees.

Alternative 2: No Take of Slender-Horned Spineflower

Of the five proposed covered species, spineflower is the most at risk. The cryptic nature of this plant and limitations on what is known about why it occurs in certain areas make it difficult to avoid impacts (no take) with certainty. Because of the known and potential occurrence of spineflower on lands that would be managed under the HCP, implementation of the conservation measures have potential to directly contribute to the recovery of this species.

Alternative 3: Reduced Take of SBKR and Woolly-Star

Under this alternative, impacts to SBKR and woolly-star would be reduced either by setting a limit on the acres of habitat or number of individuals taken or by limiting the size and location of the areas where take could occur in connection with mining and the Conservation District's proposed water conservation projects (the two Covered Activities that would entail substantial impacts on both species). These options were rejected in favor of increasing the amount of conservation in proportion to take, with particular attention to increasing conservation and management of habitat adjacent to the WSPA, and existing preserve that protects both these species.

Alternative 4: Comprehensive Multiple Species Conservation Program

Under this alternative, an NCCP or other comprehensive multiple species conservation program would be prepared and implemented for the Plan Area instead of the HCP for the five listed species. The decision not to pursue a comprehensive program and to only focus on the five listed species was made to expedite implementation of the Wash Plan HCP rather than a rejection of a multiple species conservation strategy. The Wash Plan HCP does not preclude the development of a comprehensive program in the future.

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 (Conservation District) 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 and the coastal cactus wren:

- Santa Ana River woolly-star (E*riastrum densifolium* ssp*. sanctorum*, woolly-star),
- Slender-horned spineflower (*Dodecahema leptoceras*, spineflower).
- California gnatcatcher (*Polioptila californica californica*, gnatcatcher),
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*, SBKR) and
- Coastal cactus wren (*Campylorhynchus brunneicapillus*, cactus wren).

Woolly-star and spineflower are state- as well as federally listed species, and the Conservation District also is seeking state authorization for take of those species from the California Department of Fish and Wildlife (CDFW).

The primary purpose of this HCP is to:

1. Provide for the conservation of populations of the five covered 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 Conservation District's request to CDFW for an ITP 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; 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 five species.

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 Conservation District 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 Flood Control 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 Conservation District, 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 Conservation District 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 Conservation District, BLM, Cemex Inc. (Cemex), Robertson's Ready-Mix (Robertson's), Flood Control, 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 Conservation District operates as project manager and staff support for this body.

The Wash Plan, as described in CEQA documents, was adopted by the Conservation District 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 include:

- Adoption of the Wash Plan by the Conservation District (2008);
- The land exchange between Flood Control and Robertson's (2016),
- The land exchange between BLM and Conservation District 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 (anticipated to occur by 2016);
- 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 (anticipated to occur by 2016);
- Preparation of the Wash Plan HCP (anticipated to occur by 2016); and
- 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 coastal cactus wren (anticipated to occur by concurrently with finalization of the Wash Plan HCP in 2016).

1.2 Scope of the HCP

This section identifies the Incidental Take Permittees, Plan Area, Covered Species, and Covered Activities. It also identifies the term of the ITP.

1.2.1 Permittees

The following parties will be covered by the ITPs from USFWS and CDFW:

- Conservation District
- City of Redlands including the Redlands Municipal Utility District (Redlands)
- City of Highland (Highland)
- Flood Control
- Cemex
- Robertson's

The permits may be extended to other parties, subject to the amendment process described in Section 6.5 (HCP Amendment Process) and the HCP Implementation Agreement (IA).

The Conservation District will act as permit holder for the ITPs and will convey the permit authority to the other permittees under Certificates of Inclusion. Each Certificate will be associated with a single permittee and will address one or a group of closely related covered activities. Certificates will specify the required mitigation of impacts in advance of implementation of the covered activity and will identify and collect payment of any associated costs for conservation, management, monitoring, and program administration. If a permittee operating under a Certificate does not provide complete mitigation funding and/or violates permit terms, the Certificate will be revoked immediately and any subsequent take of covered species will not be covered by the ITP until the violation is corrected and a modified Certificate is reissued. Specific terms of the Certificate of Inclusion will be established in the Implementing Agreement. Breach of the terms in the Certificate of Inclusion also trigger notification of the Wildlife Agencies (USFWS and CDFW).

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 4,892.2 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 five species under the HCP. These areas include lands owned by Conservation District and City of

Redlands, lands transferred from BLM to Conservation District, and lands transferred from Robertson's to Flood Control.

2. Additionally Managed Lands – lands for which the HCP will provide additional management and monitoring for the benefit of the five species. These areas include lands managed by BLM (including Conservation District lands transferred to BLM).
3. Existing Conserved Lands – there are several areas within the Plan Area that have already been identified for conservation. Only a portion of the mitigation credit in these areas has been used to mitigate for previous impacts not related to covered activities in this HCP. These areas include:
    a. Santa Ana River Woolly-Star Preserve Area (WSPA) – an existing 764-acre area preserve established as mitigation for impacts to woolly-star resulting from the construction and operation of the Seven Oaks Dam. There is no remaining mitigation credit in the WSPA.
    b. City of Highland Biological Mitigation Area – this mitigation area includes two 10-acres parcels available for the City of Highland to mitigate impacts not associated with the Wash Plan HCP covered activities.
    c. Future Flood Control Mitigation Area –Approximately 144.9 acres of alluvial habitat in the active channel of the Santa Ana River immediately south of the WSPA is identified as Future Flood Control Mitigation Area and is available for mitigation of future Flood Control infrastructure construction, and maintenance activities not covered by the HCP.
4. 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 Conservation District and BLM.
5. 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).
6. 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). These lands will be monitored for highly invasive weeds such as mustard and pepperweed (but not non-native grasses) to ensure they are not a source for infestation of conserved and managed lands. Management would occur when possible.
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.

The Wash Plan HCP Preserve is defined as that area that will be conserved, managed, and monitored by the Conservation District and other Wash Plan HCP permittees. It includes the Newly Conserved Lands and the Additionally Managed Lands. The Wash Plan HCP Preserve will be managed in coordination with the entities responsible for the Existing Conserved Lands.

1.2.3 Covered Species

The species covered by the HCP and the incidental take authorization under Section 10 of the FESA are Santa Ana woolly-star, slender-horned spineflower, SBKR, California 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 incidental take authorization under the CESA are Santa Ana woolly-star and slender-horned 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.

Definition of Take and Taking of Covered Species

"Take" and "Taking" have the same meaning provided by FESA and its implementing regulations with regard to activities subject to FESA. Under FESA, 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 defined as "any act that kills or injures the species, including significant habitat modification." Note that take is not the same as an adverse impact. The definition of take under CESA is narrower than the federal definition, which is why the federal definition is used for the definition under this HCP. "Take" under FESA does not apply to plant species, and take of plant species is not prohibited under FESA; however, the two plant species are included on the federal ITP as Covered Species in recognition of the conservation measures provided for them under the Plan and will receive "No Surprises" regulatory assurances under the federal ITP. For the purposes of this Plan, take includes impacts on covered plant species. For purposes of state law, take will have the same meaning provided in Section 86 of the California Fish and Game Code.

Federal Take Authorizations for Non-Listed Covered Species

The federal ITP will identify all Covered Species. The federal ITP will take effect for listed Covered Species at the time the federal ITP is issued and, subject to compliance with the terms of the federal ITP, will take effect for an unlisted Covered Species upon the listing of such species. Any reference in this Plan to incidental take of Covered Species refers to potential impacts on all Covered Species, regardless of current state or federal listing status. The coastal cactus wren is the only Covered Species in the Plan that is not currently federally listed.

1.2.4 Covered Activities

The types of activities covered by the HCP (Covered Activities) are listed in Table 1-2, 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. Species Covered by the Wash Plan HCP

		Status	
Common Name	Scientific Name	Federal	State
Slender-horned spineflower	*Dodecahema leptoceras*	Endangered	Endangered
Santa Ana River woolly-star	*Eriastrum densifolium ssp. sanctorum*	Endangered	Endangered
Cactus wren	*Campylorhynchus brunneicapillus anthonyi*	None	None
Coastal California gnatcatcher	*Polioptila californica californica*	Threatened	SSC
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	Endangered	SSC

SSC = California Department of Fish and Wildlife Species of Special Concern

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.

Table 1-2. 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 Conservation District 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
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.
Agriculture	The continued operations and maintenance of certain limited agricultural activities present on the site, including a small citrus grove.

1.2.5 Permit Duration

The Conservation District and the other permittees are 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-year 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.

1.2.6 Phasing of the HCP

The HCP will be implemented in three 10-year phases. The phasing of conservation and take is outlined in Table 1-3, below.

Table 1-3. Phasing of the Wash Plan HCP

Phase	Conservation	Take
Phase 1 (years 1–10)	• Land dedication of all HCP Preserve areas identified as Newly Conserved Lands • Management and Monitoring of all Newly Conserved Lands	• Mining identified for Phase 1 (Table 2-2) • Construction of all non-mining covered activities • Ongoing operations and maintenance
Phase 2 (years 11–20)	• Completion of BLM land transfer • Management and monitoring of all Additionally Managed Lands • Ongoing management and monitoring of Newly Conserved Lands	• Mining identified for Phase 2 • Ongoing operations and maintenance
Phase 3 (years 21–30)	• Ongoing management and monitoring of whole HCP Preserve System	• Mining identified for Phase 3 • Ongoing operations and maintenance

1.3 Regulatory Framework

The Plan is designed to comply with the FESA and CESA. 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 FESA and federal regulation pursuant to Section 4(d) of FESA 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 FESA, any person who knowingly violates this Section 9 of the FESA 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 ITP under Section 10(a)(1)(B) of the FESA 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 ITP must be accompanied by an HCP. The regulatory standard under Section 10(a)(1)(B) of the FESA 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 ITP has three primary stages: (1) the HCP development stage; (2) the formal permit processing stage; and (3) the post-issuance stage.

During the HCP development stage, 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 ITP 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 stage concludes and the permit processing stage 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) ITP 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 stage, 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 FESA 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 ITP under Section 10(a)(1)(B) of the FESA 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 FESA 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 FESA. 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 FESA-listed migratory birds (Appendix 5 in the HCP Handbook). According to these guidelines, an ITP can function as a Special Purpose Permit under the MBTA (50 CFR 21.27) for the take of all FESA-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.

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

Only the gnatcatcher is listed under the FESA. Accordingly, once issued, the ITP 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 coastal cactus wren is not listed under the FESA, and, therefore, no MBTA coverage can be provided for this species through the Plan. Should the coastal cactus wren become listed under the FESA during the permit term, the FESA 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 coastal 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 FESA, 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 Plan Protection Act. Both plants are Covered Species (woolly-star 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 ITP) 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 ITP. NEPA analysis must be done by USFWS as the lead agency for each HCP as part of the ITP 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 [NWPs] 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 FESA. 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 ITP 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.

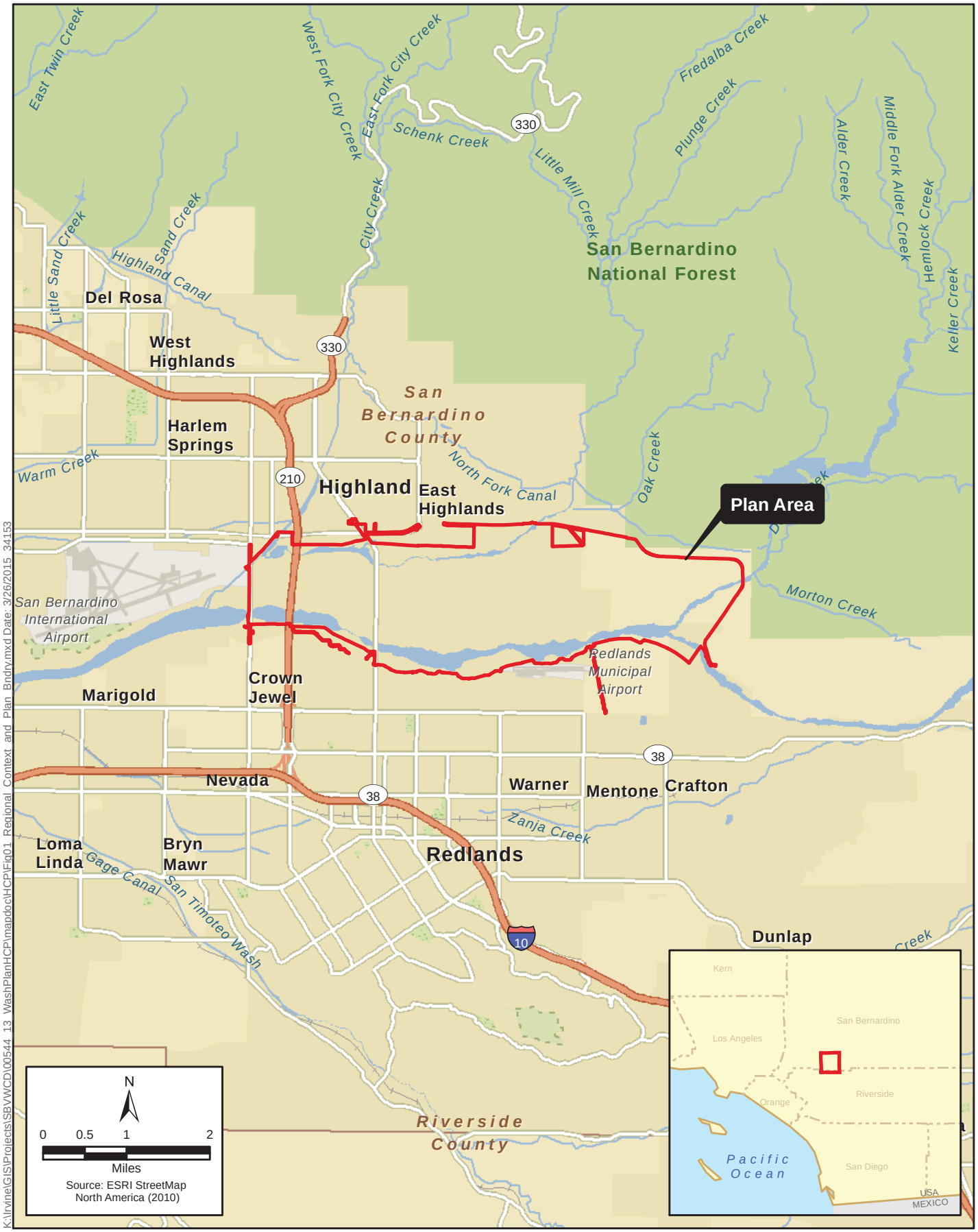

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Figure 1
Regional Context and Plan Area Boundary
Wash Plan HCP

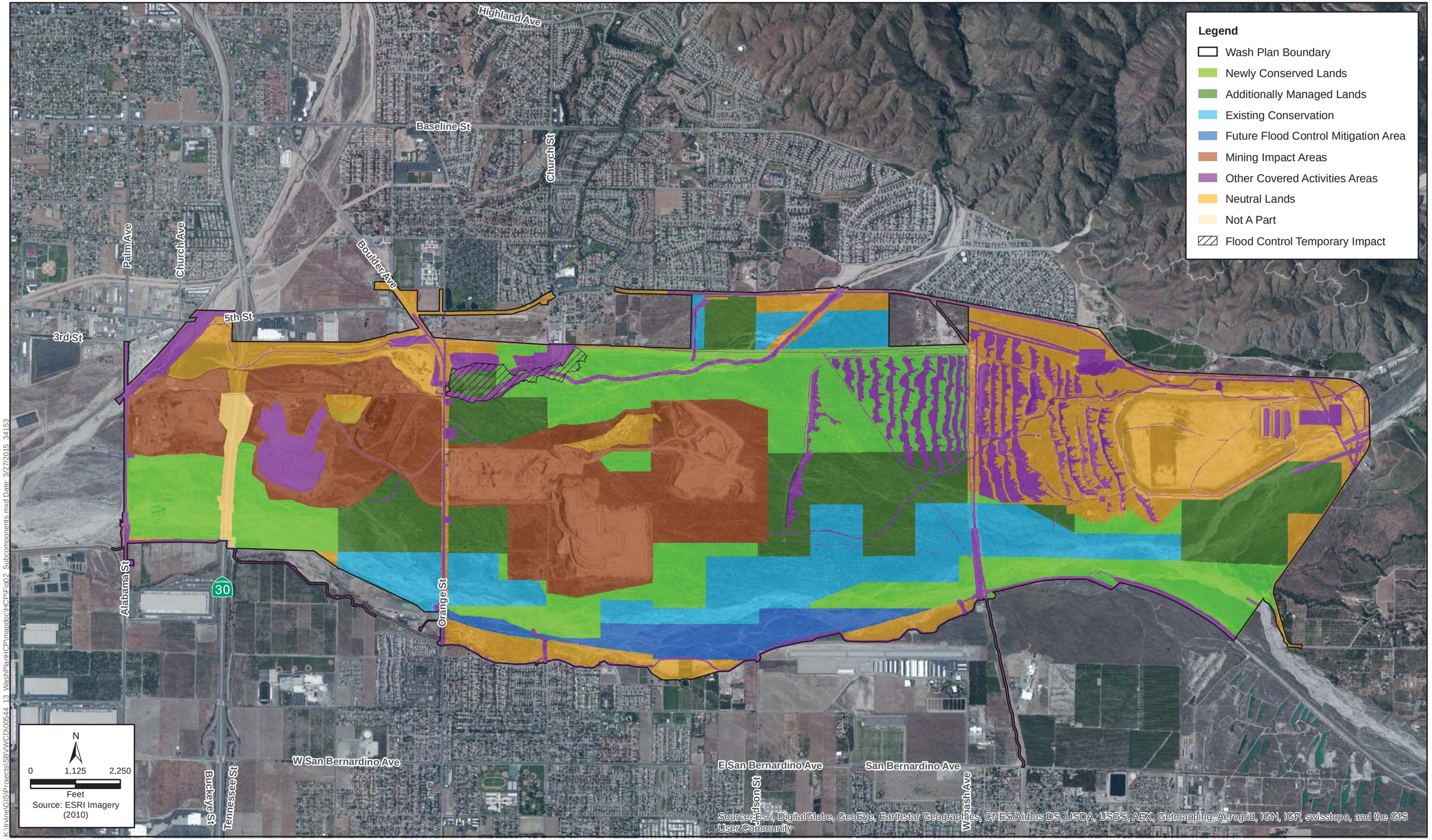

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Figure 2
Plan Area Subcomponents
Wash Plan HCP

Chapter 2
Covered Activities

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 FESA Section 10 and CESA 2081(b) ITPs.

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 take[1] 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) new or expanded facilities planned in the Plan Area, and; 2) activities related to the operations and maintenance of existing facilities or associated with new facilities constructed as a covered activity. The areas where covered

[1] As defined by FESA. Under FESA, 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 defined as "any act that kills or injures the species, including significant habitat modification." Note that *take* is not the same as an adverse impact. The definition of take under the California Endangered Species Act is narrower than the federal definition, which is why the federal definition is used for the criterion.

activities are expected to occur are shown in Figure 2, and Figure 3 shows the specific location, type, and permittee responsible for each covered activity.

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 Conservation District 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, operation, 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 and new 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. Agriculture - the continued operations and maintenance of existing citrus groves.

Acreages reported represent the area of ground disturbance including project or activity footprint 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	Conservation District 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

Unique ID	Owner	Project Name	Project Class	Project Type
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 and Realignment	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/Boulder Avenue Improvements	Transportation	New construction
High.10	City of Highland	Weaver Street Channel Maintenance	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
High.15	City of Highland	Cone Camp Road Trail	Trails	New designation
High.16	City of Highland	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

Unique ID	Owner	Project Name	Project Class	Project Type
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
Redl.14	City of Redlands	Alabama Street Improvements	Transportation	New construction
Redl.15	City of Redlands	Orange Street Improvements	Transportation	New construction
Redl.16	City of Redlands	Alabama Street Trail	Trails	New designation
Redl.17	City of Redlands	Orange Street Trail	Trails	New designation
Mine.01	Robertson's and Cemex		Mining	New
Ceme.01	Cemex and Robertson's	Proposed Haul Road	Mining	New construction
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

Unique ID	Owner	Project Name	Project Class	Project Type
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, are occurring within the Wash Plan boundary. As part of the implementation of the Wash plan, the existing mining area will be expanded for new aggregate mining. In addition, within the current acre mining area there are natural vegetation areas that exist on formerly mined areas, which may be removed by future mining activities. 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
- CEMEX and RRM expanded mining operations
- CEMEX and Robertson's (RRM) haul road extension

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

HCP Implementation Phase*	Year	Acreage
1	1–5	10 acres
	6–10	61 acres
2	10–15	61 acres
	15–20	61 acres
3	20–25	61 acres
	25–30	61 acres
	Total New Mining	315 acres

*See Table 1-3 for HCP implementation phasing.

2.2.2 Water Conservation

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 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 65.1 total acres. The maintenance activities are described below for Valley District and will consist of the following facilities:

- Santa Ana River Spreading Facility
- Existing stockpile and processing areas
- Access roads

The Santa Ana River Spreading Facility utilizes river water diverted via the Cuttle Weir to the Sandbox. Water leaves the Sandbox and enters the District's main channel; prior to entering the spreading basins, the incoming water is measured on a daily basis at the District's Parshall Flume. The District has the ability to divert water into several areas of the Santa Ana River Spreading Facility by means of manual weirs in the main channel. The main channel runs between the Borrow Pit and Greenspot Road before it turns south and meanders between the basins in the western part of the facility.

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. Vegetation along the slopes of the basins helps to strengthen the dikes and are typically left if they do not affect the percolation rates. 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.

Within the basins maintenance is performed less frequently, but repairs and general upkeep are essential to ensure efficient groundwater recharge. When water is present, percolation is monitored up to daily by the field crew after the spreading is cut off to see which ponds need to be regarded or reshaped. Daily maintenance may also be needed during basin filling, such as the removal of rocks or debris that could reduce or block water flow. In addition, dikes are monitored up to daily for sinkholes or divots which could affect the integrity of the dike.

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.

Stockpile and Processing Areas

Maintenance of stockpile locations includes placement of material (i.e debris and sediment from facilities) at specific locations for temporary storage. Stockpiles are often treated to avoid the spread of invasive plants. The stockpile material may be used for repairs of facilities. Equipment that may be used when processing a stockpile include one loader, one dozer, and one excavator.

Roads

The District maintains numerous access or service maintenance roads throughout the Wash Plan area. Although these roads are on District Property, the District has given consent to several agencies to use them for their public service activities. Most are 12-15 feet wide and surfaced with native material such as gravel or compacted soil. Most of the roads are unpaved and maintenance includes clearing encroaching vegetation, grading, resurfacing (with similar materials), repairing washouts, and filling ruts and potholes. Increased use or storm events can accelerate the deterioration of these roads.

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. Vegetation maintenance can occur as frequently as quarterly, and typically involves using the bucket of the tractor or dragging tires or beams behind a vehicle to scrape the surface of the roads.

Other activities such as filling, grading, and resurfacing typically occur every 2-3 years. The material on the surface of the road 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. Typical equipment may include a grader or dozer.

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 and Phase B is comprised of 14 basins. The basin construction footprint will include all necessary construction access roads and staging areas. 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 necessary depth with contoured sides. All soils removed from the basins will be transported and deposited offsite. 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 instillation 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 components of the Enhanced Recharge Project are summarized below:

- VD.01 Construction and Maintenance of Enhanced Facilities
- VD.01.1Enhanced Recharge Facilities
- VD.01.2 Enhanced Recharge Canal
- VD.01.3 Greenspot Channel Improvements

The maintenance activities will be as described above for the Conservation District.

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 on covered species 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 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 on habitat. 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 and 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 on covered species. 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).

Water 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.

Santa Ana Low Turnout Rebuild (VD.07)

This involves the maintenance of equipment (valve replacement and/or repair) and facilities at this location. Activity will be limited to the existing footprint.

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. See general water pipeline maintenance section below.

Orange Street Connector Pipeline (VD.04)

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. See general water pipeline maintenance section below.

Plunge Pool Pipeline (VD.05)

Will be constructed by Valley District and maintained by Conservation District. See general water pipeline maintenance section below.

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

See general water pipeline maintenance section below.

Foothill Pipeline Maintenance (VD.03)

See general water pipeline maintenance section below.

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 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 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. See general well maintenance description below.

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. See general water pipeline maintenance section below.

Redlands Aqueduct Tunnel Maintenance (Redl.07)

See general water pipeline maintenance section below.

East Valley Water District

Pipe 125 Maintenance (EVWD.07)

See general water pipeline maintenance section below.

Well 125 Maintenance (EVWD.08)

See general well maintenance description below.

San Bernardino Valley Water Conservation District

Canal Maintenance (CD.03)

A series of gates can be used to release state project water into this 30-40 yard channel, which is used for recharge with imported water into Conservation District facilities. The channel is not currently used very often, but it is planned to be used for more regular recharge of the basin in wet years. The area is fenced and permanently impacted.

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. See general well maintenance description below.

General Well Maintenance

Long term maintenance activities necessary to operate the wells will be conducted as often as daily with visits to the well by staff for inspection, sampling, repairs, etc. Weeding and other site maintenance activities would occur as needed within the permanent well pad boundary as well as the access roads. Wells require the motor to be pulled every 5 to 6 years.

Maintenance of wells and associated facilities includes rehabilitation, redevelopment, testing, and/or replacement. Typical activities associated with rehabilitation and redevelopment may include, but are not limited to: temporary removal of above/below ground equipment, brushing and bailing, chemical treatment (oxidizers, cleaning agents (surfactant and/or dispersant), and/or acid treatments), redevelopment, and reinstallation of above/below ground equipment. Typical activities associated with aquifer pump testing may include, but are not limited to: step drawdown testing, constant rate pumping test, spinner surveys, downhole video survey, casing sidewall sampling, biological activity reaction test, and/or packer testing for isolated zone sampling.

Pump testing requires a small hole be constrcuted to accept test discharge. A pump test and associated discharge will occur once when a new well initially comes online and each well, existing or new, will be tested once every 15 years.

A list of equipment that may be used for well rehabilitation, redevelopment, testing, and/or replacement include:

1. Cable-tool rig, drill rig, or pump hoist equipment,
2. Nylon, polypropylene, or steel brushes,
3. Dual-swab assembly,
4. Air compressor,
5. Test pumping equipment
6. Discharge measuring device(s), and
7. Water level measuring device(s).

General Water Pipeline Maintenance

Areas that may be affected by pipeline maintenance activities include those around water conveyance systems such as pipelines, pump stations, blow-offs, turnouts, and vaults. The following activities may be conducted as part of routine pipeline maintenance.

- Leak repair. May require blow-off—dewatering of pipes that typically includes a point source of high velocity flow—to local uplands or streams and/or excavation to access pipelines.
- Internal inspection. May require blow-off to local uplands or streams.
- Unscheduled releases of water due to a pressure surge in a pipeline that could damage the pipeline. Under such conditions, an automatic turnout valve will open and release the water to prevent the pipe from bursting. Flows from the pipeline may be reduced following such an event. This is a relatively self-contained process, with the valves opening for less than 1 minute and shutting as soon as system pressure drops.
- Rehabilitation and/or replacement of pipeline components including, but not limited to, air release valves, piping sections or connections, joints, and appurtenances. Activities may include excavation to access pipelines.
- Bank stabilization and erosion control within a creek related to pipeline maintenance. Discharges either come out of pipes within a stream bank and flow down the bank into the channel, or are pumped down or across a stream bank. Bank protection work would occur prior to a planned discharge in areas where banks within 50 feet of the discharge point show signs of erosion or instability. May require excavation.
- Replacement/repair of buried service valves (including valves within creek embankments that may require excavation and minor bank stabilization activities).
- Maintenance of pipeline turnouts, including access to pipelines.
- Replacement/repair of appurtenances, fittings, manholes, and meters.
- Vault maintenance. Vaults occur along segments of pipeline. Pipeline components are located within vaults. There are different types of vaults and all are considered confined spaces. Structures other than the pipeline contained within vaults include valves, electrical stations, turnout piping, etc. Telemetry pull boxes, corrosion monitoring stations, and some air release valves are not located within vaults. Vaults are typically made of concrete and may be located immediately below grade (below ground level) or partially or fully above grade.

- Telemetry cable/system inspections and repairs. Telemetry systems allow communication of data from the pipeline to the pipeline operator so that the operator can track the operations of the pipeline. Telemetry cables are often sited in the center of roads. May require excavation to access system components.
- Meter inspections and repairs. Flow meters measure the rate of flow through a pipeline. Some meters are located in vaults while others are not.
- Maintenance of pump stations, operation yards, utility yards, and corporation yards.

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)

Along the alignment of High.01, the City of Highland has recently constructed a new two-lane roadway and a four-lane bridge, and has separately provided biological mitigation for 9.1 acres of temporary impact and 5.0 acres of permanent impact. High.01 will widen the realigned Greenspot Road from two lanes and two bike lanes to four travel lanes, a center lane, and two bike lanes. It will also be improved with standard street improvements such as curbs, gutters, sidewalk, roadway drainage, street lights, and landscaped parkway etc. High.01 also includes operation and maintenance of the planned improvements.

Alabama Street Widening (High.02)

Within the City of Highland from 3rd Street to approximately 800' southerly, Alabama Street will be widened and improved along the east side to include standard street improvements such as curb, gutter, sidewalk, landscaped parkway, roadway drainage, and street lights. The widened roadway will have four travel lanes, one center lane and two bike lanes. Within the City of Redlands, Alabama Street will be widened along both sides to include the above-mentioned standard street improvements. The widened roadway will have six travel lanes, one center lane, and two bike lanes. High.02 also includes operation and maintenance of the planned improvements.

Greenspot Road Improvements (High.03)

Within the limits of High.03, the City of Highland has recently constructed a new two-lane roadway along the "S" curve, and has separately provided biological mitigation for 6.9 acres of temporary impact and 4.2 acres of permanent impact. High.03 will widen Greenspot Road on the south side generally between Weaver Street and Santa Paula Street, and on both sides between Santa Paula Street and the west limit of High.01. The widened roadway will have four travel lanes, one center lane, and two bike lanes with standard street improvements such as curb, gutter, sidewalk, landscaped parkway, roadway drainage and street lights. High.03 also includes operation and maintenance of the planned improvements.

Orange Street/Boulder Avenue Improvements (High.04)

Within the City of Highland and the City of Redlands, Boulder Avenue/Orange Street from Greenspot Road to the south limit of the Wash Plan will be widened along both sides to include four travel lanes, one center lane and two bike lanes. It will be improved with standard street improvements such as curb, gutter, sidewalk, landscaped parkway, roadway drainage, and street lights. High.04 also includes operation and maintenance of the planned improvements.

For construction of portions of High.01 and High.03, the City of Highland has recently provided biological mitigation outside of the Wash Plan for a total of 15.96 acres of temporary impact and 9.46 acre of permanent impact." It is the intent of the HCP to provide 25.42 acres of biological mitigation for use in future City of Highland transportation projects that are located outside of the Wash Plan.

Maintenance

Maintenance must also take place on other paved roads throughout the District. Maintenance on these roads includes: shoulder grading, easement and weed control, and sign and guardrail replacement. Street sweeping also occurs to make sure the roads are free of debris that could block vehicles from traveling. This more frequent road maintenance takes place whenever it is needed. Long term road maintenance includes drainage facility management, striping, slurry sealing, overlay, and replacement. Drainage facility management should take place at least once a year at the inlets and outlets of drainage facilities. Striping should occur more frequently every 2 to 3 years. Paved roads should receive a slurry seal every 6 to 7 years and an overlay every 20 years. Lastly, roads should be replaced every 40 years.

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 SBKR 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 though 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.

In-Stream Maintenance (FC.01)

San Bernardino County Flood Control District maintains flood control levee structures on the Santa Ana River, Plunge Creek, Mill Creek, and City Creek within the Wash Plan area. In-stream maintenance includes channel centerflow (the establishment and maintenance of a smaller center channel within a channel) to convey low volume flows within the center of an earthen channel to keep flows away from the slopes, and for guiding first-storm flows. A centerflow channel is established by clearing sediment and vegetation within the center of the channel. The centerflow channel generally represents a width of up to 20–50% of the channel, and a depth of approximately 2–3 feet. In stream maintenance also includes debris removal, such as sediment, vegetation, and illegally dumped trash. Standard equipment may include dozers, graders, backhoes, scrapers, and haulers. Removed sediment, vegetation, and other debris may be stockpiled on- or off site prior to final disposal. Clean sediment may be used in bank repairs or as daily cover at local landfills.

Access Road Maintenance (FC.02)

Maintenance of access roads includes road grading, surface repair of potholes and wash-outs, and fencing and gate repairs. Activities may also include excavations of various sizes that may be needed to fill pot holes, conduct drainage and erosion control, conduct shoulder and slope repair, or re-gravel existing access roads. Access road excavations could be very small (e.g., to repair a pot hole or shoulder slump) or involve larger, linear excavations (e.g., to install or replace culverts or drainage ditches, repair slope failures for elevated access road fills).

Levee Maintenance (FC.03)

San Bernardino County Flood Control District maintains flood control levees and other bermed structures on the Santa Ana River, Plunge Creek, Mill Creek, and City Creek within the Wash Plan area. 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) construction to harden or armor the face of the levee to prevent erosion of the embankment; 5) rebuilding storm damaged facilities both as part of a routine maintenance program and as a response to specific emergencies; and 6) maintenance of security structures, such as gates, barriers or fencing.

Stockpiling (FC.04)

Maintenance of stockpile locations includes placement of material (i.e., debris and sediment) at specific locations for use in repairs and temporary storage. Stockpiles are often treated to avoid the spread of invasive plants. The specific stockpile location is an existing mining pit so no new impacts are anticipated.

City of Highland

The City of Highland maintains and operates the Weaver Street Channel (High.10), Greenspot Road Drain Outlets (High.11), and Church Street Channel (High.12). The following activities are expected to occur relative to the maintenance and operations of these existing City drainage facilities:

- Weed control using herbicides and mechanized equipment such as scrapers, loaders and bulldozers along the entire length of the channels and maintenance roads.
- Facility repair, erosion repairs, and sediment removal using mechanized equipment to place along the entire length of the channels and adjacent to the storm drain outlets.
- Reconstruction of damaged facilities as a part of routine maintenance or in response to storm emergencies.
- Maintenance or improvements to security features, such as gates, fencing, signage.
- Installation of drains, pipes or utilities crossing drainage facilities
- Grading and earthwork to maintain the flow lines of the channels

Weaver Street Channel Maintenance (High.10)

Maintenance and operation of an existing City drainage channel located south of Greenspot Road along the southerly projection of Weaver Street. This channel connects to the natural water course of Plunge Creek.

Greenspot Rd. Drain Outlets Maintenance (High.11)

Maintenance and operation of the existing outlets of two City storm drains in Greenspot Road on the east side of Plunge Creek south of Greenspot Road, including the concrete headwalls, grouted riprap and the dirt channel area near the outlets.

Church Street Channel Maintenance (High.12)

Maintenance and operation of an existing City drainage channel located along the southerly projection of Church Street south of Merris Street. This channel connects to the Elder Creek Channel that is owned and maintained by San Bernardino County Flood Control District.

2.2.5 Recreation, Trails, and Open Space

The Wash Plan HCP preserve area will provide recreational benefit to those in nearby communities and can also serve as an educational opportunity to illustrate the benefits of species and open space protection. Therefore, a carefully planned trail system that balances habitat and species conservation is important for conservation as well as recreation. 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 on vegetated areas. The trail system is intended for non-motorized recreational use. Note that the proposed trail crossing of the Woolly-star Preserve Area (WSPA) to connect a trail to the Santa Ana River Trail (SART) in Redlands is not considered a covered activity of this HCP, and approval of the WSPA crossing will require independent wildlife agency approval. The WSPA crossing is addressed here only to provide a full description of activities contemplated in the Wash Plan area.

The construction, operation and maintenance of trails is covered by the HCP and is permissible following completion and of a resource-agency approved trails and recreation plan. At a minimum, the trails and recreation plan will detail how covered species and habitats will be protected and trail related impacts will be avoided, minimized, monitored, and managed. 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 or along 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 on trails, and are therefore not covered 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.

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 actives 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 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)

As noted above, this proposed trail crossing of the WSPA to connect a trail to the Santa Ana River Trail (SART) in Redlands is not a covered activity of this HCP, and approval of the WSPA crossing will require independent wildlife agency approval. The WSPA crossing is addressed

here only to provide a full description of activities contemplated in the Wash Plan area. This potential connection would cross the WSPA at Cone Camp Road and potentially impact 1.3 total acres of previously disturbed habitat. This connection could provide a valuable link to the Santa Ana River Trail and associated local trail systems.

Maintenance

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. These trails must be inspected regularly and kept safe for residents to travel on. Riding and hiking trails need to have even surfaces that are free of erosion damage. All trails are to be kept at least 10 feet wide at all times. Trail surfaces are to be inspected annually, which will determine if the trail surface needs to be graded or replaced. It is best to perform repairs after large rain events where erosion could have taken place. More frequent routine maintenance must also take place. This includes cleaning the trail, incidental repairs to minor erosion, preventative erosion control (such as sand bags, water bars, tolling grade drips and spoons) and weed management. If the trail is also used as a maintenance road, it should be shaped so that the water flows to a location where it can safely leave the trail.

2.2.6 Agriculture Activities

There is one activity in the Plan Area related to agricultural activities and a small recharge demonstration project area at East Valley Water District headquarters.

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.

- Easements and Land Dedications

- 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
    - 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
    - The habitat management is geared towards restoring the Plunge Creek System back to a braided stream using natural processes and hydrology, which will benefit covered species such as SBKR, woolly-star, and spineflower.
- Flood Control Property Dedication
    - Several Flood Control parcels within the Santa Ana River main stem have been identified for conservation with a land dedication. These are high quality areas for the covered species.

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 FESA. 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 such new utility infrastructure, including associated permanent and temporary access roads, or the maintenance of such 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 as approved and allowed by the Conservation District and Wildlife Agencies. 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.

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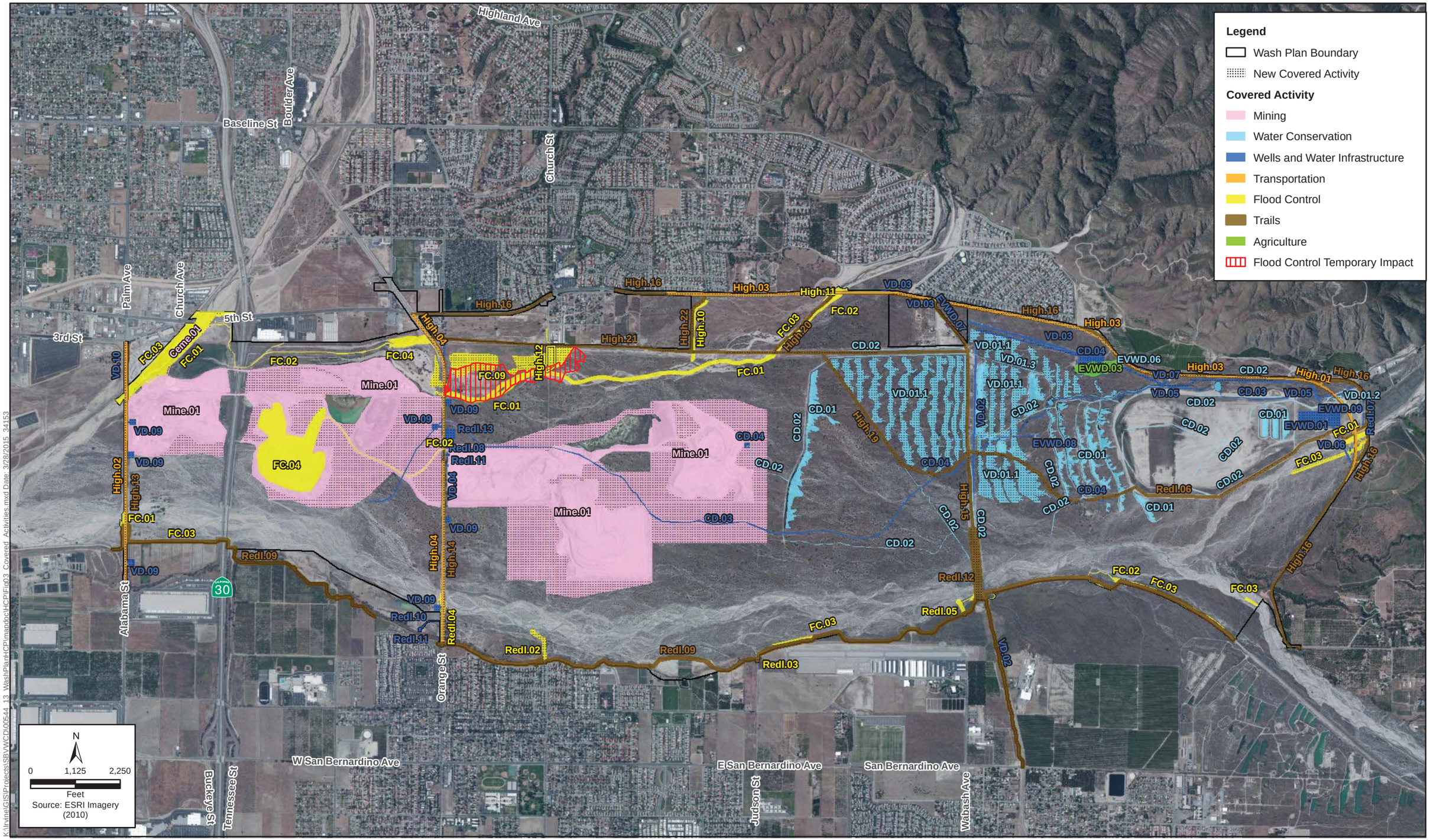

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Figure 3
Location of Covered Activities
Wash Plan HCP

Chapter 3
Plan Area and Biological Resources[2]

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.

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

[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.

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 Conservation District 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 Conservation District on the Santa Ana River and Mill Creek, and facilities operated by the Flood Control on Devil Creek, Twin Creek, Waterman Creek, and Sand Creek, which may also be used for ground water recharge. The Conservation District 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 4) 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 Conservation District maintains water spreading basins in the eastern section. The Flood Control 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 5). The San Bernardino County, mostly Flood Control, owns the corridor along the Santa Ana River, and the parcels along Plunge Creek (1,014.1 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 (39.9 acres). 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 OCFCD owns land on the farthest southeast portion of the Plan Area (14.8 acres). The remaining acreages of ownership (198.7 acres) are private inholdings owned by several different entities.

Easements and existing mitigation areas that occur in the Plan Area include a Conservation District conservation easement established as mitigation for an aggregate vehicle haul road, the WSPA that was established as mitigation for the Seven Oaks Dam, and the City of Highland's biological mitigation areas (Figure 6). 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.

BLM Land Exchange

The Bureau of Land Management (BLM) is exchanging federal lands for equivalent lands owned by the Conservation District in the Wash Plan area. The transfer will allow BLM to dispose of fragmented federal lands and consolidate future management of 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 (including current habitat conservation areas of BLM designated ACEC lands and Research Natural Areas (RNA)), as well as District conservation easement area (established as mitigation for an aggregate vehicle haul road), the WSPA (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 roughly 1,215 acres or approximately 25 percent of the Wash Plan area.

Table 3-1. Ownership in the Plan Area

Ownership	Acres in Plan Area
Permittees	
San Bernardino Valley Water Conservation District	1,906.9
San Bernardino County Flood Control District	1,034.6
BLM	972.3
Robertson's Ready-mix	338.8
City of Redlands	159.6
City of Highland	39.9
East Valley Water District	25.0
San Bernardino Valley Municipal Water District	8.2
Non-Permittees	
Private	198.7
Local Roadway Right of Way	149.8
Caltrans Ownership - Not A Part	37.6
Orange County Flood Control District	14.8
Metropolitan Water District	5.5
Total	4,892.2

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 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: woolly-star and 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 Conservation District lands. The BLM will exchange public lands located within the Santa Ana River Wash ACEC for Conservation District property to increase lands designated for managed habitat protection, improved connectivity for wildlife movement and gene flow for the SBKR, spineflower, and woolly-star. The exchange will result in a minor loss of lands for water

conservation. The Conservation District 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. Conservation District 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 Conservation District lands received from Conservation District 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 Conservation District land (Figure 7). Additionally, up to 85 acres of BLM land and up to 60 acres of Conservation District 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 Conservation District 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

Eleven 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 non-native grass abundance, which is of particular importance to SBKR habitat quality (Figure 8). Table 3-2 lists the acres of each vegetation or land cover type in the Plan Area.

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.

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	466.2
Riversidean Alluvial Fan Sage Scrub - Intermediate	1,070.6
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	1,039.5
Riversidean Alluvial Fan Sage Scrub - Mature	536.8
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	109.2
Riversidean Upland Sage Scrub	9.4
Willow Thickets	11.5
Mule Fat Scrub	1.4
Aquatic Vegetation	1.0
Non-Native Grassland (NNG)	160.8
Perennial Pepper Weed	20.0
Tamarisk Thickets	30.1
Recharge Basin	68.9
Active Sedimentation Basin	13.2
Developed/Ruderal	1,353.5
Total	**4,892.2**

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-star, 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 cryptogrammic 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). Some areas of the Plan Area where intermediate and mature intergrade have been classified as Riversidean Alluvial Fan Sage Scrub - intermediate/mature.

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 areas of the Plan Area where non-native grasses predominate in the understory have been classified as mature RAFSS/non-native grassland.

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.

Willow Thickets

The active mining operation has sedimentation basins that are used to receive excess water from processing the aggregate. On the boundaries of these active sedimentation basins, willow thickets have formed. Although not all willow species were systematically identified within this plant community, expected species include black willow (*Salix gooddingii*), sandbar willow

(Salix exigua), and arroyo willow (*Salix lasiolepis*), as well as a secondary species such as mulefat (*Baccharis salicifolia*) and Freemont cottonwood (*Populus fremontii*).

Mule Fat Scrub

There are several areas near the Plunge Creek and City Creek confluence where mulefat is the predominant plant species, and these have been classified as mule fat scrub (or mule fat thickets). Other much less dominant species observed within these areas includes black willow, pepper weed (*Lepidium latifolium*), and California sagebrush.

Aquatic Vegetation

The active mining operation has sedimentation basins that are used to receive excess water from processing the aggregate. Within the central portion of these active sedimentation basins, aquatic vegetation was observed to be dominated by cattail (*Typha* species). This community was not closely inspected so secondary species were not identified.

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.

Perennial Pepper Weed

One area dominated by perennial pepper weed, 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.

Tamarisk Thickets

The mining areas have inactive sedimentation basins that were formerly used to receive excess water from processing the aggregate. These areas may have minimal to no current artificial water inputs. Where there are still some minimal water inputs, the areas is dominated by fairly large lush tamarisk (*Tamarix ramosissima*), with a secondary species of Freemont's cottonwood. Other sedimentation basins where there are no current artificial water inputs are dominated by more sparse and infrequent tamarisk, with more ground cover dominated by open sands, as well as a large component of dead and dying wood from the tree species that occupied this area when the sedimentation basin was active.

Recharge Basins

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

Active Sedimentation Basin

The active mining operation has sedimentation basins that are used to receive excess water from processing the aggregate. The open water and bare ground (including silt/mud flat) areas of these basins have been classified as an active sedimentation basin land cover type. It is expected that there would a large amount of year-to-year variation in this area depending on season and the overall activity level of the mining operation. Furthermore, once the artificial water source is removed, the land cover type would be expected to fairly rapidly convert to something different.

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 (spineflower, woolly-star, gnatcatcher, coastal cactus wren, and SBKR), which also summarize what is known about their occurrence in the Plan Area.

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 9.	Typically found on alluvial terraces away from active channels in areas receiving little surface disturbance from flooding, but subject to sheet or overland flows (Wood and Wells 1996). Populations occur in shallow depressions on relatively flat (0-2% slopes) surfaces (Wood and Wells 1996). The association with older (100 year+) 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). Soil texture at occupied sites are silt, loamy sand, and sand, as well as slightly acid (pH 6.4) with low levels of nitrogen, phosphorus, and organic matter and low electrical conductivity and low cation exchange (Allen 1996). These habitat features are most closely associated with the intermediate and intermediate-mature phases of Riversidean alluvial fan sage scrub.	Was first described as *Centrostegia leptoceras* in 1870 and then published as *Chorizanthe leptoceras* 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). Seed bank enhances genetic diversity because germinating plants in a single season lack the full gene diversity of the population (Ferguson and Ellstrand 1999).	Demographic and genetic diversity studies indicate seed bank is long-lived (Ferguson and Ellstrand 1999). Pollination information is limited. Thought to be pollinated by various small insects (3). The single-seeded fruits are located in involucres with hooked spines that may attach to wildlife for dispersal. Seeds are glabrous with no dispersal mechanisms of their own (1). Although not well understood, seed dispersal may occur by local overland flow during rain events (USFWS 2010). Some level of surface disturbance (e.g., sheet flows or soil disturbances during and following fire) may enhance germination in years following the disturbance (USFWS 2010).	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).

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 involucres (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 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 Are, 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.

Phenology

	Month											
Life Stage/Activity Period	**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

Table 3-4. Santa Ana River Woolly-Star (*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 10.	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 *Hugelia densiflorum* and changed to *Eriastrum* in 1945. Currently five total subspecies are described for this species (4). Also thought to intergrade with other subspecies, namely subspecies *elongatum* around Cajon Creek and Lytle Creek and subspecies *austromontanum* 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 *Hyles lineata*, two bees, *Micranthophora flavocincta* and *Bombus californicus*, and two hummingbirds, black-chinned hummingbird (*Archilochus alexandri*) and Anna's hummingbird (*Calypte anna*) (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).

Life History/ Demography	Seasonal Phenology
Perennial subshrub. Typically living 5 years but some individuals known to live to 10 years (2). 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

	Month											
Life Stage/Activity Period	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

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 11.	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 *Artemisia californica, Eriogonum fasciculatum, Encelia californica, E. farinosa*, and various species of *Salvia* (5).	Monogamous. Breeds from mid-February to August. Both adults 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). Nest success, fledging survival, and adult survival positively correlated with horizontal and vertical perennial structure of nest patches and territories (Braden et al. 1997; Braden 1999).	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). Maximum recorded dispersal distances for juvenile male and female CAGN were 10 and 30 kilometers respectively.	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), especially in the non-breeding season. During the breeding season, home range becomes smaller (4).	Gleans insects from vegetation, primarily *Artemisia* and *Eriogonum* (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 subspecies of gnatcatcher. *P.c. californica* is the northernmost subspecies of California gnatcatcher. Other subspecies (*P.c. pontilis* and *P.c. margaritae*) are located in Baja California (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 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 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 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

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

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

Table 3-6. Coastal cactus wren (*Campylorhynchus brunneicapillus*): Coastal Race, California Species of Special Concern

Current Distribution: Range-wide/Plan Area	Habitat Requirements	Reproduction	Dispersal	Threats
Found in California east to Texas, extending south through Baja California and mainland Mexico (1). Plan Area Occurs along the alluvial plains of the Santa Ana River, Plunge Creek, and Mill Creek. See Figure 12.	Requires native scrub with extensive cholla (*Cylindropuntia*) or prickly-pear (*Opuntia*), (typically ≥1 m tall). In preferred scrub, non-cactus shrubs are 0.5–1.0 m tall, especially California buckwheat (*Eriogonum fasciculatum*) and California sagebrush (*Artemisia californica*). Scrub types dominated by shrubs >2.0 m tall or sages (*Salvia* spp.) tend to be avoided (1).	Nests in prickly pear, cholla, or yucca between 3 and 6 feet tall (1), and averaging 4 to 5 feet tall (3). Other documented nest shrubs include chamise, juniper, and mountain mahogany. 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).	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).	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).

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 *Campylorhynchus brunneicapillus* (1), two occur within southern California. *C.b. sandiegensis* is found in San Diego County and southern Orange County, whereas populations elsewhere on the coastal slope are classified as *C.b.anthonyi* (3). Current molecular evidence does not support historical separation of gene lineages between *C.b. sandiegensis* and *C.b. anthonyi* 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 coastal 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 coastal cactus wrens in locations where cactus patches are in poor health (possibly due to disease and/or drought).

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 coastal 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

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 13.	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 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).	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 seeds and herbaceous material consumed (12).	One of three subspecies of Merriam's kangaroo rat (*Dipodomys merriami*) in California (2). No genetic studies conducted (2). However, is the most highly differentiated subspecies of *Dipodomys merriami* (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). 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

	Month											
Life Stage/Activity Period	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

3.4.1 Mapping Species Potential Distribution in the Plan Area

It is important to have a good understanding of the distribution of each Covered Species in the Plan Area so that the potential effects of Covered Activities can be estimated (estimation of Take), and so that areas for mitigation of those effects can be identified. 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 distribution of potentially suitable habitat was used in conjunction with occurrence data. Supplemental habitat assessment surveys were conducted to map habitat suitability for SBKR.

Predicted Potentially Suitable Habitat Distribution 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 expected to be occupied by the subject species at any one time due to the population dynamics of species that changes their local distribution over space and time. In addition, there are small-scale habitat features that are not mapped in the GIS database that can affect the suitability of habitat.

It is important to note that the predicted potentially suitable habitat distribution models are one of many tools used in development of the HCP. The models are helpful in developing the initial estimate of Take so that the amount of Take can be quantified for the issuance of the ITP. During implementation of the HCP the actual Take will be measured through pre-activity surveys that document habitat and species presence on the ground just prior to initiation of the Covered Activity. Furthermore, management and monitoring decisions are not made based on these habitat distribution models. Instead, the preserve areas will be surveyed during baseline surveys in the early years of HCP implementation and specific management and monitoring decisions will be made based on the survey data and on the ground habitat evaluation.

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. Therefore, the most important factor driving the species models is generally the vegetation communities/land cover mapping.

Known Species Occurrences

Species occurrence data is also of clear importance in understanding the distribution of species and the potential effects of Covered Activities. The species occurrence database was developed from species occurrence sources including the California Natural Diversity Database (CNDDB), USFWS listed species database, San Bernardino County Museum database, USGS survey reports, consultant reports, and focused surveys conducted for the HCP. The occurrence data sources for each species are noted below. Occurrences were categorized into historic (pre-2000) or recent (post-2000).

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

Slender-Horned Spineflower

Occurrences of spineflower were compiled from a variety of sources:

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

Mapping Habitat Distribution

Potentially suitable spineflower habitat was mapped by selecting the two vegetation types that spineflower is typically associated with (i.e., Riversidean alluvial fan sage scrub intermediate, and Riversidean alluvial fan sage scrub intermediate-mature). Known occupied habitat was mapped by buffering the known occurrence points by 100 feet where they occur within these two vegetation types to identify the surrounding habitat supporting the one or more plants occurring at each location.

Applications for Estimating Take and Developing the Conservation Strategy

Identification of conservation areas (Newly Conserved and Additionally Managed) focused on concentrations of known occupied habitat, while future spineflower surveys will be conducted throughout the conservation areas to inform future management and monitoring for this species. Potential Take of the species from Covered Activities are calculated based on the distribution of potentially suitable habitat and the known occurrences. Pre-activity surveys will document actual Take that is unavoidable just prior to initiation of the Covered Activity.

Santa Ana River Woolly-Star

Occurrences of woolly-star were compiled from a variety of sources:

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

Mapping Habitat Distribution

Thorough and systematic surveys for woolly-star have recently been completed. The results of these surveys were used to map the distribution of the species in the Plan Area. For mapping of the distribution of 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. Each grid cell that documented woolly-star presence was placed into one of four abundance categories for abundance (>50, 25-50, 1-25, and not present). Other occurrence data

sources for woolly-star was overlaid on the grid to determine if any fell within grid cells marked as not present. If a recorded observation of 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 and the pattern of occupied grid cells was used to map the species distribution in the Plan Area.

Applications for Estimating Take and Developing the Conservation Strategy

Identification of conservation areas (Newly Conserved and Additionally Managed) focused on concentrations of known occupied habitat. Future surveys will be conducted throughout the conservation areas to inform future management and monitoring for this species. Potential Take of the species from Covered Activities are calculated based on the distribution of known occupied habitat. Pre-activity surveys will document actual Take that is unavoidable just prior to initiation of the Covered Activity.

California Gnatcatcher

Occurrences of gnatcatcher were compiled from the following sources:

- USFWS Carlsbad office occurrence database for listed species.
- California Natural Diversity Database.

Mapping Habitat Distribution

The distribution of potentially suitable gnatcatcher nesting habitat was mapped by selecting from the vegetation map the preferred plant community (Riversidean sage scrub) most often used by nesting gnatcatchers in the Plan Area vicinity. Another area mapped as Riversidean alluvial fan sage scrub mature is very similar to an area adjacent to the Plan Area (based on aerial photo interpretation) that is known to support breeding gnatcatchers. Therefore, this additional area was also included as of potentially suitable nesting habitat.

Potentially suitable gnatcatcher foraging habitat was mapped by selecting all scrub plant communities, broadly representing the distribution of foraging habitat.

Applications for Estimating Take and Developing the Conservation Strategy

The number of gnatcatcher occurrences in the Plan Area is limited. Therefore, the identification of conservation areas (Newly Conserved and Additionally Managed) focused on the areas of potentially suitable nesting habitat and surrounding suitable foraging habitat. Future gnatcatcher surveys will be conducted throughout the conservation areas to inform future management and monitoring for this species. Potential Take of the species from Covered Activities are calculated based on the distribution of potentially suitable nesting and foraging habitat and the known occurrences. Pre-activity surveys will document actual Take that is unavoidable just prior to initiation of the Covered Activity.

Coastal cactus wren

Occurrences of coastal cactus wren were compiled from a variety of sources:

- San Bernardino County Museum occurrence database.
- 2014 field work completed specifically for the Wash Plan.
- Coastal cactus wren Conservation Group database.
- USGS coastal cactus wren genetic study (2012).

Mapping Habitat Distribution

Field work was conducted in 2014 by Jericho Systems for the Plan Area to map suitable cactus patches (over 75 cm in height), nesting evidence, and incidental coastal cactus wren observations. All cactus patch points over 75 cm in height were determined to be potentially suitable nesting habitat. A 50-foot buffer was used to capture the habitat surrounding the cactus patches and represent the potentially suitable coastal cactus wren nesting habitat area.

Potentially suitable coastal cactus wren foraging habitat was mapped by selecting all scrub plant communities, broadly representing the distribution of foraging habitat.

Applications for Estimating Take and Developing the Conservation Strategy

The identification of conservation areas (Newly Conserved and Additionally Managed) focused on the areas of potentially suitable nesting habitat and surrounding suitable foraging habitat. Future coastal cactus wren surveys will be conducted throughout the conservation areas to inform future management and monitoring for this species. Potential Take of the species from Covered Activities are calculated based on the distribution of potentially suitable nesting habitat and foraging habitat and the known occurrences. Pre-activity surveys will document actual Take that is unavoidable, including impacts on suitable cactus patches, just prior to initiation of the Covered Activity.

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 from numerous sources.
- California Natural Diversity Database.
- 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

Mapping Habitat Distribution

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 of functional ecological processes that create and maintain SBKR habitat, and connectivity to existing protected areas. The resulting 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 based on these factors. Detailed descriptions of the sources of information and processes to interpret the information are included below.

<u>San Bernardino Kangaroo Rat Trapping Data</u>

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.

Connectivity to Existing Conservation Areas, 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. 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 Potential Habitat Suitability Model

An SBKR potential habitat suitability 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 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 (non-native 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 sufficient detail. Therefore, subsequent systematic surveys were initiated to refine the mapping of potentially suitable habitat.

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

SBKR Habitat Assessment Surveys

A systematic survey of potentially suitable SBKR habitat in the HCP area was conducted by the USFWS 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 cryptogramic 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.

Applications for Estimating Take and Developing the Conservation Strategy

The identification of conservation areas (Newly Conserved and Additionally Managed) focused on the areas of potentially suitable nesting habitat and surrounding suitable foraging habitat. Future coastal cactus wren surveys will be conducted throughout the conservation areas to inform future management and monitoring for this species. Potential Take of the species from Covered Activities are calculated based on the distribution of potentially suitable nesting habitat and foraging habitat and the known occurrences. Pre-activity surveys will document actual Take that is unavoidable, including impacts on suitable cactus patches, just prior to initiation of the Covered Activity.

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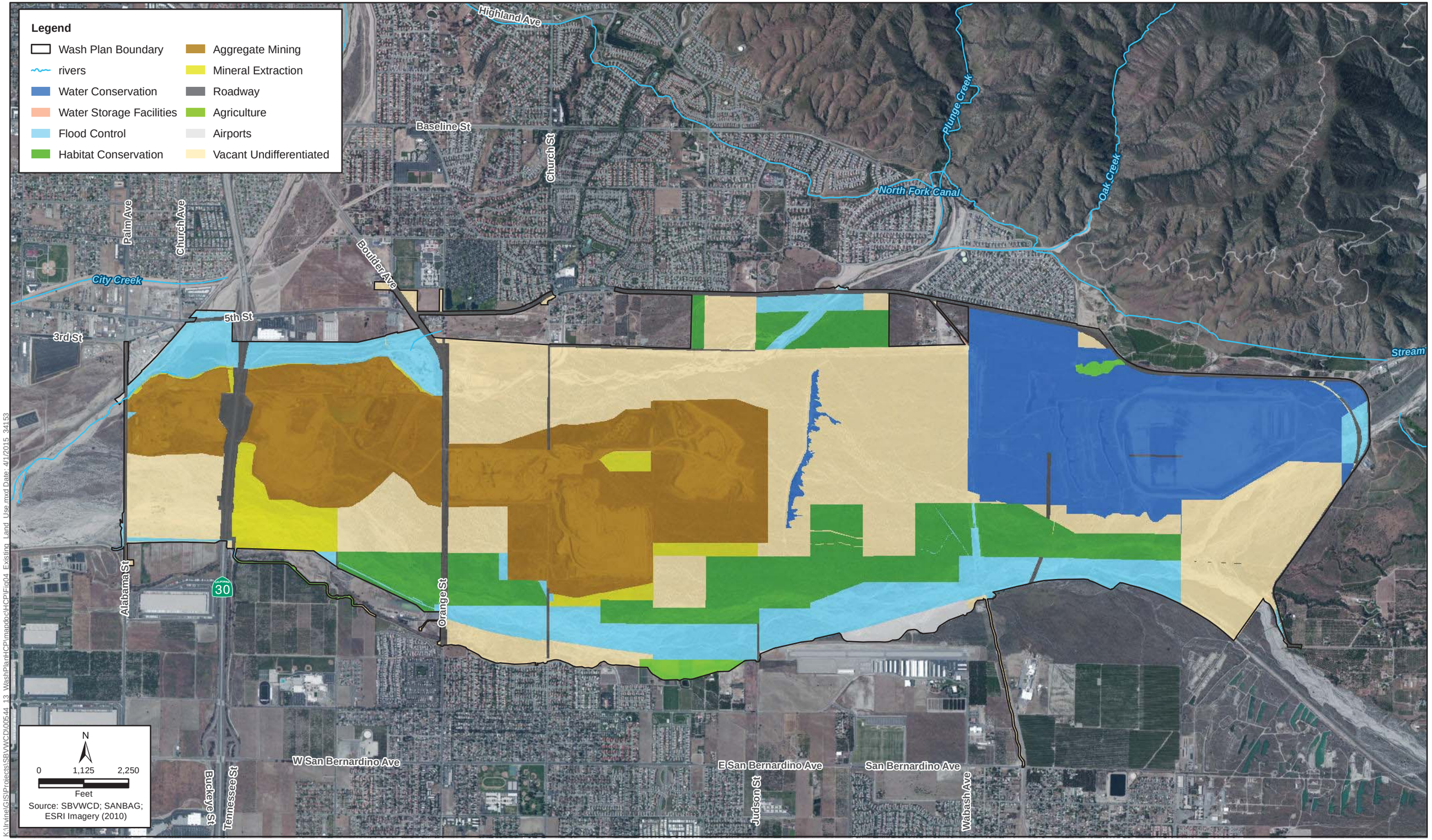
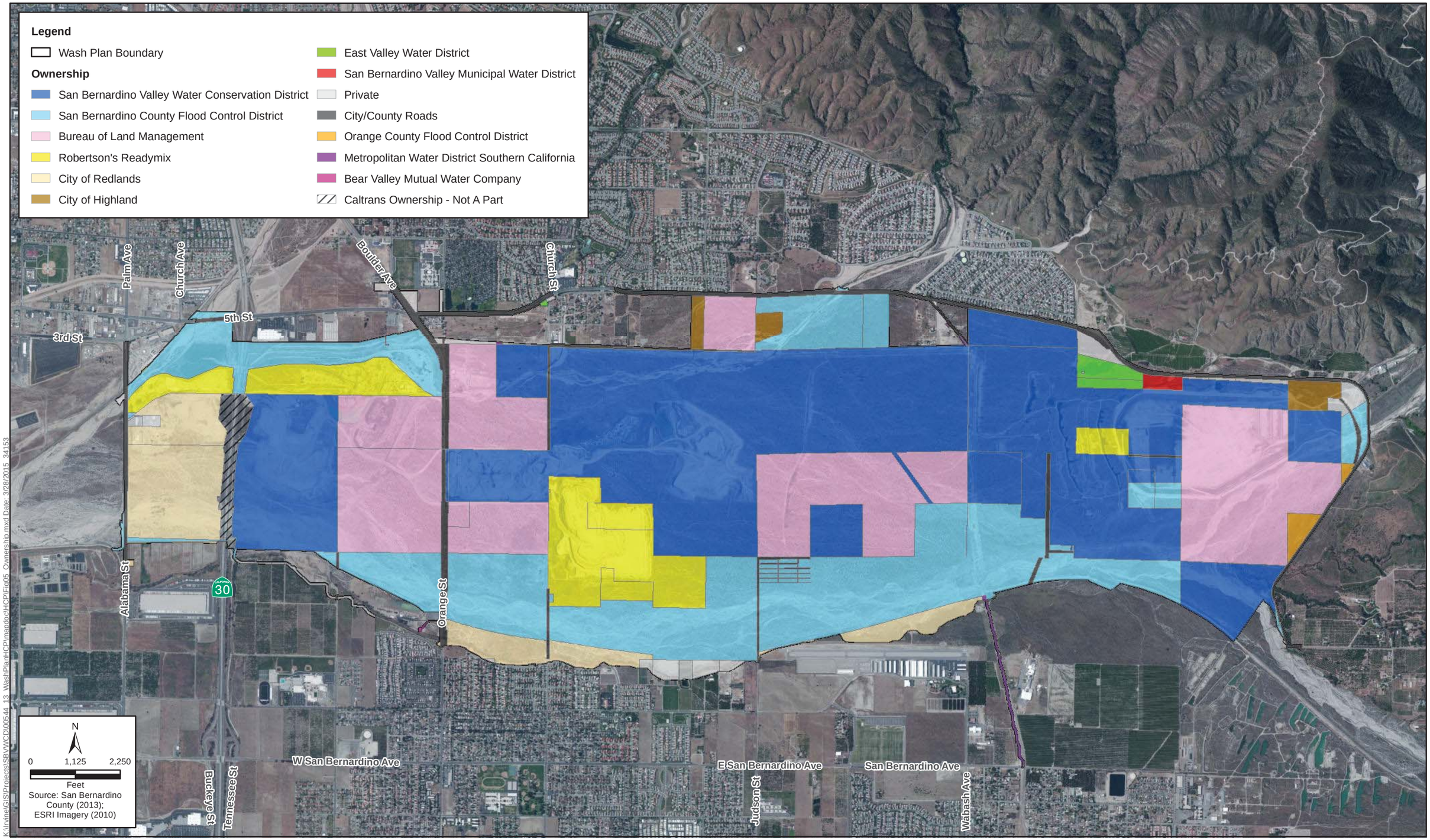


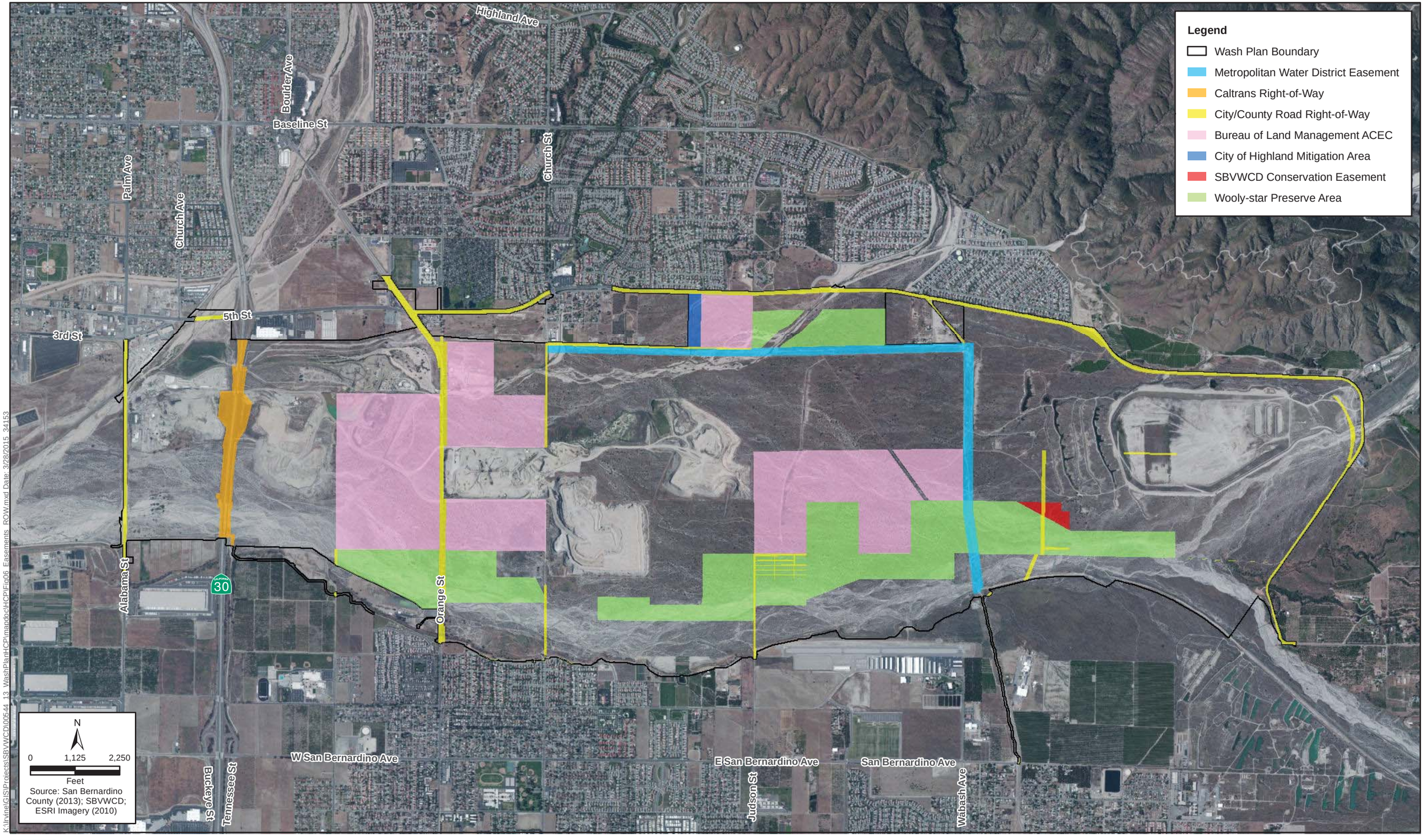
K:\Irvine\GIS\Projects\SBVWCD\00544_13_WashPlanHCP\mapdoc\HCPFig04_Existing_Land_Use.mxd Date: 4/1/2015 34153

Figure 4
Existing Land Use
Wash Plan HCP



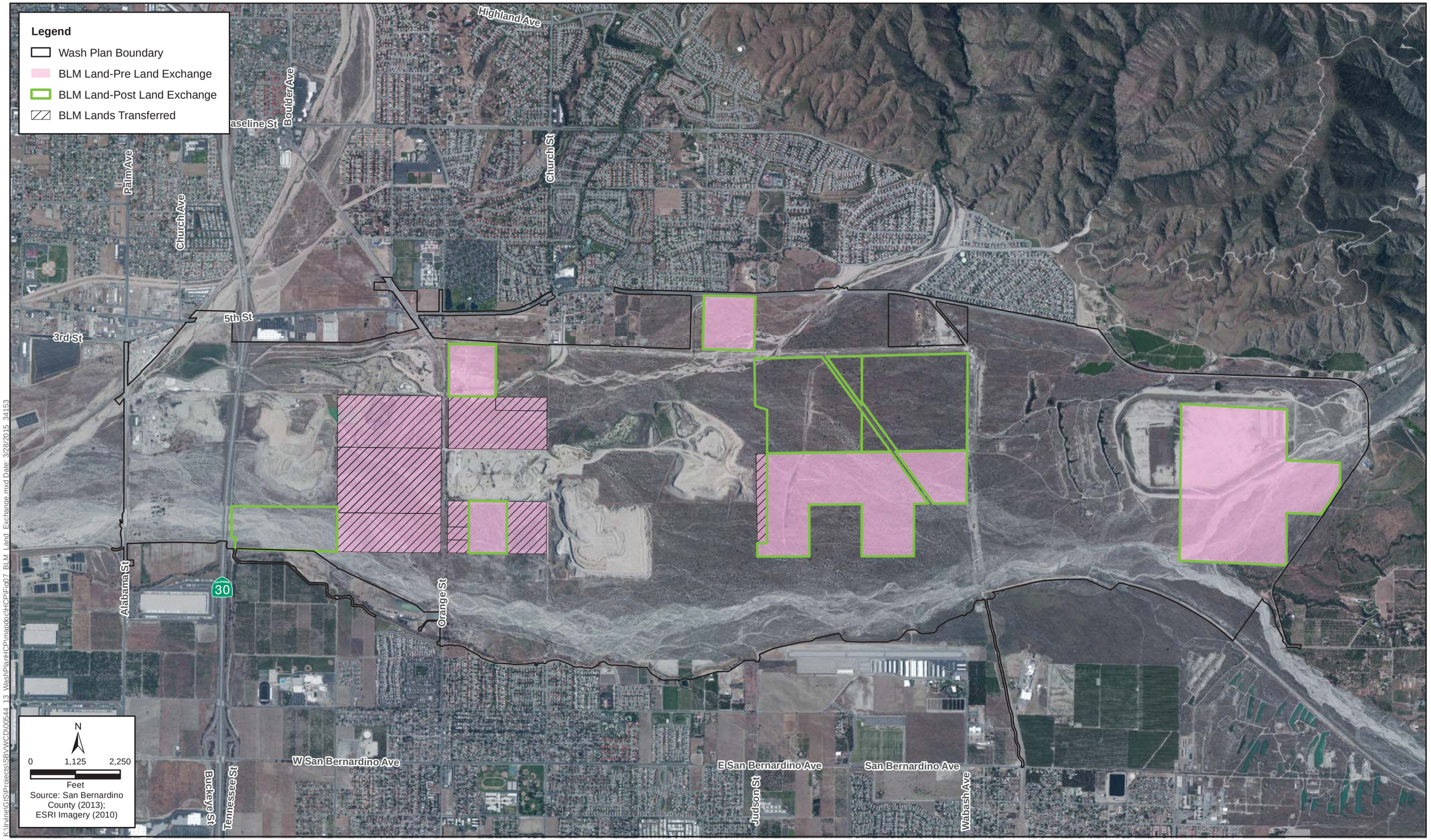
K:\Irvine\GIS\Projects\SBVWCD\00544.13_WashPlanHCP\mapdoc\HCPFig05_Ownership.mxd Date: 3/28/2015_34153

Figure 5
Ownership within the Plan Area
Wash Plan HCP



K:\Irvine\GIS\Projects\SBVWCD\00544_13_WashPlanHCP\mapdoc\HCPFig06_Easements_ROW.mxd Date: 3/28/2015 34153

Figure 6
Easements, Right-of-Ways and ACEC
Wash Plan HCP



K:\Irvine\GIS\Projects\SBVWCD\00544.13 WashPlan\HCP\mapdoc\HCPFig07 BLM Land Exchange.mxd Date: 3/28/2015 34153

Figure 7
BLM Land Exchange
Wash Plan HCP

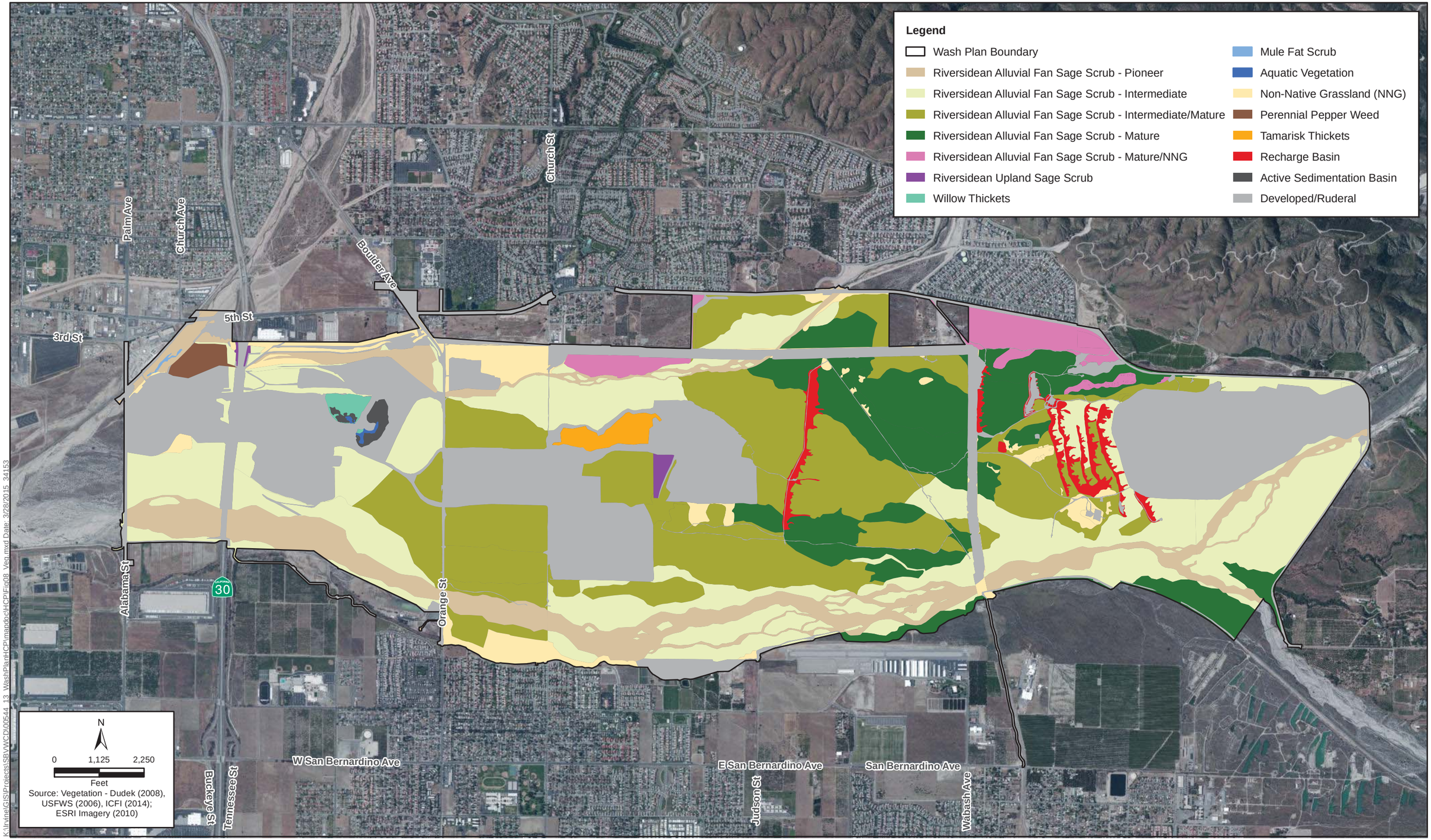


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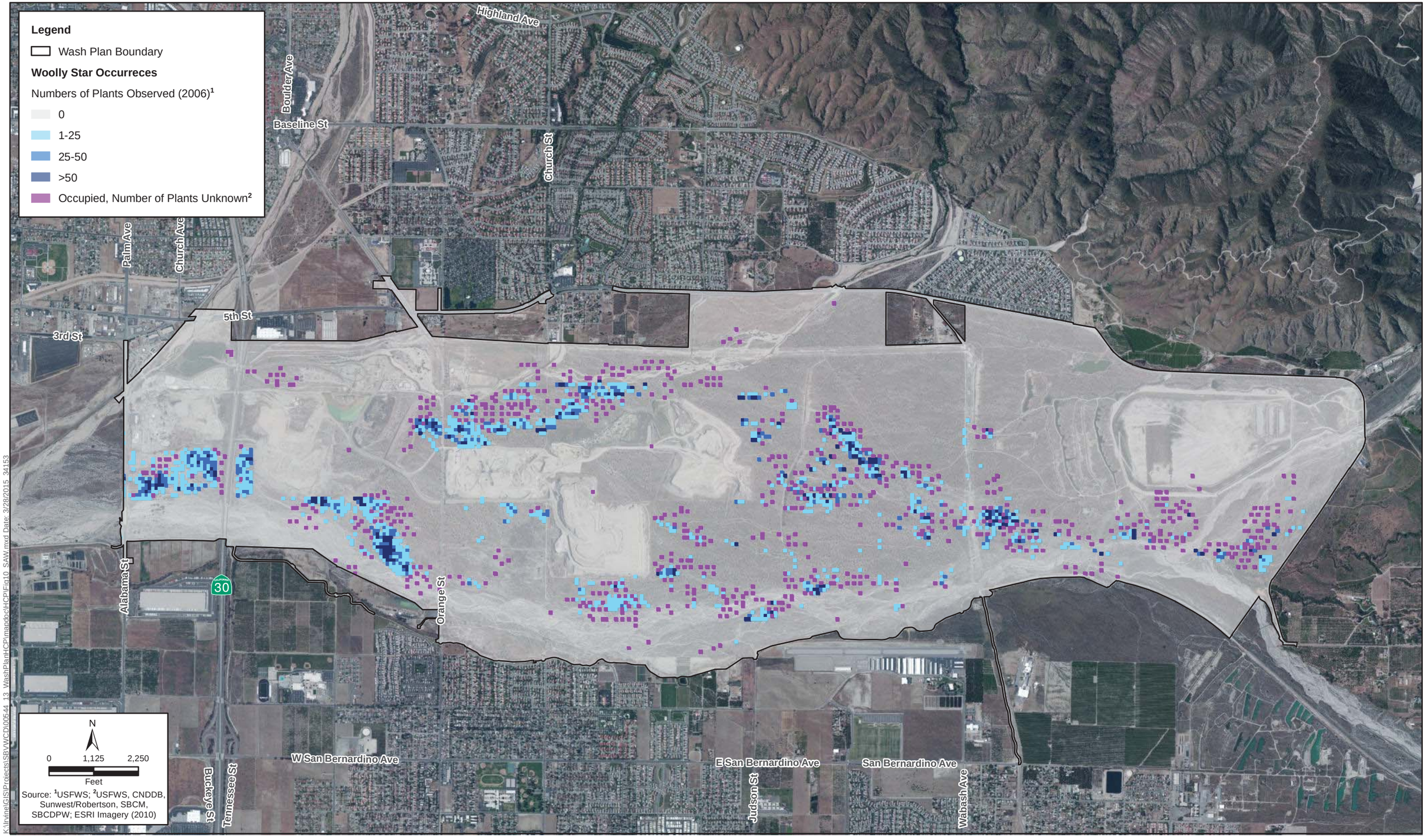
Figure 8
Vegetation Types in the Plan Area
Wash Plan HCP

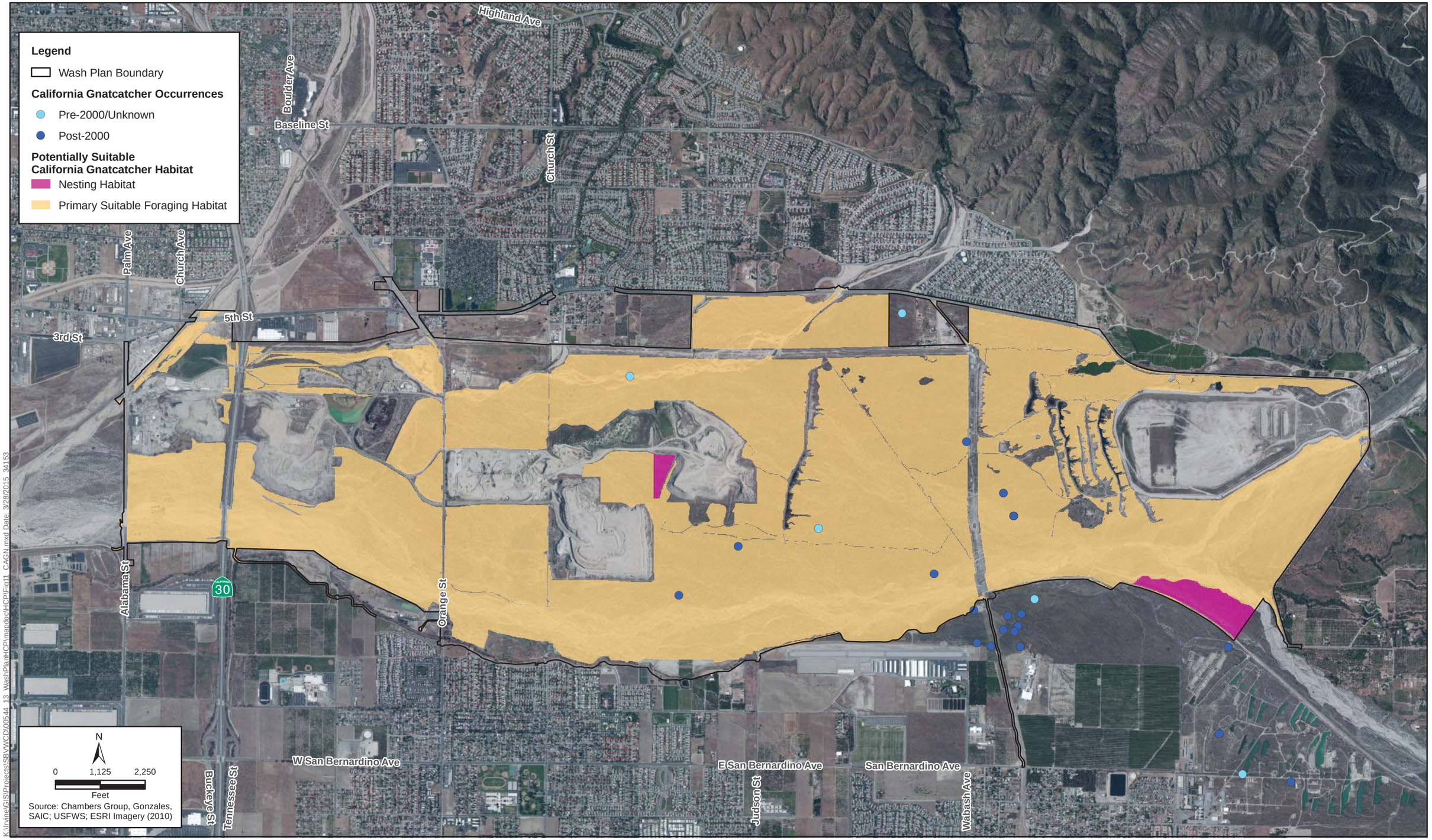
K:\Irvine\GIS\Projects\SBVWCD\00544.13_WashPlanHCP\mapdoc\HCPFig09_Spineflower.mxd Date: 3/28/2015 34153

Figure 9
Potentially Suitable Slender-horned Spineflower Habitat and Occurrences
Wash Plan HCP



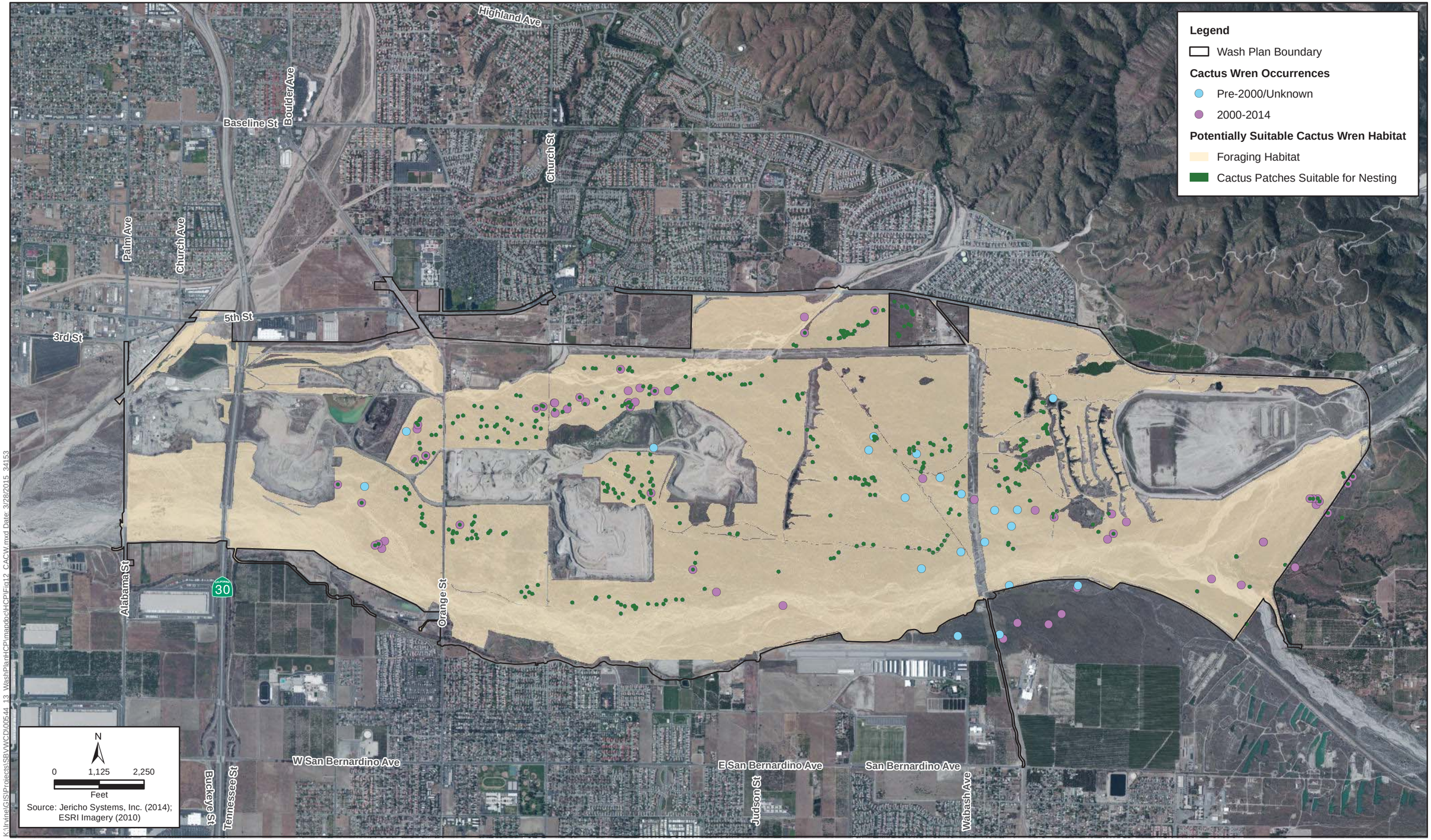
K:\nvnet\GIS\Projects\SBVWCD\00544_13_WashPlanHCP\mapdoc\HCPFig10_SAW.mxd Date: 3/28/2015 34153

Figure10
Santa Ana Woolly Star Occurrences
Wash Plan HCP



K:\Irvine\GIS\Projects\SBVMCD\005443_13_WashPlanHCP\mapdoc\HCPFig11_CAGN.mxd Date: 3/28/2015_34153

Figure 11
Potentially Suitable California Gnatcatcher Habitat and Occurrences
Wash Plan HCP



K:\Irvine\GIS\Projects\SBVMCD\00544_13_WashPlanHCP\mapdoc\HCPFin12_CACW.mxd Date: 3/28/2015 34153

Figure 12
Potentially Suitable Cactus Wren Habitat and Occurrences
Wash Plan HCP

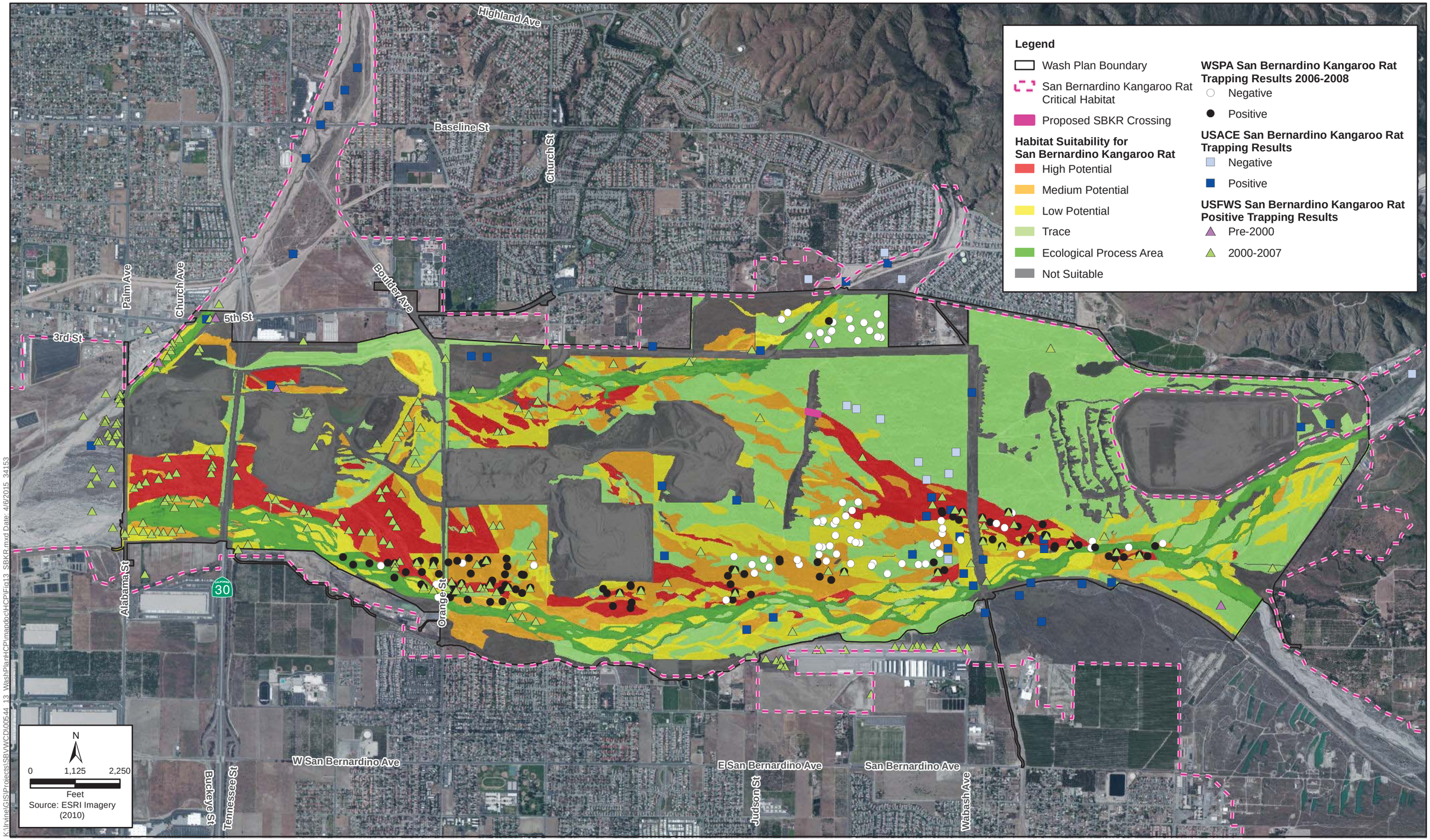


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Figure 13
San Bernardino Kangaroo Rat Habitat Suitability Survey Results and Trapping Data
Wash Plan HCP

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 14-19 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. The implementation of the HCP has been divided into three phases in 10-year increments that span the 30-year permit term (see Section 6.2.1). All covered activities are anticipated to occur within the first 10 years (Phase 1), with the exception of mining activities, which will also occur in Phases 2 and 3 according to the mining phasing schedule listed in Table 2-2.

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 14 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.

The majority of impacted acres (358.7 acres) are associated with mining activities and will occur in areas contiguous with existing mining operations, which leaves the vegetation communities and covered species habitat largely intact with a high level of connectivity within and among habitat types.

4.3 Slender-Horned Spineflower Impacts

The distribution of spineflower in the plan area is quantified in two ways. First, by quantifying the area of known previously and currently occupied habitat (100 ft buffer around known occupied locations); and second by quantifying the amount of potentially suitable habitat based on the distribution of vegetation communities that support spineflower. Of the 42.7 acres of occupied habitat, 7.3 acres (17%) will be potentially impacted by covered activities (Table 4-3; Figure 15). Of the 1,427.4 acres of potentially suitable habitat, 410.2 acres (29%) are potentially impacted by covered activities. While none of the recently occupied areas are impacted, one location will become isolated from the other locations where it will be left as an "island" of habitat surrounded by existing and future mining operations. Avoidance and minimization measures will be implemented prior to undertaking each covered activity to

Table 4-1. Potential Impacts to Vegetation Communities

Land Cover Type	Impacts (acres)
Natural Habitats	
Riversidean Alluvial Fan Sage Scrub – Pioneer	38.6
Riversidean Alluvial Fan Sage Scrub - Intermediate	155.4
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	262.2
Riversidean Alluvial Fan Sage Scrub - Mature	139.8
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	23.0
Riversidean Upland Sage Scrub	7.8
Willow Thickets	0.5
Mule Fat Scrub	1.4
Aquatic Vegetation	0.8
Non-Native Grassland (NNG)	49.6
Perennial Pepper Weed	0.0
Tamarisk Thickets	7.6
Recharge Basin	44.3
Active Sedimentation Basin	10.3
Developed/Ruderal	864.7
Total Area of Covered Activities	1,605.9

reduce the overall quantity of take as much as is feasible (see Section 5.4 General Avoidance and Minimization Measures). Critical habitat has not been designated for spineflower.

4.4 Santa Ana River Woolly-Star Impacts

The distribution of woolly-star in the plan area is quantified by indicating the total area of occupied grid cells (25 m x 25 m) documented as occupied by woolly-star. Of the 323.8 acres of occupied habitat, 47.3 acres (15%) will potentially be impacted by covered activities (Table 4-3). As shown in Figure 16, the largest concentrations of occupied habitat (including those areas with the highest density of plants) are generally unaffected by direct impacts of covered activities, or are impacted at the edges of population clusters. Therefore, the covered activities leave the populations largely intact with continued habitat connectivity between occupied areas. Avoidance and minimization measures will be implemented prior to undertaking each covered activity to reduce the overall quantity of take as much as is feasible (see Section 5.4 General Avoidance and Minimization Measures). Critical habitat for woolly-star has not been designated.

Table 4-2. Potential Impacts of Individual Covered Activities on Vegetation Communities

	Impacts on Vegetation																
Covered Activity Code	RAFSS - Pioneer	RAFSS - Intermediate	RAFSS - Intermediate/ Mature	RAFSS - Mature	RAFSS - Mature/NNG	Riversidean Upland Sage Scrub	Willow Thickets	Mule Fat Scrub	Aquatic Vegetation	Non-Native Grassland	Perennial Pepperweed	Tamarisk Thickets	Recharge Basin	Active Sedimentation	Developed/ Ruderal	Total
CD.01		2.6	6.6	1.5						0.9			39.7		13.8	65.1
CD.02	0.0	0.3	3.0	9.5	0.6	0.0				0.3			3.6		24.0	41.3
CD.03		1.4	10.6	2.9		0.0				0.4			0.1		4.4	19.9
CD.04			0.5	0.4	0.4					0.1					0.3	1.6
Ceme.01	0.5														0.7	1.2
EVWD.01															6.2	6.2
EVWD.02				0.4	4.5										5.1	10.0
EVWD.03				0.2	0.4										6.1	6.7
EVWD.04				0.4	0.2											0.5
EVWD.05			0.2	0.3												0.5
EVWD.06				0.5												0.5
EVWD.07			0.3	0.7	0.0					0.0					2.9	4.0
EVWD.08				0.0											0.1	0.1
EVWD.09															4.0	4.0
FC.01	22.8	6.0	0.0	0.2	0.0			1.3		2.8					5.0	38.2
FC.03	1.1	2.7	0.1	0.7		0.0				1.2	0.0				15.7	21.5
FC.04	12.6	11.7	0.0	8.6	0.2			0.1		2.0					5.8	41.0
FC.09		0.0			0.2					0.3					65.2	65.7
High.01	0.6	2.4			0.1					15.2					12.2	30.9
High.02	0.1	2.2													2.7	5.0
High.03	0.0	0.1													11.4	11.6
High.04		0.7		0.6	1.0										19.4	21.6
High.10	0.1	0.2	0.9							0.7					10.9	12.8
High.11		0.1	0.9		0.0										1.5	2.5

Covered Activity Code	Impacts on Vegetation																
	RAFSS - Pioneer	RAFSS - Intermediate	RAFSS - Intermediate/ Mature	RAFSS - Mature	RAFSS - Mature/NNG	Riversidean Upland Sage Scrub	Willow Thickets	Mule Fat Scrub	Aquatic Vegetation	Non-Native Grassland	Perennial Pepperweed	Tamarisk Thickets	Recharge Basin	Active Sedimentation	Developed/ Ruderal	Total
High.12	0.2									0.1					0.0	0.2
High.13										0.6					2.1	2.7
High.14															0.6	0.6
High.15										0.1					1.5	1.6
High.16			0.5	0.1	0.0					0.1					3.0	3.7
High.17	0.1	0.6		0.1	0.0	0.0									6.1	6.9
High.18				0.4						0.0					1.1	1.5
High.19	0.2	0.1								0.0					0.0	0.3
High.20										0.0					3.7	3.7
High.21			0.0		0.5										0.6	1.0
High.22	0.1	117.6	201.2	9.6		7.7	0.5		0.8	13.5		7.6		10.3	679.1	1048.1
Mine.01	0.1		1.0							1.3					0.1	2.5
Redl.02				0.1						0.1					0.3	0.4
Redl.03		0.1	0.1							0.9					1.7	2.7
Redl.04	0.3	0.5		0.4												1.1
Redl.05		0.1	0.1							0.0			0.0		2.0	2.1
Redl.06	0.0	0.0													0.7	0.7
Redl.07															0.1	0.1
Redl.08	0.2	4.9		8.5						6.7					22.1	42.4
Redl.09	0.2														0.2	0.4
Redl.10	0.1														0.2	0.3
Redl.11	0.1														0.2	**0.3**
Redl.12	0.2	0.4		0.5						1.2					5.8	**8.1**
Redl.13			1.6												0.1	**1.7**
VD.01.1			36.7	49.9	9.0			45.8		3.5			1.2		1.6	**147.8**
VD.01.2															0.5	**0.5**

Covered Activity Code	Impacts on Vegetation																
	RAFSS - Pioneer	RAFSS - Intermediate	RAFSS - Intermediate/ Mature	RAFSS - Mature	RAFSS - Mature/NNG	Riversidean Upland Sage Scrub	Willow Thickets	Mule Fat Scrub	Aquatic Vegetation	Non-Native Grassland	Perennial Pepperweed	Tamarisk Thickets	Recharge Basin	Active Sedimentation	Developed/ Ruderal	Total
VD.01.3			0.8	0.4	0.1			0.5							1.3	**3.1**
VD.02					0.6					0.5					7.7	**8.9**
VD.03				0.7	3.9										1.2	**5.8**
VD.04	0.1		0.3							0.8					7.8	**9.0**
VD.05	0.3	3.7	1.3	1.3	3.4			0.1							2.2	**12.4**
VD.07			0.1													**0.1**
VD.09		1.1	1.1												2.2	**4.5**
VD.10															7.2	**7.2**

Table 4-3. Potential Impacts of Individual Covered Activities to Covered Species

	Impacts to Santa Ana River Woolly-Star	Impacts to Slender-Horned Spineflower		Impacts to CAGN Suitable Habitat		Impacts to Coastal cactus wren Habitat Suitable for Nesting		Impacts on San Bernardino Kangaroo Rat					
Covered Activity ID	Occupied	Occupied	Potentially Suitable	Nesting	Foraging	Nesting	Foraging	High Potential	Medium Potential	Low Potential	Trace	Ecological Process Area	Total SBKR Habitat
All Covered Activities Total	47.3	7.3	410.2	11.5	615.2	14.0	613.1	26.3	78.2	132.5	375.1	44.9	657
CD.01	2.6		9.2		10.7	0.1	10.6	0.8		0.0	1.5		2.4
CD.02	0.8		3.3		13.5	0.3	13.2	0.5	0.2	0.8	21.0		22.5
CD.03	1.5	0.2	11.8		14.9	0.3	14.6	3.5	0.6	2.1	9.1		15.3
CD.04			0.5		1.2		1.2				1.4		1.4
Ceme.01					0.5		0.5				0.7	0.4	1.1
EVWD.01											2.3		2.3
EVWD.02					4.9		4.9				5.7		5.7
EVWD.03					0.6		0.6				0.3		0.3
EVWD.04					0.5		0.5				0.5		0.5
EVWD.05			0.2		0.5		0.5				0.5		0.5
EVWD.06					0.5		0.5				0.5		0.5
EVWD.07	0.1		0.3		1.0		1.0				1.1		1.1
EVWD.08													
EVWD.09											0.2		0.2
FC.01	1.0		6.0		29.0		29.0			1.5	0.5	31.1	33.1
FC.02	0.1		2.8	0.3	4.3		4.6		0.4	1.1	4.8	1.0	7.4

	Impacts to Santa Ana River Woolly-Star	Impacts to Slender-Horned Spineflower		Impacts to CAGN Suitable Habitat		Impacts to Coastal cactus wren Habitat Suitable for Nesting		Impacts on San Bernardino Kangaroo Rat					
Covered Activity ID	Occupied	Occupied	Potentially Suitable	Nesting	Foraging	Nesting	Foraging	High Potential	Medium Potential	Low Potential	Trace	Ecological Process Area	Total SBKR Habitat
FC.03	0.8		11.7	3.4	29.7		33.1		0.1	5.4	5.1	11.2	21.8
FC.04	0.1				0.2		0.2				3.3		3.3
FC.09	0.4		2.4		3.1		3.1			2.2	3.0	0.3	5.5
High.01			2.2		2.4		2.4				1.6	0.2	1.8
High.02	0.5		0.1		0.2		0.2			0.2		0.1	0.3
High.03			0.7		2.2		2.2				1.6		1.6
High.04	0.2		1.0		1.1		1.2			0.3	0.5	0.1	0.9
High.10			1.0		1.0		1.0			0.1	0.2		0.3
High.11					0.2		0.2					0.2	0.2
High.12										0.1		0.1	0.2
High.13													
High.14													
High.15	0.2		0.5		0.6	0.1	0.6				1.4		1.4
High.16			0.6		0.8		0.8				0.3		0.3
High.19					0.4		0.4				1.4		1.4
High.20			0.1		0.3		0.3					0.3	0.3
High.21											0.7		0.7
High.22			0.0		0.5		0.5				0.6		0.6
Mine.01	36.3	7.1	311.7	7.7	328.5	8.9	327.4	22.4	76.3	115.6	143.9		358.1
Redl.02			1.0		1.1		1.1		0.5			0.6	1.1
Redl.03					0.1		0.1				0.1		0.1
Redl.04			0.1		0.1		0.1				0.2		0.2

	Impacts to Santa Ana River Woolly-Star	Impacts to Slender-Horned Spineflower		Impacts to CAGN Suitable Habitat		Impacts to Coastal cactus wren Habitat Suitable for Nesting		Impacts on San Bernardino Kangaroo Rat					
Covered Activity ID	Occupied	Occupied	Potentially Suitable	Nesting	Foraging	Nesting	Foraging	High Potential	Medium Potential	Low Potential	Trace	Ecological Process Area	Total SBKR Habitat
Redl.05			0.5		1.1		1.1				1.0	0.1	1.1
Redl.06	0.1		0.1		0.1		0.1				0.2		0.2
Redl.07					0.1		0.1				0.2		0.2
Redl.08													
Redl.09	0.1		4.9	1.0	12.5		13.5			2.7	7.0		9.7
Redl.10					0.2		0.2						
Redl.11					0.1		0.1						
Redl.12	0.1		0.5		1.1		1.1			0.7	0.1	0.5	1.3
Redl.13	1.1		1.6		1.6		1.6			0.6	1.0		1.6
VD.01.1	1.9		36.7		141.5	4.4	137.5				145.1		145.1
VD.01.2													
VD.01.3			0.8		1.7		1.7				3.0		3.0
VD.02	0.1				0.6		0.6				0.5		0.5
VD.03					4.6		4.6				4.8		4.8
VD.04	0.1		0.3		0.4		0.4				0.7	0.1	0.8
VD.05			5.0		10.2		10.2			0.1	9.5	0.3	9.9
VD.07			0.1		0.1		0.1				0.1		0.1
VD.09	0.9	0.1	2.5		2.6	0.1	2.5	0.6	0.4	0.8	0.9		2.7
VD.10	0.3												

4.5 California Gnatcatcher Impacts

The distribution of gnatcatcher habitat in the Plan Area is quantified in terms of nesting habitat and foraging habitat based on the mapped vegetation communities. Approximately 11.5 acres of potential nesting habitat and 615.2 acres of potential foraging habitat may be impacted by covered activities (Table 4-3 and Figure 17). Expansion of the mining areas will not appreciably increase the fragmentation of foraging habitat. While the removal of foraging habitat to construct new spreading basins will result in a loss of habitat, the remaining habitat in between spreading basins will still function as useable foraging habitat with sufficient proximity and connectivity to larger blocks of habitat. There are no known nesting records in the Plan Area, however, gnatcatchers are known to nesting in suitable habitat south of the Santa Ana River below the eastern portion of the Plan Area. Two of the six recent known occurrences are within the covered activity footprints, however the core area of habitat use is generally south of most of the covered activities (on the WSPA, BLM land, and Conservation District land). Avoidance and minimization measures will be implemented prior to undertaking each covered activity to reduce the overall quantity of take as much as is feasible (see Section 5.4 General Avoidance and Minimization Measures). There is no critical habitat for gnatcatcher in or adjacent to the Plan Area.

4.6 Coastal cactus wren Impacts

The distribution of coastal cactus wren habitat in the Plan Area is quantified in terms of nesting habitat based on the field mapping of cactus patches suitable for nesting (buffered by 50 ft); and foraging habitat based on the mapped vegetation communities. Approximately 14.0 acres of potential nesting habitat and 613.1 acres of potential foraging habitat may be impacted by covered activities (Table 4-3 and Figure 18). Expansion of the mining areas will impact three areas that have supported nesting coastal cactus wrens and will remove some foraging habitat. However, the majority of suitable nesting habitat and known nest site occurs north of the mining areas and south of Plunge Creek, with several other concentrations of suitable nesting habitat south and east of the mining areas. Another concentration of suitable nesting habitat will be removed with the construction of new spreading basis. The removal of foraging habitat to construct these new spreading basins will also result in a loss of habitat, but the remaining habitat in between spreading basins will still function as useable foraging habitat with sufficient proximity and connectivity to larger blocks of foraging habitat and nearby nesting habitat. Avoidance and minimization measures will be implemented prior to undertaking each covered activity to reduce the overall quantity of take as much as is feasible (see Section 5.4 General Avoidance and Minimization Measures). There is no critical habitat designated for Coastal cactus wren because it is not federally listed.

4.7 San Bernardino Kangaroo Rat Impacts

4.7.1 Direct Impacts

The distribution of SBKR in the plan area is quantified by field mapping and systematic habitat assessment surveys (as described in Section 4.3.1). Habitat suitability was mapped into high, medium, low, and trace suitability categories. The areas supporting ecological processes that maintain SBKR suitability (hyrdrogeomorphic scour and deposition) were also mapped and

impacts on these areas are quantified. Covered activities will impact up to 26.3 acres of High Potential Habitat, 78.2 acres of Medium Potential Habitat, and 507.6 acres with Low Potential or Trace Habitat. Table 4-3 and Figure 19 summarize and depict the potential direct impacts on SBKR habitat.

As is evident in the balance of impact in each habitat suitability type, the covered activities (primarily mining) have been located outside of the habitat with the highest suitability. This pattern also correlates with the overlap of covered activity footprints with the occurrence data (as can be seen on Figure 19).

The entire Plan Area is included within USFWS designated critical habitat. Therefore, all impacts on SBKR habitat are potentially an adverse modification to critical habitat, and will need to be addressed by USFWS through their internal Section 7 consultation process. The conservation strategy for SBKR and additional protection and management of SBKR habitat is expected to offset any potential adverse modification of SBKR critical habitat.

4.7.2 Indirect Impacts

The Wash Plan HCP preserve areas are distributed within an urbanized environment and are subject to a number of indirect effects that could potentially negatively impact habitat quality. Indirect impacts are those effects that give rise to delayed, secondary effects. Examples of indirect impacts include fragmentation, pollination interruption, increased environmental toxins, plant and wildlife dispersal interruption, increased roadkill, increased risk of fire, increased invasion by non-native animals and plants, and small-scale environmental changes in dust, temperature, light, and wind. Numerous scientific studies have shown that indirect impacts can increase mortality, reduce productivity, and/or reduce the value and functions of natural open space for the native species that inhabit it.

Currently mining operations occur 24 hours a day and have many artificially lighted areas, as well as continuous hauling activities that create light spillover and ambient night lighting into the Conservation Areas and other natural areas.

To reduce these potential indirect impacts, projects that are situated adjacent or near natural areas or conservation areas shall be subject to the Land Use Adjacency Measures (see Section 5.5).

Because of the widespread distribution of SBKR in the Plan Area and the location of covered activities, it is not expected that any occupied SBKR will be isolated following the implementation of covered activities. Activities that could place temporary or permanent impediments to SBKR movement could disrupt habitat connectivity and SBKR dispersal patterns, therefore any covered activities with the potential to interrupt a known habitat connection will be implemented according to the General Avoidance and Minimization Measures (see Section 5.4).

The extent and spread of non-native grasses is one of the greatest threats to SBKR habitat suitability. Such habitat degradation could result from the effects of covered activity land disturbance and related activities that induces additional spread of non-native plant species. Therefore, monitoring and the implementation of avoidance and minimization measures will be implemented along with an adaptive management strategy addressing non-native grass management.

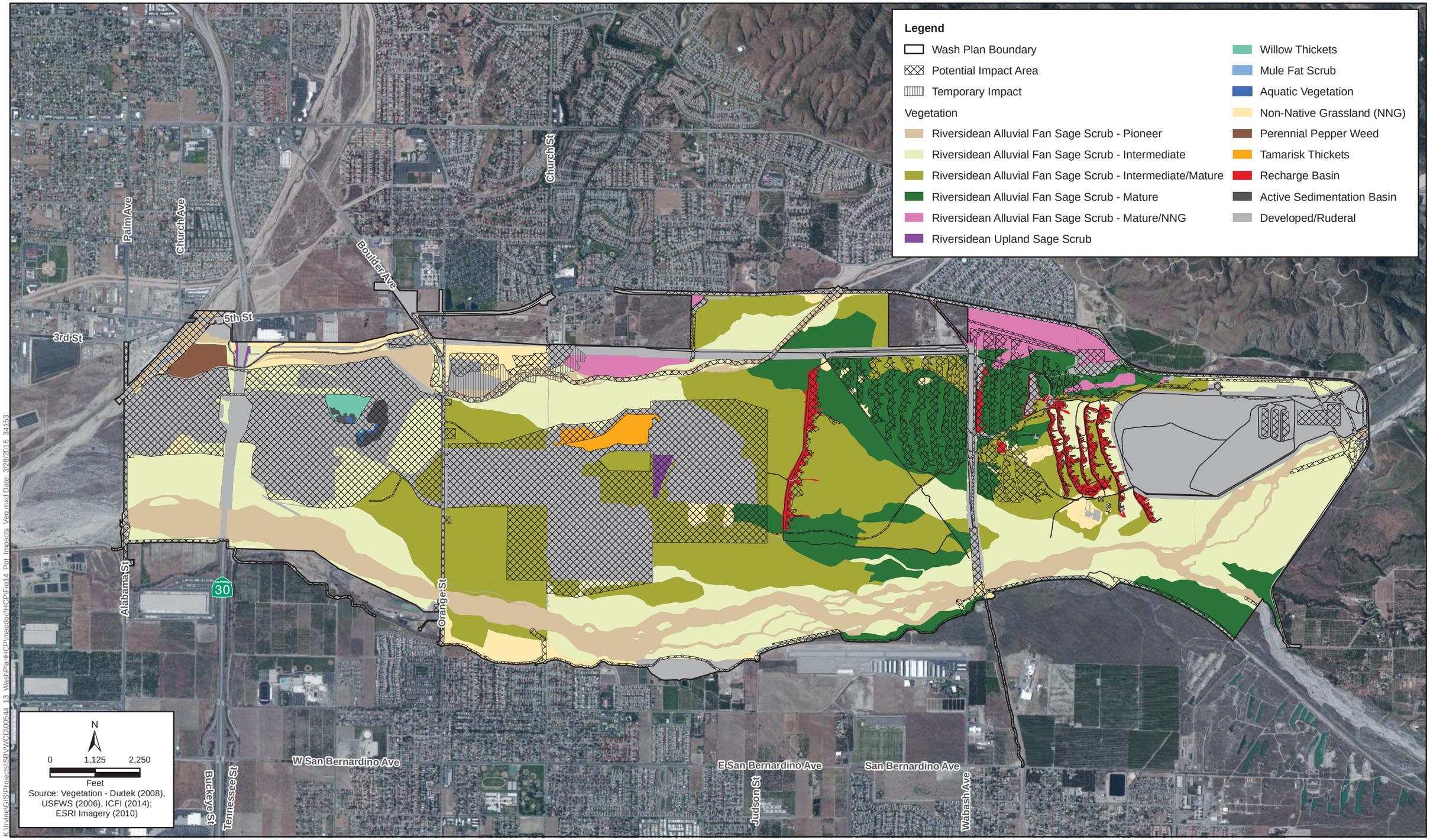

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Figure 14
Potential Impacts to Vegetation Communities
Wash Plan HCP

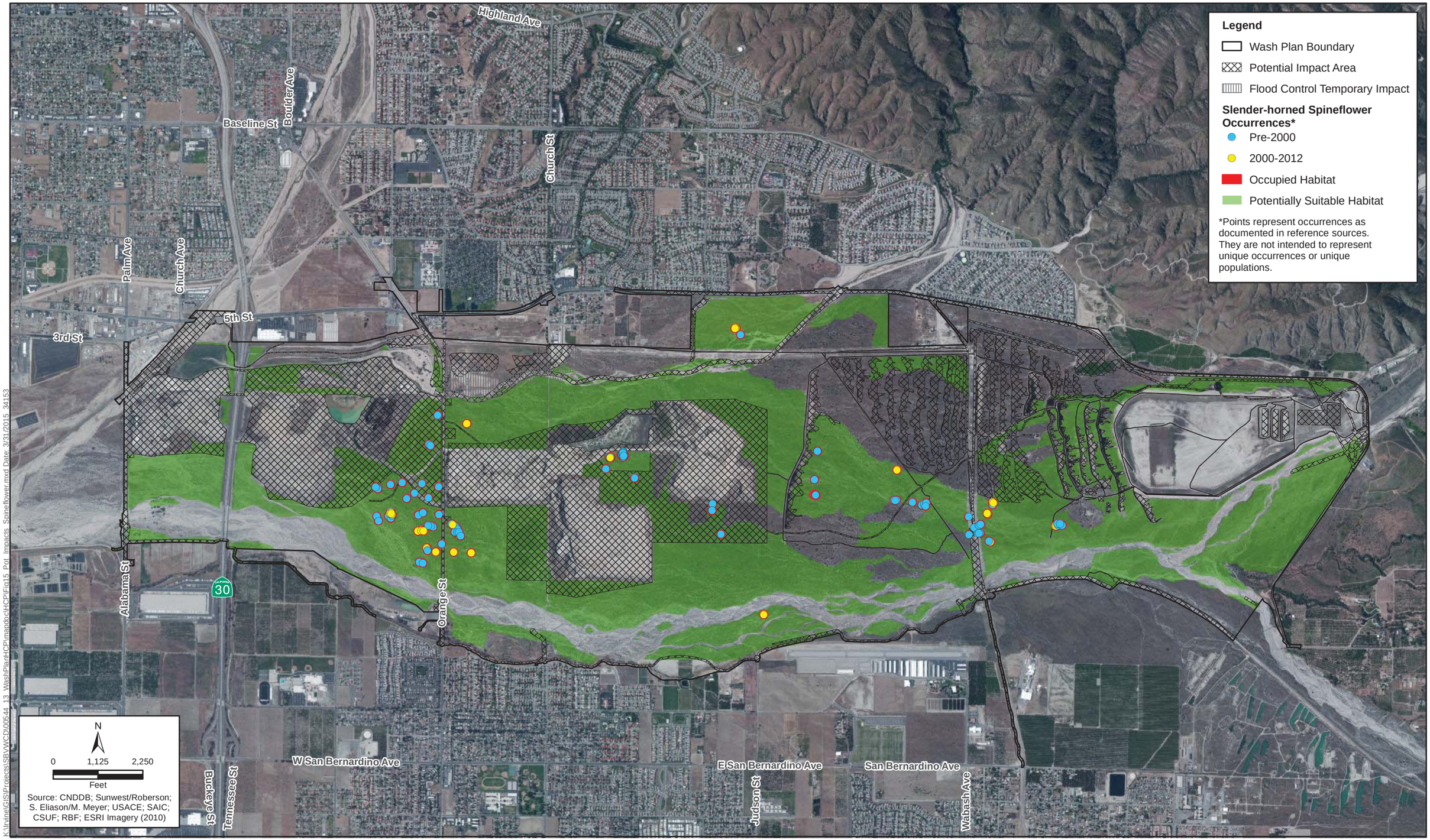

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Figure 15
Potential Impacts to Slender-horned Spineflower Wash Plan HCP

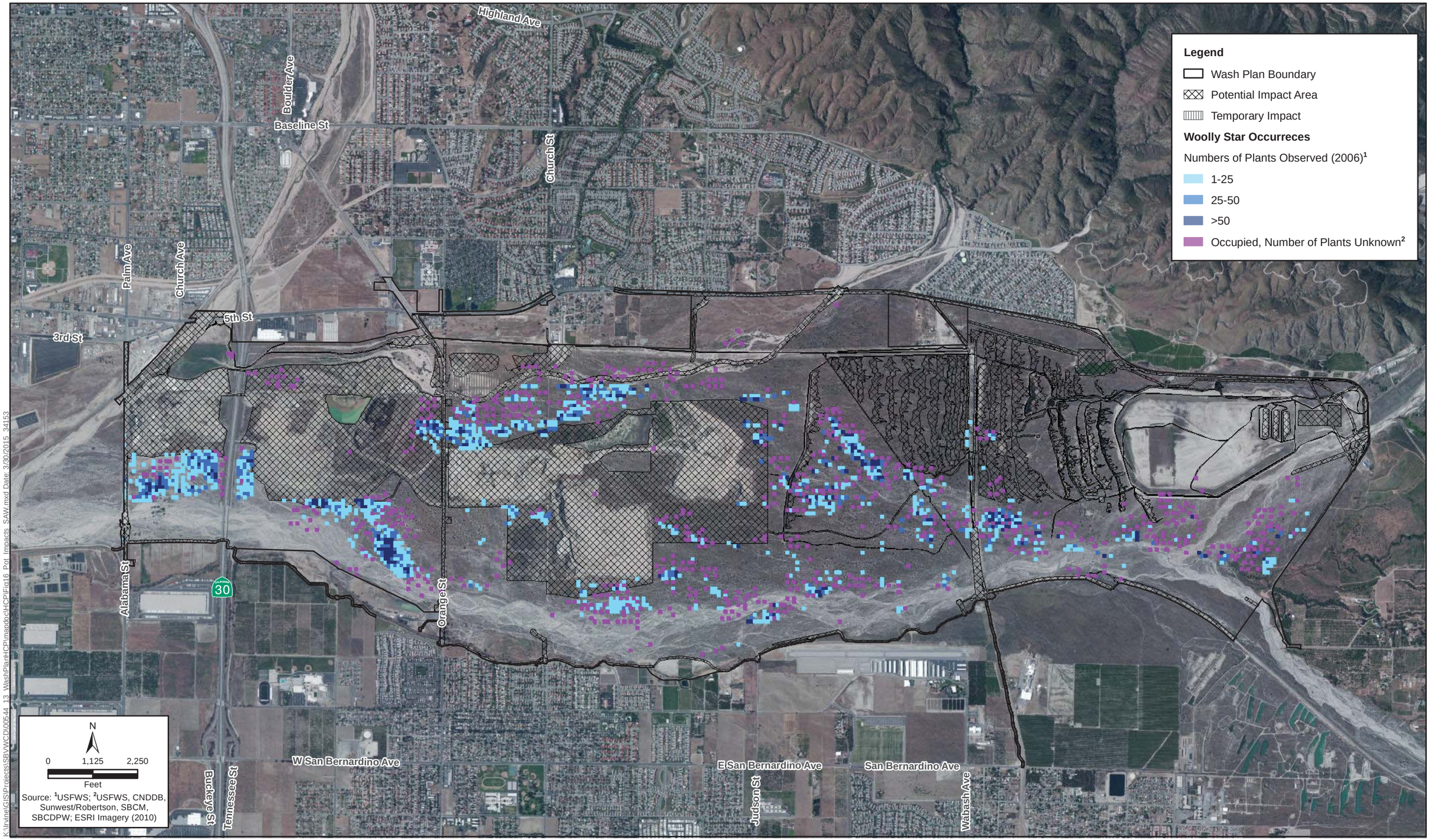

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Figure 16
Potential Impacts to
Santa Ana Woolly Star
Wash Plan HCP

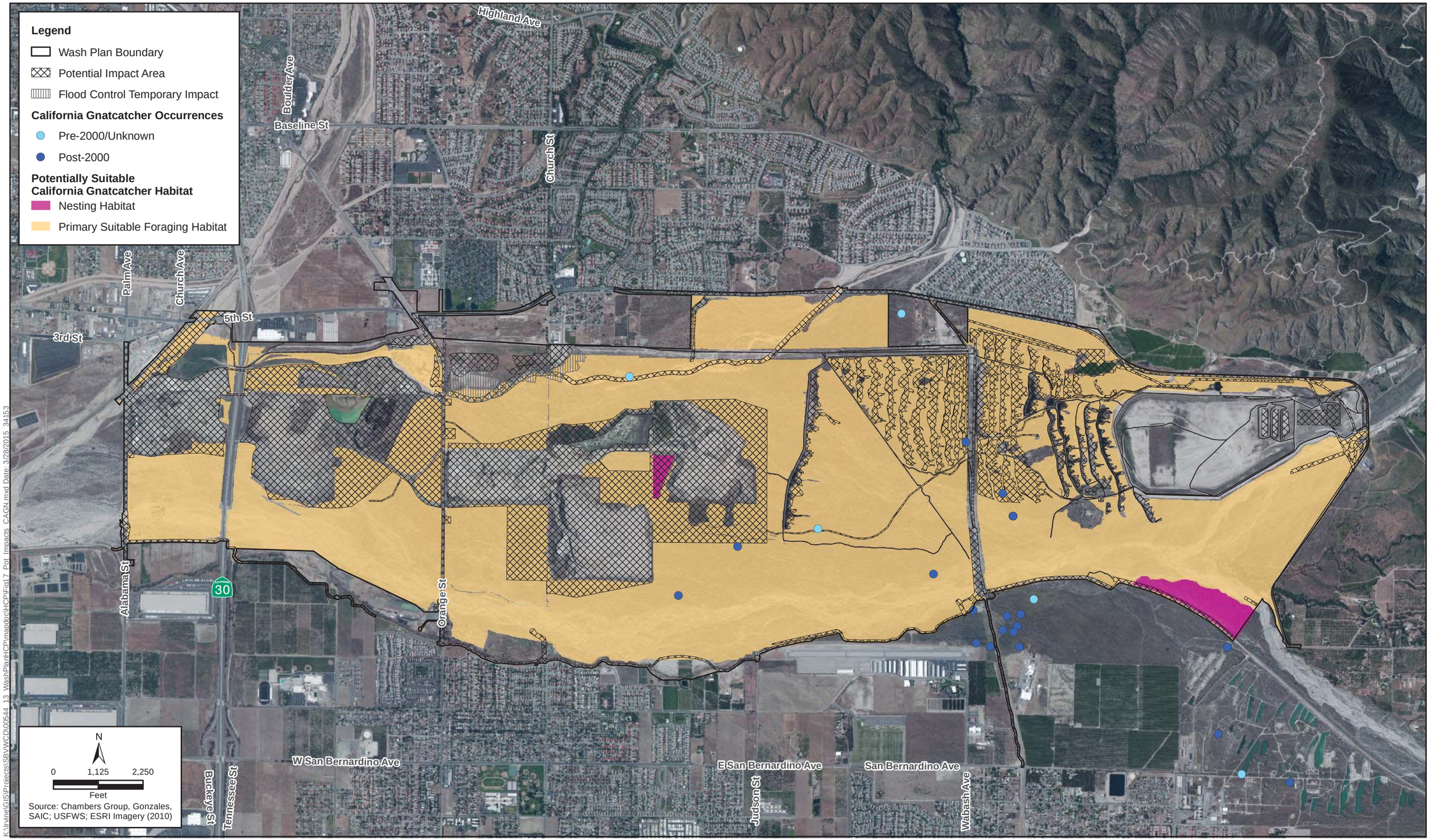

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Figure 17
Potential Impacts to California Gnatcatcher
Wash Plan HCP

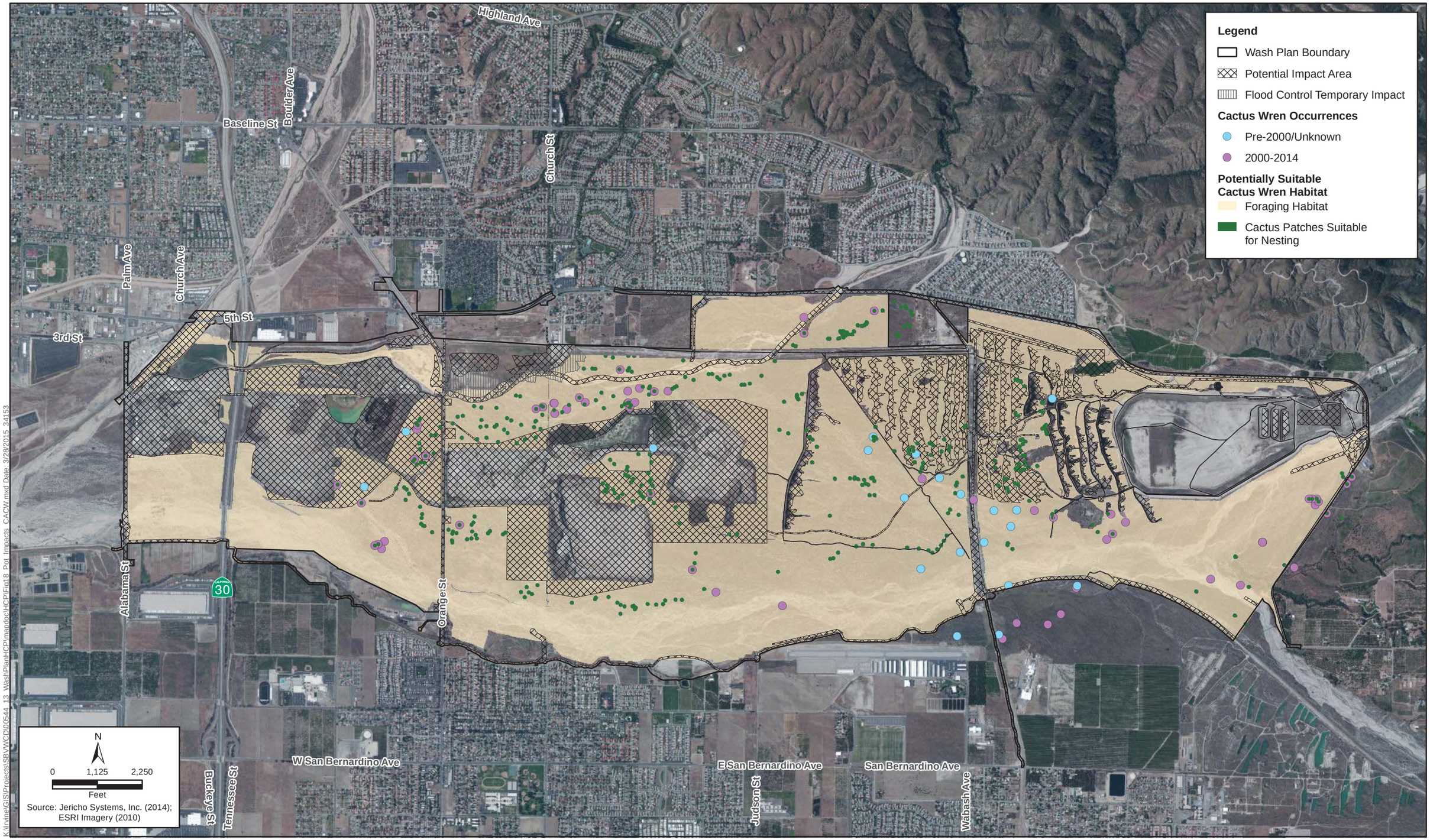

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Figure 18
Potential Impacts to Cactus Wren
Wash Plan HCP

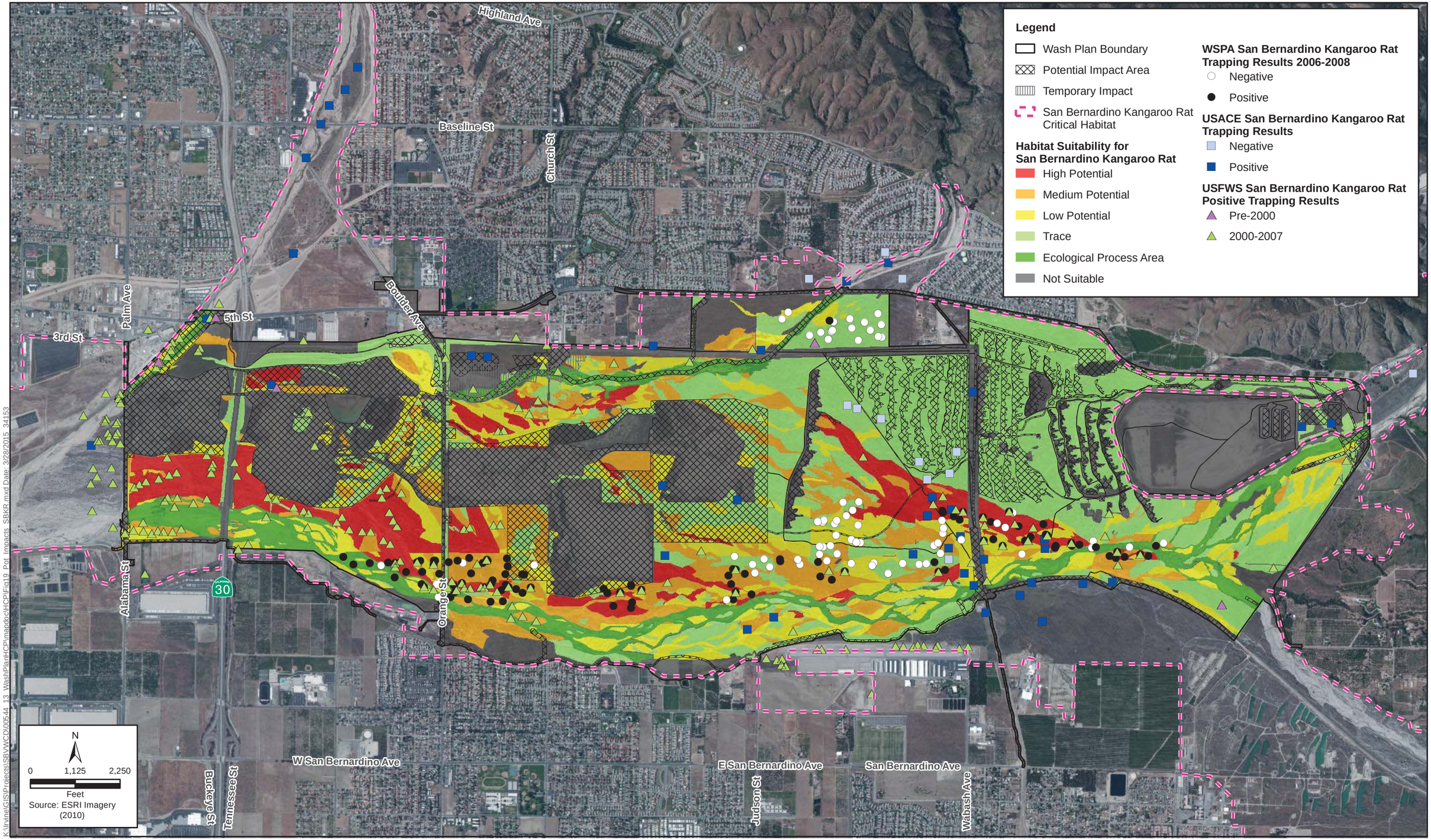

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Figure 19
Potential Impacts to San Bernardino Kangaroo Rat
Wash Plan HCP

Chapter 5
Conservation Program

This chapter presents the conservation program that the Conservation District and other permittees will implement for SKBR, California gnatcatcher, Santa Ana River woolly-star, slender-horned spineflower, and coastal coastal cactus wren in the Plan Area to avoid, minimize, monitor, and mitigate the effects of incidental take of these species and contribute to their survival and recovery. The biological goals and objectives of the Wash Plan HCP conservation program are stated below, followed by the conservation, management, and monitoring actions that will be implemented under the HCP to achieve these biological goals and objectives.

5.1 Biological Goals and Objectives

Biological goals are the broad, guiding principles for the operating conservation program of the HCP, and support the rationale behind the minimization and mitigation strategies. Biological objectives are developed to describe the means by which the goals will be accomplished. Biological objectives should be specific and commensurate with the impacts and duration of the covered activities, and may be either habitat or species based (65 FR 106: 35242-35257). Habitat-based goals and objectives are expressed in terms of amount and/or quality of habitat. Species-based goals and objectives are expressed in terms specific to individuals or populations of that species.

5.1.1 Biological Goals of the Wash Plan HCP

The goals of the Wash Plan HCP are:

- to conserve and enhance populations of covered species in the plan area through land conservation and an adaptive habitat management program;
- to minimize and mitigate the effects of take; and
- to meet and comply with the requirements of the Federal Endangered Species Act.

5.1.2 Biological Objectives of the Wash Plan HCP

The biological objectives are:

1. To conserve habitats in the Wash Plan area in a configuration and amount that will sustain populations of federally-listed species covered by the Plan, including the SBKR, the slender horned spine flower, the Santa Ana River woolly-star, and the gnatcatcher, as well as the coastal cactus wren and other special-status species also covered by the Plan;
2. To conserve habitat linkages across and to areas outside the Plan Area in order to provide connectivity between populations of covered species and provide opportunities for wildlife movement through the Plan Area;

To develop a robust, science based experimental program to address issues unique to the maintenance and enhancement of existing slender-horned spineflower populations and the potential establishment of new populations within the Wash Plan conservation areas; and

1. To actively manage conserved lands within the Plan Area for the benefit of covered species, including control of non-native plant species, selective vegetation thinning, and habitat enhancement.

The biological goals and objectives of the HCP will be accomplished through the implementation of conservation, management, and monitoring actions as described in Section 5.2, below.

5.2 Conservation, Management, and Monitoring

The following conservation, management, and monitoring actions will be implemented to meet the biological goals and objectives of the HCP, and will be implemented according to the HCP phasing (see Table 1-3). Conservation actions are actions taken to set aside land for conservation of covered species. Land conserved for a species should contain habitat that is suitable for the species that is in patches that are large enough and well-connected within the preserve and to areas outside the preserve such that the species can maintain sustainable populations within the preserve. Management actions are those actions taken to improve the suitability of the habitat for a covered species by restoring or enhancing the habitat, or by reducing, removing, or preventing threats that may degrade the habitat. Monitoring actions are those actions that are taken to track the status and trend of covered species populations and of their habitat within the preserve. Monitoring actions should be conducted within an adaptive management context so that monitoring results can be linked to management actions to inform and improve the efficacy and efficiency of future management actions.

5.2.1 Conservation Actions

Conservation District and the other permittees will provide for the permanent conservation of approximately 981.9 acres (Newly Conserved Lands on Figure 20). This area will be managed and monitored along with the 604.2 acres of Additionally Managed lands and 550.4 acres of existing conservation for a total preserve size of 2,282.5 acres. The conservation areas are generally contiguous with one another and with the existing conservation within the Plan Area. They also maintain north-south habitat linkages across the Plan Area and to natural open space outside the Plan Area to the southeast and northwest (see Figure 20).

Phasing of Conservation

The Newly Conserved lands will be dedicated for conservation during Phase 1 of the HCP. The Additionally Managed Lands will become a part of the HCP reserve system following the completion of the BLM land exchange (see Section 3.2.2) and will be actively managed with the initiation of Phase 2 of the HCP.

Table 5-1 summarizes the conservation calculations for the vegetation communities, and Table 5-2 summarizes the conservation calculations for each covered species.

Table 5-1. Vegetation Communities Conserved and Managed in the Wash Plan HCP

	Conservation Areas					
		Phase 1 Phase 2 Phase 3				
Land Cover Type	Existing Conservation	Newly Conserved	Additionally Managed	Future Flood Control Mitigation Area	Total	Neutral Lands
Riversidean Alluvial Fan Sage Scrub - Pioneer	79.5	198.9	31.6	56.1	366.2	61.5
Riversidean Alluvial Fan Sage Scrub - Intermediate	185.5	322.4	207.4	76.3	791.5	123.7
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	183.3	186.2	290.1	11.6	671.2	106.2
Riversidean Alluvial Fan Sage Scrub - Mature	93.4	169.2	55.8	0.0	318.4	78.6
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	1.8	27.6	0.0		29.4	56.9
Riversidean Upland Sage Scrub						1.6
Willow Thickets						11.0
Aquatic Vegetation						0.2
Non-Native Grassland (NNG)	1.1	19.9	2.0	1.3	24.4	86.8
Perennial Pepper Weed						20.0
Tamarisk Thickets						22.4
Recharge Basin	0.0	4.6	4.4		9.0	15.7
Active Sedimentation Basin						2.9
Developed/Ruderal	5.7	53.0	12.9	0.8	72.5	416.3
Grand Total	550.4	981.9	604.2	146.1	2,282.5	**1,003.9**

Table 5-2. Species Habitats Conserved and Managed in the Wash Plan HCP

	Conservation Areas					
		Phase 1 Phase 2 Phase 3				
Species Habitat Quantification	Existing Conservation	Newly Conserved	Additionally Managed	Future Flood Control Mitigation Area	Total	Neutral Lands
Slender-horned Spineflower						
Known Occupied Areas	7.4	3.6	23.7	0.7	35.4	0.3
Potentially Suitable Habitat	361.3	505.0	473.8	87.2	1,427.4	229.6
Santa Ana River woolly-star						
Known Occupied Areas	72.7	106.2	93.2	4.4	276.5	5.8
California Gnatcatcher						
Nesting Habitat		35.4			35.4	
Foraging Habitat	543.5	868.8	584.9	144	2,141.2	428.5
Coastal cactus wren						
Nesting Habitat	9.2	15.8	16.4		41.4	4.4
Foraging Habitat	534.3	888.7	568.4	144.0	2,135.5	424.5
SBKR						
High Potential Habitat	90.1	138.6	152.6	0.7	382.0	1.6
Medium Potential Habitat	142.3	143.3	84.3	23.2	393.1	27.5
Low Potential Habitat	107.9	160.8	115.1	60.1	443.8	32.9
Trace Habitat	129.5	286.6	169.4	38.2	623.7	396.8
Ecological Process Area	63.1	169.7	34.5	21.1	288.4	21.6

Slender-horned Spineflower Habitat Conservation

The HCP will conserve approximately 505 acres of potentially suitable spineflower habitat including 3.6 acres that is known to be occupied during Phase 1 of the HCP (Table 5-2 and Figure 21). In Phase 2 of the HCP an additional 473.8 acres (23.7 acres known occupied) of Additionally Managed spineflower habitat will become actively managed. Along with the 361.3 acres (7.4 acres known occupied) of Existing Conservation spineflower habitat, the Wash Plan total area of protected spineflower habitat is 1,427.4 acres (including 35.4 acres known to be occupied).

To date only limited surveys for spineflower have occurred on Newly Conserved Lands; and there is one known record of spineflower occurrence there from 1997. Avoidance and minimization measures (see Section 5.5) will be implemented to minimize the extent that spineflower habitat would be adversely affected by Covered Activities (including habitat management and monitoring actions), however up to 7.3 acres of known occupied habitat and 410.2 acres of potentially suitable habitat may be impacted.

Santa Ana River Woolly-Star Habitat Conservation

The HCP will conserve approximately 106.2 acres of known occupied woolly-star habitat during Phase 1 of the HCP (Table 5-2 and Figure 22). In Phase 2 of the HCP an additional 93.2 acres of Additionally Managed occupied woolly-star habitat will become actively managed. The total area of spineflower habitat conserved in the Wash Plan Area will be 276.5 acres, including the 72.7 acres of Existing Conservation occupied habitat. Newly Conserved lands include over 500 locations where woolly-star have been recorded (see Figure 22).

Habitat management of Newly Conserved lands may entail some take and temporary habitat impacts on woolly-star. Avoidance and minimization measures (see Section 5.5) will be implemented to minimize the extent that woolly-star habitat would be adversely affected by Covered Activities (including habitat management and monitoring actions) on Newly Conserved lands, however up to 47.3 acres of known occupied habitat may be impacted.

California Gnatcatcher Habitat Conservation

In Phase 1 of the HCP approximately 35.4 acres of nesting habitat and 868.8 acres of foraging habitat will be conserved (Table 5-2 and Figure 23). An additional 584.9 acres of Additionally Managed gnatcatcher foraging habitat will become actively managed in Phase 2 of the HCP. Including the 543.5 acres of Existing Conservation foraging habitat there will be a total area of 2,141.2 acres of gnatcatcher foraging habitat and 35.4 acres of nesting habitat protected and managed in the Wash Plan Area (see Figure 23). Covered activities will impact up to 11.5 acres of nesting habitat and 615.2 acres of foraging habitat.

Coastal cactus wren Habitat Conservation

The HCP will conserve approximately 15.8 acres of nesting habitat and 888.7 acres of foraging habitat during Phase 1 (Table 5-2). This area will be managed and monitored along with the 16.4 acres of nesting and 568.4 acres of foraging habitat on Additionally Managed Lands that will be protected during Phase 2. Approximately 9.2 acres of nesting habitat and 534.3 acres of foraging habitat occur on Existing Conservation areas for a total area of 2,135.5 acres of coastal cactus wren foraging habitat and 41.4 acres of nesting habitat protected in the Plan Area (see Figure 24). Covered activities will impact up to 14.0 acres of nesting habitat and 613.1 acres of foraging habitat.

San Bernardino Kangaroo Rat Habitat Conservation

During Phase 1, the HCP will conserve approximately 899 acres of habitat important for SBKR in Newly Conserved areas. Table 5-2 breaks down the acreage into areas of high, medium, low, and trace potential habitat suitability plus areas important for the ecological processes (hydrologic flood and scour processes that create and maintain suitable soil substrate for SBKR burrowing). An additional 555.9 acres of habitat on Additionally Managed lands will be protected, managed and monitoring during Phase 2 of the HCP implementation. There are an additional 532.9 acres of habitat on Existing Conservation lands for a total area of 2,131 acres of SBKR habitat that will be protected within the Plan Area (see Figure 25). Covered activities will impact up to 26.3 acres of High Potential Habitat, 78.2 acres of Medium Potential Habitat, and 507.6 acres with Low Potential or Trace Habitat.

5.2.2 Management Actions

Conservation District and the other permittees will provide for the permanent management of covered species and habitats on all 1,729.5 acres of habitat within the HCP conservation areas, including the enhanced management on an additional 541.4 acres (see Additionally Managed Lands on Figure 20). This new management is in addition to the ongoing management of the 550.4 acres of Existing Conservation within the Plan Area. Table 5-1 summarizes the conservation and management calculations for the vegetation communities, and Table 5-2 summarizes the same calculations for each covered species. A conservation easement or equivalent legal protection mechanism will be used to dedicate non-federal land for conservation. Federal (BLM) land will be dedicated for conservation through a BLM-specific land protection designation. Specific habitat and species-based management actions are described below.

Habitat Management Treatment Areas

An important part of the adaptive management of the Newly Conserved and Additionally Managed areas is the application of a number of habitat management treatments. The primary focus of these management treatments is to control and reduce the extent of non-native grasses and other invasive plants that reduce the habitat quality for SBKR and compete with the spineflower and woolly-star.

There are five basic habitat management tools planned in various parts of the Plan Area, and include thinning, mowing, grazing, controlled burning, and herbicides. The management tools could be applied alone or in combination with a full treatment, a partial treatment, or a spot treatment, depending on the context of the particular area and the applicability of the selected treatment type(s). Note that thinning should not be applied to shrub vegetation in areas with the potential to support nesting gnatcatchers.

Spot Treatment: Limited to herbicide application to control localized invasive plant issues.

Partial Treatment: Includes herbicide application in a broader area, typically in combination with one or two additional treatment methods including thinning, mowing, grazing, or controlled burning.

Full Treatment: Includes herbicide application and two or three other treatment types, typically over a larger area where the invasive plant issue is more extensive and/or a larger threat.

A preliminary list of potential locations for Spot, Partial, and Full treatment has been identified based on field observations and aerial photo delineation of the extent of the invasive plant distribution and density. The approximate acreages for these potential treatment areas is shown in Table 5-3. These treatment acreages are expected to be achieved during the early stages of Phase 1 of the HCP implementation.

Table 5-3. Preliminary Acreages Identified for Management Treatment in Phase 1

	Management Treatment Type			
Land Cover Type	Full	Partial	Spot	Total
Riversidean Alluvial Fan Sage Scrub - Pioneer	0.7	13.7	280.1	294.6
Riversidean Alluvial Fan Sage Scrub - Intermediate	43.5	329.7	227.0	600.2
Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature	86.5	391.9	5.5	483.9
Riversidean Alluvial Fan Sage Scrub - Mature	14.5	220.3	5.1	239.8
Riversidean Alluvial Fan Sage Scrub - Mature/NNG	0.0	25.1	2.5	27.6
Non-Native Grassland (NNG)	0.6	32.8	6.0	39.3
Recharge Basin		3.6	0.3	3.9
Developed/Ruderal	1.9	14.4	12.0	28.3
Total	147.7	1,031.5	538.4	1,717.5

Although Neutral lands are not expected to be impacted by covered activities and are not designated as a conservation area (existing or proposed with the HCP), they will be monitored for the extent of highly invasive weeds, such as mustard and pepperweed to ensure they are not a source for infestation of conserved and managed lands. Management on neutral lands would occur when possible, and may include burning or grazing.

Habitat-Based Management Actions

Conservation District and the other permittees will maintain, restore and enhance habitat for the benefit of covered species through the implementation of the following habitat-based management actions.

Action: Control invasive, exotic plants, prioritizing target species, treatment areas and the phasing of treatment based on the greatest benefit to federally listed species and their habitats.

- Methods (May be used alone or in combination with other methods)
  - Mechanical removal (Hand and/or Equipment)
  - Herbicides
  - Graze in selected areas
  - Prescribed burn selected areas
  - Other methods of demonstrated efficacy

Action: Re-vegetate selected areas to restore and enhance native vegetation.

- Collect and store seeds and harvest cuttings
- Hand broadcast or hydroseed seeds, and manually plant cuttings
- Irrigate as necessary to establish new plants

Action: Control invasive animals.

- Using lethal and/or non-lethal trapping techniques, remove non-native animals from the conservation areas that are competing with and/or preying on native species

Action: Control harmful pathogens.

- As needed, control plant and animal pathogens known to affect federally listed species, their food sources and their habitats.
- Conduct ongoing surveys for potential spread of new pathogen infestations in the conservation areas with a dedicated survey of all areas at least annually.

Action: Maintain and restore fluvial processes.

- Remove or modify levees to restore flow to historic stream channels
- Remove sediment berms/piles that line and constrain watercourse channels
- Place barriers made of natural materials, such as gravel, boulders, or large/coarse woody debris, in strategic locations to direct hydrologic flow and to restore fluvial processes in braided stream channels (use of soft plugs "sugar dikes" is not recommended in areas where the sugar dike may easily wash out)

Species-Based Management Actions

Conservation District and the other permittees will protect and maintain the viability of covered species through the implementation of the species-based management actions described below.

Slender-horned Spineflower Management

The focus of the Adaptive Management and Monitoring Program (AMMP) for spineflower is to maintain existing populations on Additionally Managed Lands (and any found on Newly Conserved Lands) and initiate implementation of the relocation and enhancement program.

Action: Implement a Spineflower Relocation and Enhancement Program. Working in cooperation with BLM, USFWS, and CDFW, test plots will be identified on Additionally Managed Lands (and on Newly Conserved Lands, if spineflower are found there) for spineflower relocation and habitat enhancement techniques. The study design will be developed based on the recommendations prepared by USFWS for the Wash Plan in 2007, with refinements made based on consultations with CDFW and other experts on spineflower. A five-year study will be conducted to determine if relocation and enhancement show adequate promise to be accepted by USFWS and CDFW as feasible conservation and mitigation measures for impacts on spineflower. Development of this program is part of the mitigation for the impacts on spineflower from the incidental take allowed during the first five years of implementation. The measures identified through the program will be the measures applied as mitigation for incidental take of the previously-avoided spineflower in the Mining Impact Area.

Of the species addressed in the Wash Plan Habitat Conservation Plan, the spineflower is the least understood, both biologically and in terms of management and recovery. To best plan and implement an adaptive management strategy for the spineflower, the Wash Plan Task Force requested that staff select and assemble a Working Group of academics, regulatory biologists, consultants and other experts. The Spineflower Working Group was convened to ensure that the best available science was considered in developing management prescriptions best suited

to maintaining existing populations on the Wash Plan project area and increasing the distribution of spineflower in treatment areas.

The group discussed the importance of managing invasive grass species, providing sheet flow to refresh habitat and the need to manage the seed bank or population of seeds present in the soil. These seeds likely persist for years and only germinate under very narrow window of environmental conditions. Therefore, successful recovery of the species depends on the viability of the seed bank, not just the yearly population of plants observed in a survey. Fortunately, the seed bank remains viable in the soil for a long period of time and will persist through periods of drought. The seed bank of invasive grasses is not as robust. Input from the group was added to the AMMP (see Appendix __ of this HCP [TBD]). Additionally, the group volunteered agreed to review specific management plans as they are developed. The following spineflower management actions are based on input from the inaugural Spineflower Working Group meeting.

Action: Control invasive exotic plants within and on the outer edges of extant populations (see control methods above) to reduce competition with spineflower.

Action: Small controlled flooding events in selected extant populations to replicate local overland flow that would occur during high rains to increase seed germination and possibly seedling survival.

Action: Seed bulking. Harvest spineflower seeds for an extended period of time, on order of several years, to capture full genetic diversity of seedbank from any location, such as the spineflower area to be mined.

Action: Manage seed bank through physical substrate management. Soil disturbance/manipulation through raking to redistribute the spineflower seedbank higher in soil profile, particularly in areas of soil compaction. With the correct hydrology, temperature and light, germination could be enhanced.

Action: Tracking micro-environment, potentially with webcams, HOBO data loggers, soil and moisture probes.

Action: Utilize the Spineflower Working Group (see below), as needed, to review and provide input on restoration and enhancement plans.

Santa Ana River Woolly-Star Management

The focus of the AMMP for woolly-star is managing non-native grasses and forbs and ongoing monitoring of woolly-star populations.

Woolly-Star Habitat Management and Enhancement

Management of woolly-star habitat will include the control measures for non-native grasses and forbs identified for SBKR. An assessment of non-native grass and forb occurrence will be conducted at the same time as the SBKR habitat assessment, and sites will be identified and prioritized for management. Where possible, sites will be identified that include both SBKR and woolly-star habitat. The assessment will be conducted using aerial imagery and in field observations. Criteria for ranking sites, the methods to be used at each site, and criteria for evaluating the success of the measures will be subject to review by USFWS. Implementation and evaluation of the measures in woolly-star habitat will occur in the same time-frame and manner as the measures in SBKR habitat. Management actions will include the following:

Action: Control invasive exotic plants within and on the outer edges of extant populations (see control methods above).

Action: Broadcast/ spread sand/ sediment to replenish soils

California Gnatcatcher Management

Management of gnatcatcher habitat will occur as part of non-native controls and related measures for SBKR and woolly-star. Management actions will include the following:

Action: Control non-native annual grasses and other invasive species. Maintain healthy stands of sage scrub vegetation by controlling non-native annual grasses and other invasive species

- Methods
  - Mechanical removal
  - Grazing
  - Herbicides
  - Other methods with proven efficacy

Action: As needed, e.g., post wildfire, re-vegetate areas with sage scrub.

Action: If nesting gnatcatchers occur in the Plan Area, an adaptive management program to maintain and potentially expand nesting habitat will be developed and implemented. The nesting habitat management program will be subject to review by USFWS. The program can be developed and implemented jointly with the same program to be developed for the coastal cactus wren.

Coastal cactus wren Management

Management of Coastal cactus wren foraging habitat will occur as part of non-native controls and related measures for SBKR and woolly-star. Management actions will include the following:

Action: Control non-native annual grasses and other invasive species adjacent to cactus stands

- Methods
  - Mechanical removal
  - Herbicides
  - Grazing
  - Other methods with proven efficacy

Action: As needed, e.g., post wildfire, harvest and plant cactus cuttings to restore cactus patches

Action: For areas where nesting coastal cactus wrens occur in the Plan Area, an adaptive management program to maintain and potentially expand nesting habitat will be developed and implemented. The nesting habitat management program will be subject to review by USFWS.

San Bernardino Kangaroo Rat Management

Management and monitoring measures for SBKR will focus on maintaining and enhancing SBKR habitat, monitoring SBKR occurrence in key locations, maintaining SBKR movement corridors, and other related measures.

San Bernardino Kangaroo Rat Habitat Management and Enhancement

Areas within Newly Conserved and Additionally Managed Lands will be managed and enhanced for the benefit of SBKR, primarily through measures to control non-native grasses and forbs and reducing the density of shrub cover.

Controlling Non-Native Grasses and Forbs

Efforts to control of non-native grasses and forbs will be planned and conducted in steps. In the first year of HCP implementation, SBKR habitat on Newly Conserved and Additionally Managed Lands will be assessed for the occurrence of non-native grasses and forbs and sites will be identified and prioritized for management. Where possible, sites will be identified that include both SBKR and woolly-star habitat. The assessment will be conducted using aerial imagery and in field observations. Criteria for ranking sites, the methods to be used at each site, and criteria for evaluating the success of the measures will be subject to review by USFWS.

Implementation will be scheduled so that management measures have been initiated in the highest priority sites no later than year three of HCP implementation. The effectiveness of measures applied to an individual site will be evaluated and changed as needed if monitoring data for two consecutive years indicate that success criteria are not being met. The overall effectiveness of the measures in maintaining and enhancing habitat for SBKR will be evaluated after the highest priority sites have been managed and monitored for five years.

Reducing Shrub Cover

Reducing the density of shrub cover in select areas has the potential to maintain or re-establish conditions suitable for SBKR on Newly Conserved and Additionally Managed Lands, especially in areas no longer scoured by flood events. Potential sites for shrub cover reduction will be identified at the same time as the assessment of SBKR habitat for non-native grasses and forbs. Three sites will be selected as study plots for testing and refining shrub removal techniques. Criteria for selecting study plots, the methods to be used at each plot, and criteria for evaluating the success of the measures will be subject to review by USFWS. The implementation of measures on the study plots will be initiated no later than year three of HCP implementation. The effectiveness of the techniques in maintaining or re-establishing conditions suitable for SBKR will be evaluated after the study plots have been managed and monitored for five years. If the evaluation demonstrates that the technique is effective, the measures will be applied to other sites. The other sites will be selected based on criteria determined as part of the five-year evaluation.

Management actions will include the following:

Action: Reduce to and/or maintain invasive annual grass cover in priority management areas to ≤ 20 percent (see control methods above).

Action: Reduce to and/or maintain shrub cover in priority management areas to ≤ 40 percent (see control methods above).

Action: Re-vegetation with native RAFS species.

Action: Broadcast/ spread sand/ sediment to replenish soils.

Preserve-Level Management Actions

Conservation District and the other permittees will manage the preserve areas based on the principles of adaptive management and will control impacts from areas adjacent to the management units, such as trash dumping, trespass, off road vehicle use and other intrusions through implementation of the following actions:

Action: Place and maintain boundary signs informing the public about the conservation areas

Action: Patrol the conservation areas to identify and report illegal activities and identify illegal access points. Unauthorized access and illegal dumping will be additionally addressed through city or County law enforcement and through a reimbursement agreement with BLM for the patrol services of Peace Officer Standards Training (POST) certified rangers. It is anticipated that adequate patrol would consist of alternating weekend days when illegal activity is most likely.

Action: Coordinate with local entities (Cities of Highland and Redlands, County of San Bernardino and the Bureau of Land Management) to limit adverse impacts

Action: Place barriers to limit access.

Action: Place boulders and/or fencing, and gates on the perimeter of the conservation areas to prevent unauthorized uses including off-road vehicle trespass.

Action: Remove trash and clean-up illegal dump sites.

Action: Form a reserve management committee to provide reserve management guidance and to focus efforts on meeting the HCP resource management goals and objectives.

The reserve management committee will:

1. Guide the preparation of and review and approve a detailed management plan within two years of the ITP being issued.
2. Review and accept the annual work plan and recommended budget to the Wash Plan Task Force or the Conservation District Board of Directors
3. Review and accept the annual report of management and monitoring activities for consideration by the Wash Plan Task Force.

Action: Practice adaptive management to ensure that the most effective and highest priority management actions are implemented. Use an adaptive management approach to species and habitat management which will allow for adjustments to management prescriptions based on new information obtained as the management plan is implemented.

Action: The preserve management committee and the preserve manager will:

1. Will work to identify and incorporate new, more effective management methods and technologies as they become available.
2. Adjust management actions/prescriptions as needed, based on the results of monitoring data.

Action: Prioritize management actions based on current conditions including the evaluating and addressing new threats to federally listed species and their habitats.

5.2.3 Monitoring Actions

Conservation District and the other permittees will provide for the permanent monitoring of covered species and habitats on all 2,253.8 acres of habitat within the HCP conservation areas. Specific habitat-based and species-based monitoring actions are described in detail below.

Habitat-Based Monitoring Actions

Conservation District and the other permittees will monitor the status and trends of habitat condition for the benefit of covered species through the implementation of the following habitat-based monitoring actions.

Action: Establish vegetation transects to determine post fire re-establishment of federally listed plant species, RAFSS, and sage scrub.

Action: Monitor post fire recruitment of listed species and their habitat.

Species-Based Monitoring Actions

Conservation District and the other permittees will monitor the status and trends of covered species through the implementation of the species-based monitoring actions described below.

Slender-horned Spineflower Monitoring

Action: Conduct baseline survey for new occurrences and document any that are found. To help guide management and monitoring decisions, spineflower surveys will be conducted by a qualified botanist in those areas prior to the application of any habitat management techniques to those areas. All such surveys will be completed no later than year 3 of HCP implementation.

Action: Monitoring plots will be established at the same time that study plots are identified for the relocation and enhancement program. The process and criteria for selecting the monitoring plots and determination of the monitoring data to be collected will be developed in cooperation with USFWS, CDFW, and the Spineflower Working Group; collection of data at the plots will begin no later than year 5 of plan implementation.

Action: Once monitoring plots have been established, annually check each extant occurrence for presence/absence. Map the size and extent of each occurrence and estimate the number of individuals from sample quadrats. After the first five years of the permit, the interval of this task may be lengthened to every two to three years if populations are stable or expanding.

Action: Check historic sites for reoccurrence. Document any re-occurrences.

Woolly-Star Monitoring

Action: Establish representative sample plots in the preserve areas to monitor indicators of status and trends including percent cover of woolly-star vs. competitors. Grids previously surveyed on Newly Conserved and Additionally Managed Lands will be selected for ongoing monitoring of woolly-star populations. The process and criteria for selecting the monitoring

grids and the monitoring data to be collected will be provided to USFWS and CDFW for review no later than year 5 of HCP implementation. Monitoring will begin no later than year 6 of plan implementation.

Action: Conduct a comprehensive inventory every five years to determine the species current distribution in the Wash Plan area.

Action: Establish sample plots in select areas to determine the effectiveness of management methods for purposes of adaptive management

San Bernardino Kangaroo Rat Monitoring

Action: Trapping will occur in select areas during the first three years of HCP implementation, so that management goals and strategies can be more clearly defined. The recommended methodology is to use a series of small 5×5 grids (25 total traps per grid) set at 7-meter spacing; the "footprint" of each grid would be 28 meters × 28 meters (= 784 m2 or 0.784 ha).

Action: Develop a method for ongoing monitoring of SBKR populations on Newly Conserved and Additionally Managed Lands and submit to USFWS for review no later than year 5 of HCP implementation. Methods may include but are not limited to establishment of monitoring plots and/or presence/absence surveys.

Action: Conduct SBKR baseline surveys. Establish and survey permanent sample plots, using stratified random sampling in the conservation areas, to determine percent area occupied, and in select subareas, relative abundance. Develop appropriate sampling interval to monitor trends. *Note: SBKR sample plots would be established in association with vegetation transects to determine correlates with SBKR presence.*

Action: Establish and survey adaptive management survey plots associated with key SBKR management actions to determine the effectiveness of management techniques.

Monitoring and Maintaining San Bernardino Kangaroo Rat Movement Corridors

SBKR movement corridors are essential to the dispersal of SBKR into areas of suitable habitat as seral stages change and to the genetic health of the local SBKR population. Two types of management actions will be applied to Newly Conserved and Additionally Managed Lands to ensure that SBKR can move across the landscape, especially between Plunge Creek and the Santa Ana River:

Action: Managing long-linear strips of habitat to maintain relatively open conditions conducive to SBKR movement. To maintain or replicate corridor conditions, management measures will be used to remove grasses and forbs and reduce shrub cover in long linear strips. There will be larger patches of suitable habitat where SBKR could reside along the linear strip. The strips would be at least as wide as the average dirt road (which are known to be used SBKR), approximately 7 meters in width, with live-in patches of suitable habitat at least 15 meters x 15 meters in size and spaced at least every 100 meters (the distance SBKR can move within a single evening). The ultimate goal would be to increase movement of SBKR between two larger occupied areas that may be currently separated by less suitable habitat. A study "strip" for this technique will be identified as part of the vegetation and species occurrence database updates in year three of HCP implementation. Criteria for selecting the study strip, the methods to be applied, and criteria for evaluating success will be subject to review by USFWS. The measures will be initiated at the study strip no later

than year five of HCP implementation, and their effectiveness will be evaluated after the strip has been managed and monitored for five years. If the evaluation demonstrates that the technique is effective, the measures will be applied to other sites.

Action: Re-establish a movement corridor over D-dike. Once vegetation management techniques have been applied to the southeast trending corridor between Plunge Creek and the Santa Ana River, one or more crossings of D-dike will be considered. The purpose of the movement corridor is to provide a passage for SBKR over D dike in an area that would connect the 1969 break out channel in the Santa Ana River and Plunge Creek area. Passage must be provided from the basin over D dike to the habitat area on other side of the dike. Truck access for Conservation District vehicles may be allowed using both sides of the ramp for on-going maintenance activities. Design and implementation must ensure that the ramp construction and culvert placement does not impact existing burrows. The purpose of the corridor is to create connectivity of SBKR movement and therefore "gene flow" between Plunge Creek and the Santa Ana River areas. The actual area of the corridor need not be suitable breeding habitat, but rather just provide a functional passage for SBKR.

The crossing(s) would need to be constructed of local material with a suitable substrate consistency. The crossing(s) should be strategically placed where trapping results indicate presence of SBKR and/or where historical scouring has occurred (e.g., see potential crossing location shown in Figure 13). A native seed mix would be applied to achieve sparse vegetative cover. Although there are several potential designs for crossing D-dike, the simplest may be to create an earthen land bridge with a perpendicular culvert underneath to allow unrestricted flow of percolation water. The Conservation District will consult with a qualified SBKR biologist and USFWS to select a corridor design that is cost-effective and biologically functional. Final decisions regarding the dimensions and number of corridors across D-dike would not occur until year 10 of HCP implementation (or later), and will be based on the best available science and in coordination with USFWS.

SBKR Habitat Suitability Model Monitoring Tool

Action: Compare the SBKR habitat suitability model with habitat suitability assessed in the field. Use the model as a tool for tracking habitat condition in conjunction with monitoring results. Update the model parameters to better correspond with results from field data and refine the model output as needed. The first update and evaluation will occur once the vegetation database for the Plan Area has been updated. Criteria for evaluating the effectiveness of the model will be established as part of the AMMP. The efficacy and applicability of the model as a planning and monitoring tool will be evaluated at least every five years.

California Gnatcatcher Monitoring

Action: Monitor status and trends of CAGN by conduct periodic surveys:

- To determine the location and number of CAGN and active CAGN nests in the conservation areas; and
- To determine the location and extent of intermediate and mature seral stages of Riversidean alluvial fan sage scrub and coastal sage scrub in the conservation areas.

  Note: Monitoring of suitable vegetation for CAGN would be done in conjunction and coordination with general vegetation monitoring efforts.

Coastal Cactus Wren Monitoring

Action: Monitor status and trends of coastal cactus wren by conducting periodic surveys:

- To determine the location and number of coastal cactus wrens and active coastal cactus wren nests in the conservation areas; and
- To determine the location and extent of cactus in the conservation areas, including cactus suitable to support nesting coastal cactus wrens.

  Note: Monitoring of suitable vegetation for coastal cactus wren would be done in conjunction and coordination with general vegetation monitoring efforts.

5.3 Adaptive Management and Monitoring Program

This section describes the Adaptive Management and Monitoring Program (AMMP) for the Plan. The AMMP is included in Appendix __ of this HCP [TBD].The purposes of the AMMP are to assess the status of covered species in the Plan Area; to evaluate the effects of management actions such that the biological goals and objectives of the Plan are achieved; and to ensure ongoing compliance with the Plan. Adaptive management and monitoring will be integrated into one cohesive program where monitoring will inform and change management actions to continually improve outcomes for covered species. An overview of the program, monitoring and management actions, and data and reporting requirements are found below.

The AMMP is intended to be implemented on the Newly Conserved and Additionally Managed Lands within the Plan Area, and are not prescriptions for activities within the WSPA, which is managed under a separate habitat management plan.

5.3.1 Regulatory Context

By regulation, an HCP must incorporate monitoring of conservation measures and the response of covered species to these measures (50 CFR 17.22[b][1][iii] and 50 CFR 222.22[b][5][iii]). An adaptive management strategy is a recommended component of Plans with data gaps that would substantively affect how the species is managed and monitored in the future (65 FR 35251). The USFWS and NMFS Five-Point Policy (65 FR 35241–35257) describes adaptive management as an integrated method for addressing uncertainty in natural resource management and states that management must be linked to measurable biological goals and monitoring. Section 5-2 of this HCP integrates biological goals and objectives, and conservation actions, with monitoring actions to ensure that the AMMP evaluates the success of the conservation actions to achieve the biological goals and objectives.

5.3.2 Adaptive Management

Adaptive Management is a decision-making process promoting flexible management such that actions can be adjusted as uncertainties become better understood or as conditions change. Monitoring the outcomes of management is the foundation of an adaptive approach, and thoughtful monitoring can both advance scientific understanding and modify management actions iteratively (Williams et al. 2007).

Adaptive management is necessary because of the degree of uncertainty and natural variability associated with ecosystems and their responses to management. Based on the best scientific information currently available, it is expected that the Plan's conservation actions will

effectively implement the conservation actions described in Section 5.2. However, there are varying degrees of uncertainty associated with the management techniques and conditions within and outside the plan area. In addition, the status of covered species and natural communities may change in unexpected ways during Plan implementation. It is possible that additional and different management measures not identified in the HCP will be identified in the future and proven to be more effective in implementing the conservation action described in Section 5.2 than those currently implemented. Results of effectiveness monitoring may also indicate that some management measures are less effective than anticipated. To address these uncertainties, an adaptive approach will be used to inform management; the monitoring program will be designed to support this adaptive approach.

The adaptive management process will be administered by the San Bernardino Valley Water Conservation District, who will coordinate and share the results of monitoring and targeted studies, as appropriate with the Wildlife Agencies. A well-coordinated and scalable monitoring program will enable the Conservation District to measure and evaluate change in resources and threats within the Plan Area.

In summary, adaptive management is the land manager's response to new information. Adaptive management actions will likely take place at the following junctures:

1. In response to the results of targeted studies including pilot projects,
2. In response to downward trends in the status of covered species or key natural-community variables,
3. When new information from the literature or other relevant research indicates that a feasible and superior alternative method for achieving the biological goals and objectives exists,
4. When monitoring indicates that the expected or desired result of a management action did not take place, and
5. Proactively, when threats are identified through the monitoring efforts in the Plan Area.

Most adaptive management measures will occur when conservation actions do not produce the desired outcome or when species trends decrease. In these cases, new actions would be implemented to try to improve the outcome for species. Such actions include but are not limited to the following:

1. Alter the timing, location, intensity or type of grazing;
2. Reduce, increase or otherwise change the pattern of prescribed burning;
3. Change the flow regime in target streams (e.g., timing, frequency, magnitude of flow levels or events);
4. Re-evaluate and, if necessary, alter avoidance and minimization measures;
5. Modify age, timing, location, or type of seedling transplantation for vegetation community restoration;
6. Prioritize or de-emphasize one aspect of noxious weed control such as targeted pesticide use;
7. Increase, decrease or desist species-specific conservation actions such as translocation of individuals based on experimental results.

Any of the conservation actions proposed in Section 5.2 can be modified in response to new information following the principles of adaptive management.

Adaptive Management and Monitoring Program Objectives

The overarching objective of the AMMP is to ensure that the conservation and management actions described in Section 5.2 and associated biological goals and objectives are being achieved. Section 5.3 has presented a foundation for accomplishing this task. Additional objectives of the monitoring and adaptive management program are listed below. The AMMP is included in Appendix __ of this HCP [TBD].

1. Provide an organizational framework and decision-making process for evaluating monitoring, targeted studies, and other data to adjust management actions.
2. Document the baseline condition of biological resources in the Plan Area using existing data, modeling, and the results of ongoing field surveys.
3. Develop conceptual models for natural communities and covered species, if applicable, that can be used as the basis for collecting information, verifying hypotheses, and designing and changing management practices.
4. Incorporate hypothesis testing and experimental management, including targeted studies to address key uncertainties and to improve management and monitoring efforts.
5. Develop and implement scientifically valid monitoring protocols at multiple levels to ensure that data collected will inform management and integrate with other monitoring efforts.
6. Ensure that monitoring data are collected, analyzed, stored, and organized so the data are accessible to San Bernardino Valley Water Conservation District, the permittees, regulatory agencies, scientists and, as appropriate, the public.

5.4 Habitat Restoration and Habitat Maintenance

There are a number of additional activities contemplated that would help to improve and maintain habitat quality in the Plan Area. Examples of such activities include the removal or notching of the Santa Ana River levee near the eastern boundary (Greenspot Road) of the Wash area that will restore regular flooding and scour to a significant habitat area on the site; and additional work on Plunge Creek, where vegetation will be removed and thinned. For the Plunge Creek project, the stream course will be modified to restore natural scour patterns on approximately 30 acres.

Habitat management and maintenance activities may include seed collection, herbicide application to control invasive plant species, hand thinning of vegetation, prescribed burning to control invasive annual grasses, and sheep grazing. Note that thinning should not be applied to shrub vegetation in areas with the potential to support nesting gnatcatchers. Planning for all management activities will include ongoing coordination among the resource agencies, Conservation District, and other permittees, as well as among managers of other conserved lands in the area.

Habitat enhancement and restoration activities beyond those specified in Section 5.2 of the HCP (Conservation, Management, and Monitoring), may be implemented by other entities that aren't

Wash Plan HCP permittees. For example, Metropolitan Water District maintains an easement for the inland feeder pipeline, and may have future mitigation needs for impacts associated with repairs to the pipeline within the Plan Area. When such opportunities exist, the Conservation District will coordinate with the entity and the resource agencies to identify potential enhancement or restoration projects that would benefit the overall conservation of covered species and protected habitats in the Plan Area. These potential additional conservation actions would not be counted as mitigation for covered activities of the current permittees under the Wash Plan HCP.

5.5 General Impact Avoidance and Minimization Measures

To avoid and minimize actual instances of take and reduce the effects of unavoidable take, the following measures will apply to Covered Activities in the Plan Area (Table 5-4). [Link Measures to Avoid and Minimize Take more directly to proposed Covered Activities. Use covered activity codes.

Table 5-4. Identification of Avoidance and Minimization Measures Applicable to Covered Activities

Covered Activity Type	Avoidance and Minimization Measures/Best Management Practices
Minimize Spineflower Impacts	
All covered activities with ground-disturbing impacts	Prior to land disturbance Conservation District will ensure that the project sponsor will be responsible for the following measures as applicable: • Conduct surveys for spineflower if suitable habitat is present and the area has not been surveyed for spineflower within the last 5 years; • If spineflower are present, collect spineflower seed during one or more years prior to the impact (to collect a diversity of seed forms, which change under different environmental conditions) and salvage for the relocation program; and
Mining activities	No impacts on spineflower a portion of Mining Area (center of Section 11 between the existing quarries) shall be permitted until USFWS and CDFW have determined that the spineflower enhancement and relocation program is successful or until equivalent alternative successful conservation measures have been implemented.
Water Conservation activities	The SBVMWD's Phase A and B water conservation projects will be planned and designed to limit total habitat impacts no more than 31% of the total acreage within each Phase (92 and 51 acres, respectively) and to avoid impacts on spineflower (if found to occur in the areas).
Minimize Impacts on SBKR	
All covered activities using dirt roads in the preserve areas	Vehicular traffic on dirt roads in Newly Conserved and Additionally Managed areas will be restricted to daylight hours to avoid road kill of SBKR, except for emergency response.

Covered Activity Type	Avoidance and Minimization Measures/Best Management Practices
Minimize Potential Hazards to Special-Status Species	
All covered activities	• No hazards to special-status species, such as open trenches and holes (mining activities excepted), will be left overnight without fencing or covering. • No firearms or pets will be allowed at the work area. Firearms carried by authorized security and law enforcement personnel are exempt. • Dust will be controlled. If water trucks are to be used, pooling of water will be avoided to minimize the potential to attracting opportunistic predators. • Except on paved roads with posted speed limits, vehicle speeds will not exceed 10 miles per hour during travel associated with the covered activities. • Litter control measures will be implemented. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness or the area to opportunistic predators. • Projects should be designed to avoid the placement of equipment and personnel within the stream channel or on sand and gravel bars, banks, and adjacent upland habitats used by covered special-status species.
Limit Impact Footprint within Special-Status Species Habitats	
All covered activities with ground-disturbing impacts	• The area of covered activity disturbances will be confined to the smallest practical area, considering topography, placement of facilities, location of covered species habitat, public health and safety, and other limiting factors, and will be located in previously disturbed areas to the extent possible. A qualified biologist can assist the project team in avoiding/minimizing covered species habitat during various project stages. When working within or immediately adjacent to covered species habitat, work area boundaries (i.e. the area within project footprint that will be impacted by the covered activities temporarily or permanently) will be delineated with flagging or other marking to minimize surface disturbance outside of the approved work area. • Biological construction monitoring by a biologist with qualifications acceptable to USFWS and CDFW
Minimize Impacts on Breeding Birds	
All covered activities with ground-disturbing impacts	• Pursuant to the federal Migratory Bird Treaty Act and CDFG code, impacts on bird nests will be avoided. To avoid any impacts on migratory birds resulting from construction activities, the following measures will be implemented. • If construction-related activities are to occur during the nesting season (February 1 through August 31), a qualified biologist will conduct a preconstruction survey of the proposed construction area and an appropriate buffer. This preconstruction survey will commence no more than 72 hours prior to the onset of construction. • If a nest is observed, an appropriate buffer will be established by the qualified biologist to ensure no direct or indirect impacts of construction at the nest site. The buffer would be removed

Covered Activity Type	Avoidance and Minimization Measures/Best Management Practices
	once the nest is inactive as confirmed by a qualified biologist. • All no-construction activity buffer areas will be clearly demarcated in the field with stakes and flagging that are clearly visible to construction personnel.
Minimize Impacts on Drainages	
All covered activities with ground-disturbing impacts	• Construction activity and access roads will be minimized to the extent practicable in all drainages, streams, pools, or other features that could be under the jurisdiction of the U.S. Army Corps of Engineers (USACE), Water Board, and/or CDFW. If impacts on these features are identified, a formal jurisdictional delineation and permit applications to the regulatory agencies may be required. • When stream flows must be diverted, the diversions shall be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing of other sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments offsite. Settling ponds where sediment is collected shall be cleaned out in a manner that prevents the sediment from reentering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream. • Erodible fill material shall not be deposited into water courses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks.

5.6 Landuse Adjacency Measures

The purpose of Land Use Adjacency Measures is to avoid or minimize indirect effects from covered activities near to or within the Conservation Areas or other natural areas. Near to means within 500 feet of any natural area parcel or Conservation Area. The following Land Use Adjacency Measures shall be incorporated by the permittees into the project design or retrofit plans to minimize edge effects.

5.7 Existing Conserved Areas within the Plan Area

There are several existing conservation areas within the Plan Area. While the acreages of habitat within these areas are not considered to offset and mitigate for the impacts of the covered activities, these area do contribute to the overall success of the conservation strategy by contributing to the connectivity and total area of habitats conserved and managed for covered species. These existing conserved areas are shown in Figures 2 and 6 and discussed briefly below.

5.7.1 Santa Ana River Woolly-Star Preserve Area (WSPA)

To protect significant populations of the woolly-star, habitat along the Santa Ana River and portions of the alluvial fan terraces were set aside and established as the WSPA. The WSPA is a 764-acre area west of the Greenspot Bridge that crosses the Santa Ana River. The WSPA was established as mitigation in the 1990s by the USACE to address impacts related to the construction and operation of Seven Oaks Dam.

5.7.2 Future Flood Control Mitigation Area

San Bernardino County Flood Control District dedicated 365.5 acres of alluvial habitat in the active channel immediately south of the WSPA in the Santa Ana River Wash. This property dedication provides an important linkage between the main river channel and the WSPA and results in more than 700 contiguous acres of quality habitat. The dedicated property is intended to mitigate for routine maintenance and emergency repair covered activities on Flood Control District facilities within the Wash Plan area in the Santa Ana River, and on Mill, Plunge, City and Elder Creeks. Additionally, acreage dedicated in excess of what is needed for Flood Control District mitigation of their covered activities has been designated as a Future Flood Control Mitigation Area to provide future mitigation credits for Flood Control District infrastructure construction, maintenance and permitting activities in ecologically-similar areas outside the Wash Plan area, as needed.

5.7.3 City of Highland Biological Mitigation Area

City of Highland owns two 10-acre undeveloped parcels on the south side of Greenspot Road, with one parcel located on the east side of the BLM property, and the other parcel located on the west side of the BLM property. These parcels are available for the City of Highland to mitigate impacts not associated with the Wash Plan HCP covered activities.

Table 5-5. Land Use Adjacency Measures

General Measure	Implementation
Lighting	Night lighting (existing or proposed) that is near to or within the Conservation Areas or other natural areas shall be shielded to downcast below the horizontal plane of the fixture height and mounted as low as is feasible. This will ensure any night lighting is directed toward the developed covered activity area. For existing night lighting, an evaluation of the degree of light spillover would be performed, and a prioritized list for retrofitting would be produced. Highest priority retrofitting would be those lightings with the greatest degree of light spillover into Conservation Areas or other natural areas. Construction plans for new covered activities shall show exterior lighting and how they have been designed to minimize light spillover. Landscape shielding or other appropriate methods may also be incorporated in project designs and retrofitted into existing facilities to minimize the effects of lighting near to or within the Conservation Areas or other natural areas.
Water Run-Off	Covered activities near to or within the Conservation Areas or other natural areas shall incorporate plans to ensure that the quantity and quality of runoff discharged is not altered in an adverse way when compared with existing conditions, which includes landscape irrigation. Stormwater systems shall be designed to prevent the release of sediments, toxins, chemicals, petroleum products, exotic plant materials or other elements that might degrade or harm biological resources or ecosystem processes within the adjacent Conservation Area or other natural areas.
Toxics	Land uses proposed adjacent to or within the Conservation Areas or other natural areas that use chemicals (herbicides, rodenticides, insecticides) or generate bioproducts that are potentially toxic or may adversely affect wildlife and plant species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in any discharge to the Conservation Areas or other natural areas. Equipment storage, fueling, and staging areas shall be located on upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. Necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. Project related spills of hazardous materials shall be reported to appropriate entities including but not limited to applicable jurisdictional city, FWS, and CDFG, RWQCB and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.
Landscaping and Invasives	If reseeding of temporary disturbance areas or ornamental landscaping is proposed, the proposed seed palette will be reviewed by a biologist to ensure it does not contain plants that are considered invasive in California (based on the most current version of the California Invasive Plant Inventory Database).

General Measure	Implementation
Barriers	Land uses adjacent to or within a Conservation Area may incorporate appropriate barriers in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping in Conservation Areas or other natural areas. Such barriers may include native landscaping, rocks/boulders, fencing, walls, gates, and/or signage.
Noise	Proposed Development adjacent to or within Conservation Areas or other natural areas that generates noise in excess of 75 dBA Leq hourly shall incorporate setbacks, berms, or walls, as appropriate, to minimize the effects of noise on the adjacent Conservation Areas or other natural areas.

5.7.4 Robertson's Haul Road Mitigation Area

The Conservation District owns a small triangular parcel in the eastern end of the Plan Area that was purchased to mitigate for the crossing of BLM land for a mining haul road for Robertson's Ready Mix. A conservation easement was recorded for the parcel. The haul road is now included as a covered activities in the HCP and will be mitigated through the HCP.

5.8 GIS Database and Vegetation Map Updates

A GIS database for management and monitoring will be established and maintained for the duration of HCP implementation. The database will include but not be limited to property ownership, conservation easements, utility and road easements and rights of way, existing facilities and land uses, Plan Area boundaries, the boundaries of Plan Area subcomponents, vegetation types, species occurrence records, watersheds, location of monitoring and study plots, areas where habitat has been removed by Covered Activities, areas where habitat has been enhanced under the HCP, and other information relevant to plan implementation.

The vegetation database will be updated based on an infield assessment and use of aerial imagery within three years of plan and ITP approval. Thereafter, the vegetation data base will be updated at least every five years. Species occurrence layers will be updated as new data become available, with the update made on a scheduled basis and at least annually.

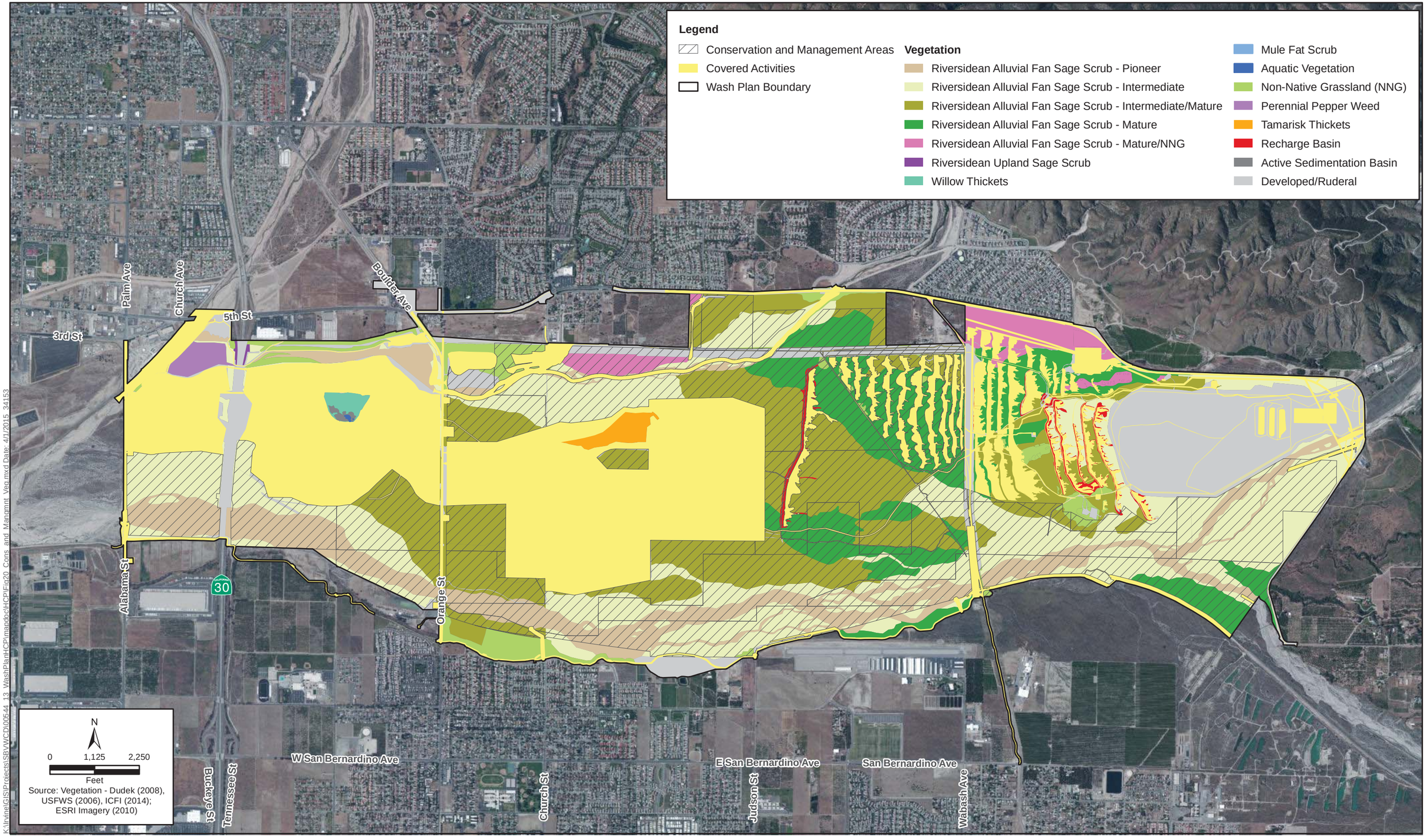

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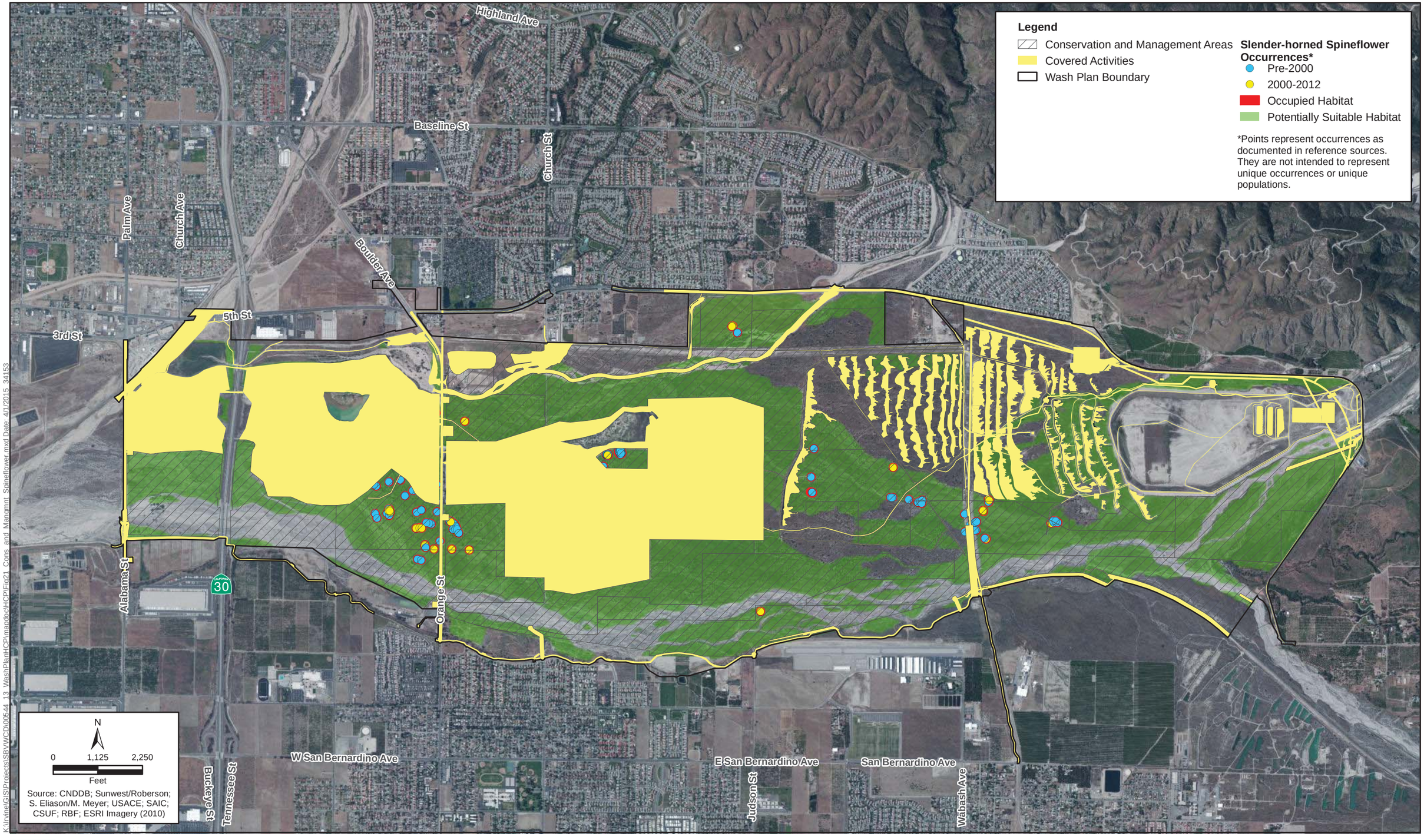
Figure 20
Conservation and Management for Vegetation Communities
Wash Plan HCP



K:\Irvine\GIS\Projects\SBVWCD\00544.13 WashPlanHCP\mapdoc\HCPFig21 Cons and Mangmnt Spineflower.mxd Date: 4/1/2015 34153

Figure 21
Conservation and Management for Slender-horned Spineflower
Wash Plan HCP

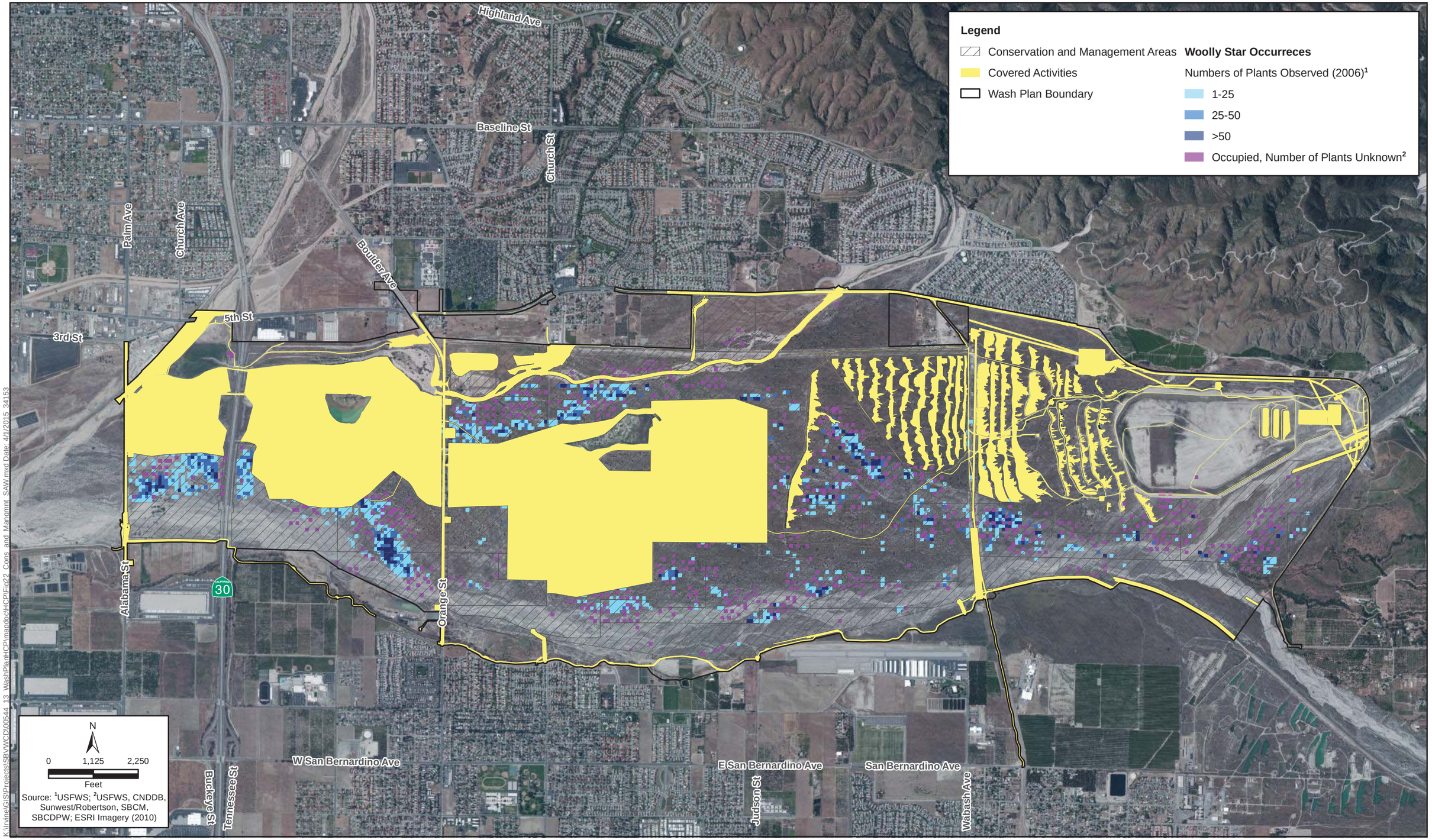


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Figure 22
Conservation and Management for Santa Ana Woolly Star Occurrences
Wash Plan HCP

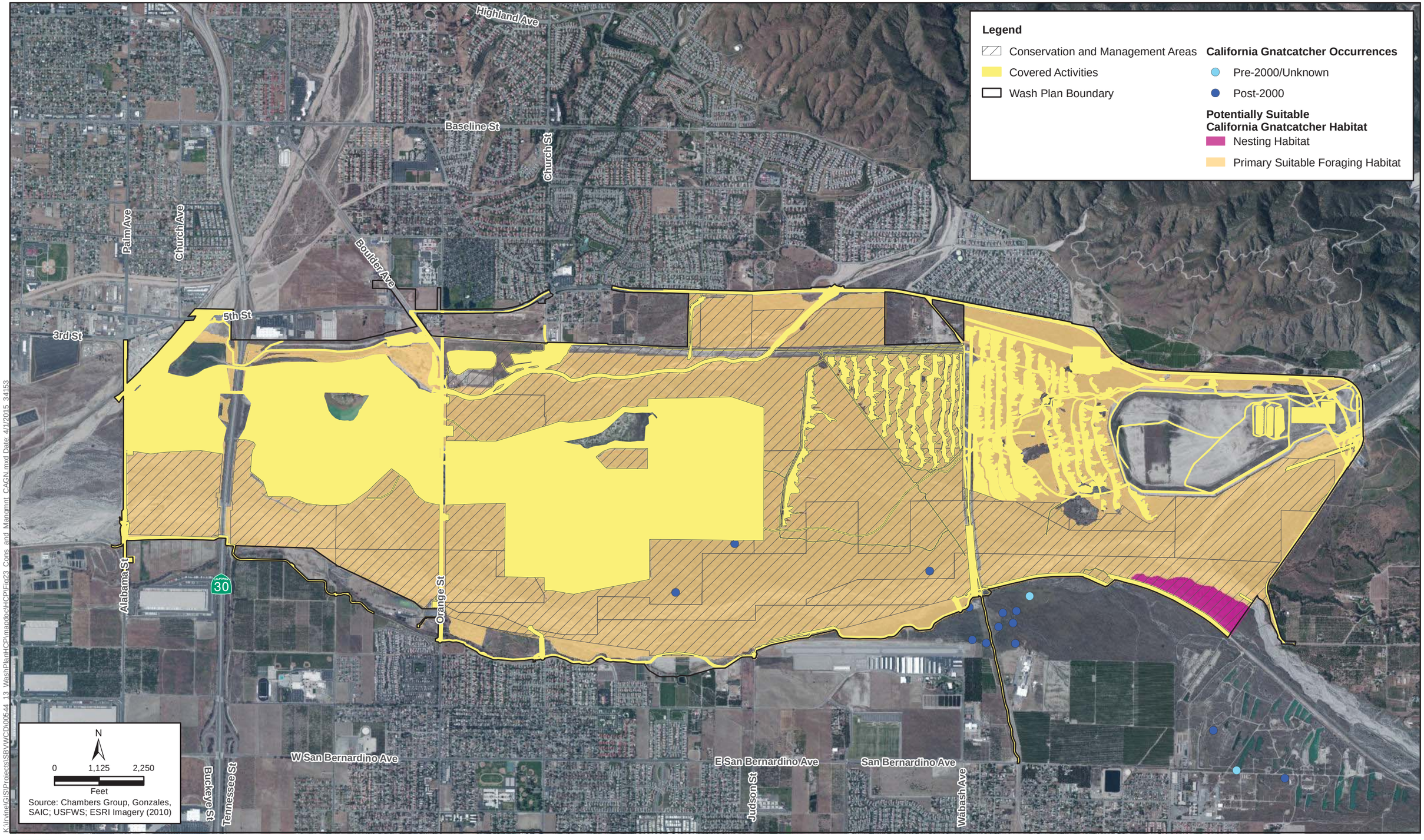

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Figure 23
Conservation and Management for California Gnatcatcher
Wash Plan HCP

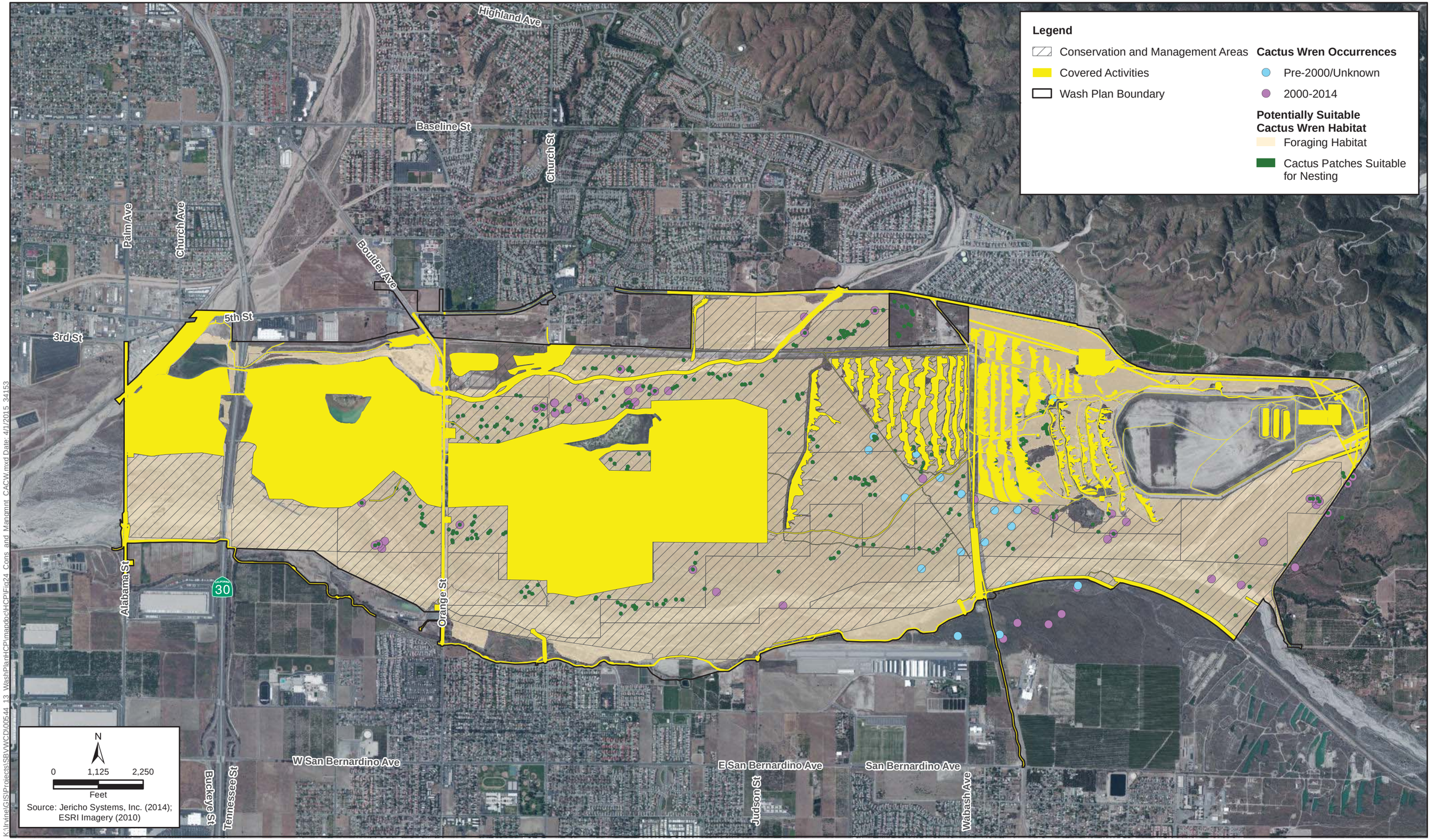

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Figure 24
Conservation and Management for Cactus Wren
Wash Plan HCP

Legend

- Conservation and Management Areas
- Covered Activities
- Wash Plan Boundary
- San Bernardino Kangaroo Rat Critical Habitat

Habitat Suitability for San Bernardino Kangaroo Rat

- High Potential
- Medium Potential
- Low Potential
- Trace
- Ecological Process Area

WSPA San Bernardino Kangaroo Rat Trapping Results 2006-2008

- Negative
- Positive

USACE San Bernardino Kangaroo Rat Trapping Results

- Negative
- Positive

USFWS San Bernardino Kangaroo Rat Positive Trapping Results

- Pre-2000
- 2000-2007

Palm Ave
Church Ave
Boulder Ave
5th St
3rd St
Alabama St
Orange St
30
W San Bernardino Ave
E San Bernardino Ave
San Bernardino Ave
Buckeye St
Tennessee St
Church St
Judson St
Wabash Ave

N
0 1,125 2,250
Feet
Source: ESRI Imagery (2010)

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Figure 25
Conservation and Management for San Bernardino Kangaroo Rat
Wash Plan HCP

Chapter 6
Plan Implementation

6.1 Plan Implementation

Implementation of the Wash Plan HCP begins when the Implementing Agreement (IA) is executed and the Section 10(a)(1)(B) ITP is issued. Primary responsibility for Plan implementation rests with the permittees, with support by USFWS and CDFW to review annual reports and provide guidance and input as needed. The successful implementation of the conservation strategy, monitoring program, covered activities, and reporting that are part of the Plan require coordinated actions among the permittees and the Wildlife Agencies.

This chapter describes the overall implementation structure of the Plan, including institutional arrangements, organizational structure, approval processes, and roles and responsibilities of signatories to the Implementing Agreement.

6.2 Compliance Monitoring and Reporting

This HCP must be monitored over time to determine if implementation measures are achieving goals and objectives of the Plan. Two tracking processes will be undertaken: impacts and biological monitoring. Results of these efforts will be discussed at annual coordination meetings and in annual public reports.

6.2.1 Tracking Conservation, Impacts, and Rough Step Phasing

The Conservation District as Program Administrator will be responsible for the annual accounting of the acreage, type, and location of vegetation communities and species habitat conserved and impacted by permitted land uses and other covered activities within the Plan Area. At the end of each annual reporting period, Conservation District will tabulate and summarize all impacts that have occurs by vegetation community and species habitat type. The acreages will be accompanies by GIS figures documenting the location of covered activity impacts and will be included in the annual report the Wildlife Agencies.

HCP Phasing and the Rough Step Process

A conservation tracking and reporting system will be developed and maintained throughout the permit term of the HCP to ensure that the impacts of the covered activities stay within rough step of the conservation actions. Rough step limits for the Wash Plan HCP are determined by the phasing of impacts and conservation actions. The conservation actions (land dedication, management, and monitoring) must be implemented early in Phase 1 so that sufficient conservation credit is available to accommodate the impacts planned to occur in Phase 1 (see Table 2-2).

A minimum of 1,163.5 acres will be dedicated for conservation during Phase 1, and the bulk of these lands will be dedicated within five years of permit issuance. USFWS expectation for the Wash Plan HCP is that conservation actions will be implemented in advance of impacts of covered activities and the amount of conservation will stay ahead of the impacts by a minimum of 5%. For example, 6% of the total conservation to be achieve in Phase 1 will need to occur

before the first 1% of total impacts can occur. To stay ahead in the balance of conservation vs. impacts, conservation land will need to be designated and actively managed early in Phase 1, as is planned with the "Jump Start" where 250 acres will be designated for conservation, including 200 acres will become actively managed within the first seven years of Phase1 ("jump start").

Where habitat impacts take place later the permit duration (i.e., Phases 2 and 3), lands will be placed under a conservation easement or another habitat protection vehicle prior to the impacts associated with Phase 2 and 3 covered activities. Sufficient additional habitat will be designated for conservation and managed early in Phase 2 to ensure that conservation stays ahead of impacts by at least 5%. All land planned to be designated for conservation under the HCP will be designated prior to the end of Phase 2 such that all remaining conservation credits will be available for the remaining covered activity impacts (Phase 3 mining) at the start of Phase 3. This rough step process is primarily intended to cover mining activities where the ground disturbance associated with mining occurs over the entire 30 year permit duration. Most covered activities completed during Phase 1 will have ongoing O & M activities associated with these newly constructed facilities that continue in Phases 2 and 3.

Tracking Conservation Credits

The conservation tracking and reporting system will also track the mitigation credits available under the HCP. Mitigation credits are generated by dedicating land for conservation (Newly Conserved) and by committing to additional management above and beyond what is currently occurring on public land (Additionally Managed). Both mechanisms to generate conservation credits come with an associated commitment to manage the land in perpetuity to benefit covered species.

While the HCP will be implemented in three 10-year phases, the conservation actions to designate land as protected will occur during the first two phases. All primary conservation activities that are planned to generate credits to mitigate the covered activities will be complete by year 20 (end of Phase 2), and the final 10 years of the permit term (Phase 3) will be dedicated to ongoing management and monitoring.

Phase 1 Conservation Activities (years 1-10)

To generate sufficient conservation credit to accommodate covered activities early in the HCP implementation, Conservation District will initiate "Jump Start" conservation activities within the first seven years of implementation.

Jump Start Activities (years 1-7)

Jump Start activities will provide for 200 acres of focused management to take place in the first seven years of implementation. These activities focus on:

1. Controlling invasive vegetation, primarily grasses, in areas known to support spineflower and
2. Enhancing the quality of the important biological corridor by thinning or controlling invasive vegetation along the corridor margins.

Other Phase 1 Conservation (years 1-10)

Within the first five years of HCP implementation, Conservation District and other permittees will designate as Newly Conserved 600 acres of habitat for permanent habitat conservation and management using a conservation easement or equivalent legal protection mechanism.

Conservation District will also initiate additional management and monitoring on all Newly Conserved identified for Phase 1 conservation. By the end of Phase 1 all 1,163.5 acres of Newly Conserved land shall be permanently protected.

Phase 2 Conservation Activities (years 11-20)

Conservation activities during Phase 2 must be initiated early enough to provide sufficient conservation credit for Phase 2 covered activities. The Phase 2 conservation activities must be in rough step and stay ahead of the Phase 2 impacts by at least 5%. By the end of Phase 2 (year 20), Conservation District and other permittees will fully manage and monitor 566.0 acres of Additionally Managed habitat.

Phase 3 Conservation Activities (years 21-30)

During Phase 3 the Conservation District and other permittees will continue to fully implement management and monitoring activities on all 1,729.5 acres of Newly Conserved and Additionally Managed land. These management and monitoring actions will continue in perpetuity even if the permit is not renewed after the initial permit term.

Future Flood Control Mitigation Area

San Bernardino County Flood Control District dedicated 319.8 acres of alluvial habitat in the active channel immediately south of the Woolly Star Preservation Area (WSPA) in the Santa Ana River Wash. This property dedication provides an important linkage between the main river channel and the WSPA. A portion of the dedicated property (approximately 174.9 acres) is intended to mitigate for Flood Control HCP Covered Activities, and is designated as Newly Conserved. The remaining acreage (144.9 acres) is identified as Future Flood Control Mitigation Area and is available for mitigation of future Flood Control infrastructure construction, and maintenance activities not covered by the HCP.

Flood Control will coordinate with the resource agencies to develop a credit and debit tracking process for the Future Flood Control Mitigation Area for those non-HCP covered activities that is independent of the HCP phasing and rough step tracking system.

Tracking Covered Activity Impacts

Prior to the initiation of any covered activity with the potential to remove habitat, the permittee responsible for the covered activity will contact Conservation District. The HCP Program Administrator will review the implementation plan for the covered activity to ensure compliance with the requirements of the HCP and associated permits. The review process will confirm the location of the covered activity, the timing of the covered activity, and the expected acreages to be impacted. Once the covered activity has been confirmed to be in compliance with the HCP, the Conservation District will record the impact acreage in the conservation tracking and recording system to confirm that the project will not exceed the amount of take of covered species permitted under the HCP. Upon completion of the covered activity the final impacts will be confirmed and updated in the tracking system if necessary. All impacts will be tracked and maintained in a GIS database as well as in a tabular tracking ledger to ensure the balance of take and conservation is maintained.

The conservation tracking and reporting system will also track impacts and conservation within each phase of the HCP to ensure that covered activity implementation stays within rough step with the conservation actions such that conservation actions are always at least 5% ahead of impacts.

6.2.2 Annual Reporting

An annual public report will be prepared and distributed that will demonstrate compliance with the terms and conditions of the HCP, ITP, and IA. Amendments or administrative corrections will also be reported.

Annual reports will be prepared and submitted to USFWS by October 31 of each year to evaluate compliance with the HCP and to determine if the goals and objectives of the HCP are being met. These reports will include:

1. Results of the monitoring and management program for the covered species;
2. Habitat impacts from Covered Activities in the prior year;
3. Progress made in meeting the biological goals and objectives of the HCP;
4. Any instances of non-compliance with the terms of the ITP;
5. An accounting of expenditures and available funds for HCP implementation; and
6. Problems or issues identified during implementation and the steps taken or recommended to address them.

A copy of the report will be provided to CDFW.

If, after 10 years, the goals and objectives are being met, reporting can be decreased to every five years, with approval from USFWS.

6.3 Responses to Changed Circumstances

6.3.1 Summary of Circumstances

Section 10 regulations [(69 Federal Register 71723, December 10, 2004 as codified in 50 Code of Federal Regulations (C.F.R.), Sections 17.22(b)(2) and 17.32(b)(2))] require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittee and USFWS. The purpose of the No Surprises Rule is to provide assurance to the non-federal landowners participating in habitat conservation planning under FESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by the permittees and USFWS and for which contingency plans can be prepared (e.g., a fire, or other natural catastrophic event in areas prone to such event). If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and these additional measures were already provided for in the plan's operating conservation program (e.g., the conservation management activities or mitigation measures expressly agreed to in the HCP), then the permittee will implement those measures as specified in the plan. However, if additional conservation management and mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in the plan's operating conservation program, USFWS will not require these additional measures absent the

consent of the permittee, provided that the HCP is being "properly implement" (properly implemented means the commitments and the provisions of the HCP and the IA have been or are fully implemented).

The Wash Plan HCP has identified and addresses seven Changed Circumstances that can be reasonably anticipated in the Plan Area: Climate Change, Fire, Drought, Flood, Invasion of Exotic Species, Future Listing of Non-Covered Species, and Failure of spineflower Enhancement and Relocation Program. Each of these Changed Circumstances are described below.

Climate Change

There are clear scientific data indicating that alteration of the atmosphere is causing changes in climate, including increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising sea levels. In California, it is anticipated that there will be warmer temperatures (Cayan et al. 2006), greater extremes in weather, and larger variation between wet and dry years (Franco 2005) but precipitation patterns are more difficult to project (Lenihan et al. 2006). Higher nighttime temperatures are predicted, perhaps altering days of frost, daily temperature extremes, and distribution of some species (IPCC 2007). Some of the most dramatic potential climate change impacts include increased frequency and severity of extreme events, such as heat waves, wildfires, and flooding (Lenihan et al. 2006, IPCC 2007). To accommodate shifts in distribution, species will need a range of large core habitat areas connected by landscape-level linkages (Franco 2005). The species most at risk are those that have specific habitat requirements, have limited ability to relocate, or are surrounded by development (leaving few relocation options) (NPS 2006).

Although the extent and nature of impacts from climate change within the Plan Area are unknown, some climatic models suggest that there may be changes in vegetation patterns and increases in wildfire size and frequency (Franco 2005).

Response to Climate Change: The Wash Plan conservation strategy protects and enhances through restoration and management the habitat connectivity of the region. Protection of habitat connectivity, especially along ecological gradients such as elevational gradients and along natural hydrologic features, provide the opportunity for species to shift their range and area of occupied habitat in response to climate change. Additional adaptive management may be needed to enhance connectivity at key locations, or to translocate individuals across existing barriers to movement.

Fire

A repetitive fire that results in or substantially increases the risk of type conversion (e.g., converting shrublands to non-native grasslands) constitutes a changed circumstance. The USFWS has indicated that for sage scrub and riparian habitat, repeat fires within the same footprint within 10 years of the original burn can adversely hamper natural regrowth and interrupt the ability of the habitat to rejuvenate. Diffendorfer et al. (2007) cite several sources that indicate fire cycles of one to three years within sage scrub can increase the presence of exotic weeds and lead to conversion to grassland. Ten years after a fire, shrub dominated habitat types are expected to be fully re-established and capable of natural regeneration.

Based on the frequency, extent, and severity of damage from a repetitive fire, specific adaptive management tasks will be identified and implemented. Natural regrowth within the damaged area will be monitored and measures to control invasion of exotic plant species, excessive erosion, and and/or type conversion will be applied as part of AMMP implementation.

Drought

For the purpose of defining Changed Circumstances, drought is defined as climatic drought of 5 to 10 years in length, as declared by the California State Department of Water Resources and/or the Conservation District. Longer periods of drought are considered unforeseen circumstances.

Depending upon the extent and severity of the drought, a specific adaptive management action plan will be developed and implemented. Management activities may include controlling non-native weeds and other invasive species as part of AMMP implementation.

Flood

A 100-year flood event as classified by the Federal Emergency Management Agency (FEMA) and determined by the Flood Control constitutes a changed circumstance under this HCP. However, flooding is a natural event and is not anticipated to cause sufficiently severe damage that would prevent natural regeneration within the preserve. If the extent and severity of flood damage indicate a need for monitoring or management, measures will be identified and applied as part of AMMP implementation.

Invasion of Exotic Species

For the purpose of defining Changed Circumstances, invasion of invasive exotic species is defined as an introduction of a species within conserved habitat that has either: (a) not previously been known to occur in the Plan Area and has been noxious elsewhere; or (b) is a particularly noxious variety of non-native species that is resistant to typical control measures. Unforeseen circumstances would be defined as invasion within a preserve of a species not currently known to be a noxious elsewhere, but that becomes so upon introduction to the preserve.

When invasive species are discovered, actions designed to reduce such species will be applied. If an unanticipated invasion by exotic species occurs as a result of another Changed Circumstance identified in this section (e.g., repeated fires), USFWS will be notified. The damage caused by the unanticipated invasion by exotic species will be addressed as follows: The invasive species will be mapped and their abundance at each location will be noted;

- Actions to improve habitat conditions and reduce the threat(s) will be implemented;
- The response of species/habitats to the action(s) taken will be monitored.

If the influx of invasive species involves a species included on the California Invasive Plant Council (CalIPC) "List A" or state or federal "noxious" weeds, USFWS and CDFW will be notified and a plan of action will be determined within 30 days of such notice.

Future Listings of Non-Covered Species

In the event that a species that is not a covered species under this HCP is listed by the USFWS subsequent to the issuance of the ITP, such listing will be considered a Changed Circumstance. Appropriate action to avoid take of the newly listed species or to add the species to the HCP and ITP through the amendment process will be taken.

Failure of Slender-Horned Spineflower Enhancement and Relocation Program

Failure of the spineflower Enhancement and Relocation Program will be considered a Changed Circumstance. Criteria for determining what would constitute failure of the spineflower program will be identified in the detailed plans for the program. Actions to reduce or eliminate take of spineflower or provide for additional management and enhancement of known populations will be implemented to achieve equivalent level of mitigation.

6.4 Responses to Unforeseen Circumstances

Unforeseen circumstances are defined in 50 CFR 17.3 as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by the permittee or USFWS at the time of the HCP's negotiation and development and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to non-federal landowners participating in habitat conservation planning under FESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

In case of an unforeseen event, Conservation District shall immediately notify USFWS staff who have functioned as the principal contacts for the proposed action. In determining whether such an event constitutes an unforeseen circumstance, USFWS shall consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the Wash Plan HCP; percentage of range conserved by the Wash Plan HCP; ecological significance of that portion of the range affected by the Wash Plan HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the Wash Plan HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If USFWS determines that additional conservation and mitigation measures are necessary to respond to the unforeseen circumstances where the Wash Plan HCP is being properly implemented, the additional measures required of the Conservation District must be as close as possible to the terms of the original Wash Plan HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that already set-aside in the Wash Plan HCP's operating conservation program. Additional conservation and mitigation measures shall not involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for use by covered activities under original terms of the Wash Plan HCP, unless agree to by Conservation District.

6.5 HCP Amendment Process

6.5.1 Minor Amendments

Minor amendments are changes that would not appreciable affect the Wash Plan HCP's impacts associated with covered activities, implementation of the conservation strategy, or amount of take. A minor amendment is not appropriate to add a new species to be covered under the plan, or to change significantly the boundaries of the HCP. Examples of minor amendments include correction of spelling errors or minor corrections in boundary descriptions. The minor

amendment process would be accomplished through an exchange of letters between Conservation District and the USFWS Field Office.

6.5.2 Major Amendments

Major amendments to the Wash Plan HCP would also require an amendment to the permit. Major amendments involve changes that do affect the amount of impact from covered activities, implementation of the conservation strategy, or increase in the amount of take. A major amendment is required to add new species, or to change significantly the boundaries of the HCP. Major amendments often require amendments to the USFWS decision documents, including the NEPA document, the biological opinion, and findings and recommendations document. Major amendments will often require additional public review and comment.

6.5.3 Suspension/Revocation

USFWS may suspend or revoke their respective permits if Conservation District fails to implement the Wash Plan HCP in accordance with the terms and conditions of the permits or if suspension or revocation is otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by USFWS shall be in accordance with 50 CFR 13.27-29, 17.32 (b)(8).

6.5.4 Permit Renewal

Upon expiration, the Section 10(a)(1)(B) permit may be renewed without the issuance of a new permit, provided that the biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original Wash Plan HCP. To renew the permit, Conservation District shall submit to USFWS, in writing:

- a request to renew the permit; reference to the original permit number;
- certification that all statements and information provided in the original Wash Plan HCP and permit application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes;
- description of all take that has occurred under the existing permit; and
- a description of any portions of covered activities still to be completed.

If USFWS concurs with the information provided in the request, it shall renew the permit consistent with permit renewal procedures required by federal regulation (50 CFR 13.22). If Conservation District files a renewal request and the request is on file with the issuing USFWS office at least 30 days prior to the permits expiration, the permit shall remain valid while the renewal is being processed, provided the existing permit is renewable. However, Conservation District may not take listed species beyond the quantity authorized by the original permit or change the scope of the Wash Plan HCP. If Conservation District fails to file a renewal request within 30 days prior to permit expiration, the permit shall become invalid upon expiration. Conservation District must have complied with all annual reporting requirements to qualify for a permit renewal.

6.6 Institutional Structure

Implementation of the Wash Plan HCP will proceed under the following institutional and administrative arrangements:

1. Consistent with its role as the entity responsible for coordinating implementation of the Wash Plan, the Conservation District shall be the Program Administrator for HCP implementation and shall administer the Section 10(a)(1)(B) permit and Section 7 incidental take authorization.
2. In its capacity as Program Administrator, the Conservation District shall provide for an HCP Implementation Team to administer the HCP. The HCP Implementation Team shall consist of an Executive Director, Habitat Conservation Program Manager, Biological Consultants, and a Wash Plan Advisory Committee.
    a. The General Manager for the Conservation District shall serve as the Executive Director, and will be responsible for overall administration of the HCP program, including preparation of the annual budget, submittal of annual reports to USFWS and CDFW, maintenance of all program records, and serve as chairperson of the Advisory Committee. The Executive Director will ensure that there is full compliance by all parties covered by the 10a Permit with the terms and conditions of the ITP.
    b. The Habitat Conservation Program Manager shall be responsible for overseeing development and implementation of the management programs for conserved habitat, preparation of annual reports, consultation with the USFWS and CDFW as needed, preparation of annual work programs and the completion of implementation actions in fulfillment of HCP commitments. The Program Manager will oversee any and all consultant work performed to implement the HCP programs. The Program Manager will also review all covered activities prior to ground-breaking by the permittees to ensure consistency with the HCP and authorized level of take.
    c. Biological Consultants shall be retained to provide required technical assistance in the development and implementation of the adaptive management and monitoring programs and compliance with habitat management measures, species surveys and other biological oriented activities.
    d. The Wash Plan Advisory Committee shall include representatives of the covered parties and one at-large member. The USFWS, CDFW, BLM, and a WSPA Management Committee representative will participate as ad hoc members. The Committee will provide advice to the Conservation District on HCP activities.
3. With regard to the authorizations for incidental take, the Conservation District shall be the permit holder for the ITP and non-federal project proponent for the Section 10 take authorization statement. Take associated with Section 7 authorizations involve Wash Plan activities on federal land administered by the BLM. These activities consist of: a) construction of Phase III water conservation facilities, b) modifications to "D-Dike" for SBKR corridor movement and c) in cooperation with the cities, establishing hiking/interpretive trails within existing disturbed alignments. The authorization for incidental take on non-federal land would be conditioned on preservation of the proposed Newly Conserved Lands under conservation easements or comparable arrangements. The authorization for incidental take on federal land will first require

execution of an agreement between the Conservation District and BLM and other entities as needed regarding the BLM land transfer and management of the Additionally Managed Lands, which will ensuring compliance with permit terms and conditions by each covered party on BLM land.

4. All covered parties (i.e., all entities covered by the authorizations for incidental take) will be required to notify the Conservation District of specific activities covered by the Section 10 ITP and Section 7 take authorizations prior to receiving a Certificate of Inclusion authorizing take associated ground-disturbing covered activities.
5. As the permit holder for the ITPs, Conservation District will convey the permit authority to the other permittees under Certificates of Inclusion.
6. Each Certificate of Inclusion will be associated with a single permittee and will address one or a group of closely related covered activities. Certificates will specify the required mitigation of impacts in advance of the covered activity and will identify and collect payment of any associated costs for conservation, management, monitoring, and program administration.
7. The permittee will provide documentation to Conservation District demonstrating the activity will be in compliance with the terms and conditions of the ITP, and demonstrating the party's performance will be in compliance with ITP requirements. The permittee will identify the lands where the impacts will occur, the required impact avoidance and minimization measures, the process by which the measures will be implemented, and post-impact monitoring requirements. The covered activity documentation will be reviewed for conformance with the approved HCP by the Program Manager and certified by the Executive Director before issuance of a Certificate of Inclusion.
8. If a permittee operating under a Certificate does not provide adequate mitigation funding and/or violates permit terms, the Certificate will be revoked immediately, and any subsequent take of covered species will not be covered by the ITP until the violation is corrected and a modified Certificate is reissued. Breach of the terms in the Certificate of Inclusion also trigger notification of the Wildlife Agencies (USFWS and CDFW).
9. Certifications will be included in the annual reports submitted to the USFWS and CDFW.
10. Implementation of the HCP will be overseen by the Wash Plan Advisory Committee. All meetings of the Advisory Committee shall be open to the public.
11. USFWS, CDFW, and BLM shall provide technical advice to the HCP Implementation Team and HCP Advisory Committee and shall participate in meeting discussions and program review.
12. Time deadlines for review periods, responses to required consultations, and coordination of activities are established in the IA.
13. Implementation of the HCP will be planned and conducted under annual and 5-year work plans prepared by the Executive Director with the assistance of the Habitat Conservation Program Manager and approved by the Advisory Committee and the Conservation District's Board of Directors. The 5-year work plans will identify administrative, management, monitoring, and other tasks required during the period, cost estimates for the work in each year, and funding projections for the period. The annual work plans will specify tasks for the year and a line-item budget. The first 5-year plan will be adopted within two years of plan and ITP approval. Annual work plans will

guide implementation on a yearly basis. Thereafter, the 5-year work plan will be updated every three years. The schedule for approval of the annual and 5-year work plans shall coincide with the Conservation District's adoption of its annual work program and budget.

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Chapter 7
Funding

7.1 Funding Requirements, Sources, and Assurances

This chapter provides planning-level estimates of the costs to implement the Wash Plan HCP, identifies funding sources to pay for implementation, and describes the rationale for funding assurances. The general cost analysis was based on a number of assumptions regarding the timing of implementation of various components of the HCP and the estimated unit cost of labor and materials. Unit cost estimates were based on the best available information and represent average unit costs. The costs of individual items will fluctuate above and below these averages. The total cost presented herein should therefore be regarded as a planning-level estimate to aid in the determination of the approximate amount of funding needed to implement the Plan. Specific costs will be refined as they are revealed during the first years of HCP implementation, and any adjustments to the overall costs, cost-sharing agreements among permittees, and endowment requirements will be made as needed.

7.1.1 Implementation Costs

There are three components of HCP implementation that requiring funding assurances for direct and indirect costs: 1) land acquisition; 2) habitat management, and; 3) monitoring and reporting. Financial assurances are important for the ongoing conservation and management activities during the 30 year permit duration, along with the establishment of a non-wasting endowment to fund management and monitoring activities in perpetuity. Costs for implementation of the HCP were estimated using a Preserve Analysis Record (PAR) approach, with a spreadsheet tailored to the HCP-specific management, monitoring, and reporting requirements. The endowment requirements used these costs as a basis.

Land Acquisition Costs and Assurances

The majority of the 2,136.4 acres conserved and managed in the Plan Area (including Newly Conserved, Additionally Managed, and Existing Conservation) are in public ownership and all of the land is owned by members of the Wash Plan Task Force. Current land value estimates of $25,000 per acre, place the value of the land contributed to the plan at approximately $53.4 Million. The lands placed into conservation are primarily owned by the Conservation District, with additional holdings by the BLM, Flood Control, and the City of Redlands (see Table 3-1). Appropriate assurances of long-term conservation will be provided within the first five years of the plan implementation, either through conservation easements or other agreement acceptable to the resource agencies.

Flood Control has dedicated 365.5 acres of alluvial habitat in the active channel immediately south of the WSPA in the Santa Ana River wash, which provides an important linkage between the main river channel and the WSPA. Approximately 220.6 acres have been placed into the Newly Conserved lands to mitigate for Flood Control covered activities under the Wash Plan HCP. The excess Flood Control mitigation land is identified and mapped as Future Flood Control Mitigation Area, and covered approximately 144.9 acres of alluvial habitat in the active channel of the Santa Ana River immediately south of the WSPA. The Future Flood Control Mitigation Area mitigation credit is available to mitigate for future Flood Control infrastructure

construction, and maintenance activities not covered by the HCP. Flood Control will provide mutually acceptable assurances to the resource agencies that lands will be conserved to mitigate for impacts on listed species from flood and maintenance activities through one or more conservation easements or other mutually-agreed upon mechanism for all listed construction and maintenance impacts prior to their occurrence.

The BLM normally does not place easements or other restrictions on lands they hold. However, lands slated for additional management as conservation lands (designated as Additionally Managed lands in the HCP) are or will be listed as Areas of Critical Environmental Concern (ACEC), or will receive a similar land protection status designation following the BLM land exchange. ACEC lands are part of a conservation ecology program in the western United States, managed by the BLM as part of the1976 Federal Lands Policy and Management Act (FLPMA). Through FLPMA, BLM is directed to protect important riparian corridors, threatened and endangered species habitats, cultural and archeological resources and unique scenic landscapes that the BLM assesses as in need of special management attention by designation as ACEC. The lands owned by BLM and slated for additional management activities (Additionally Managed lands) are intended to receive Congressional action to provide for protection in perpetuity as a part of the BLM land exchange.[5]

Land Stewardship and Habitat Management Costs

Habitat management includes two general groups of activities: 1) the general land management required to maintain a property in its current state (i.e., general land stewardship), and; 2) activities and actions related to the management of habitat for listed and other covered species through the Wash Plan HCP.

General Land Stewardship Costs

The general land stewardship activities are addressed in more detail in Section 5.2.2 Management Actions. General land stewardship costs are included in Table 7-1.

General land management activities include:

- trash removal,
- minimization and clean-up of illegal dumping,
- restricting unauthorized access, and
- maintenance of facilities and equipment needed for habitat management.

[5] Note: This protection is expected to be similar to BLM lands in the Coachella Valley MSHCP where BLM ACEC lands were considered to be "level two" lands where land is maintained to protect its current natural land values, but some existing activities, such as water conservation may occur. "Level one" lands are the only higher level of protection provided by BLM to indicate Wilderness Areas declared by Congressional action. If required as a part of the BLM land exchange, the HCP permittees, USFWS, and BLM will develop a supplemental agreement to provide sufficient assurances to USFWS to meet the needs of the HCP. The implementation of Phase 1 of the HCP is not reliant on the implementation of the BLM land exchange, Congressional actions, or potential supplemental agreements or assurances.

Table 7-1. General Land Stewardship Cost Estimate

Stewardship Activities	Assumptions	Estimated Cost per year
Patrol Costs	BLM ranger contract (2 full days/ month)	$22,360
Legal Costs	Legal support ($300/hour)	$5,000
Illegal Dumping Clean up	Includes access management/ fence repair/general land management	$16,350
Total Annual Cost		*$43,710*

Habitat Management Costs

Specific actions intended to improve habitat conditions and to expand suitable habitat for covered species are identified as key elements of the Wash Plan HCP conservation program (see Section 5.2.2 Habitat and Species-based Management). An Adaptive Management and Monitoring Plan (AMMP) has been prepared (Appendix __ of the HCP [TBP]) to provide specific details on the implementation of the habitat and species management actions identified in Section 5.2.2. A Wash Plan HCP Implementation Team will be formed and will include representatives from the USFWS, the CDFW, the Conservation District, and other species and habitat experts as needed. The committee will develop an annual workplan based on the guidelines in the AMMP that will prioritize management and monitoring activities for each year, focusing on habitat management efforts building on areas adjacent to existing high quality habitat locations as well as on corridors to provide connectivity between core habitat areas.

Development of the annual workplan will use:

1. HCP species and habitat management requirements (Section 5.2.2);
2. data collected during monitoring and reporting activities;
3. a GIS-based treatment plan developed for the HCP and updated as additional information becomes available (Section 5.2.2.);
4. funds available for habitat management activities, and
5. additional site specific information collected over the previous year, including wildfire and other unanticipated impacts.

Both general land management and habitat management activities will be accomplished through the use of current and additional Conservation District staff and contractors. The Conservation District has adequate space available for administrative and field and shop maintenance activities, including large equipment storage and repair in existing facilities used for Operations and Maintenance of Conservation District recharge facilities. Land management cost estimates are included in Table 7-2, below.

Because woollystar habitat management and population enhancement was specifically identified as critical for the success of the Wash Plan HCP, each annual workplan will identify actions specific to woollystar and the HCP Implementation Team will cooperatively endeavor to obtain additional funding to conduct research on this species through specific grants or other funding mechanisms.

The annual workplan will provide a mechanism to track habitat enhancement beyond what is required in this plan. Activities that go beyond what is required for the mitigation of covered activities and would allow the resource agencies to direct additional mitigation for other projects or activities on to the Wash Plan lands. These additional activities will be tracked and reported separately and would benefit covered or other important species. If the additional activities benefit a species not considered a covered species in the Wash Plan HCP it is understood that act benefiting other species cannot impact covered species and all proposed additional actions require approval by resource agencies.

Table 7-2. Habitat Management Cost Estimate

Habitat Management Activities	Assumptions	Estimated Cost per year
Vegetation management		
Thinning		$20,450
Invasive Plant Control - Herbicide		$70,850
Field Equipment	ATV, spray equipment, misc. equip.	$15,000
Herbicide other	Gyphosate, spray marker, surfactant	$8,500
Invasive Plant Control - Grazing	Establish, manage and monitor grazing contract	$6,338
Invasive Plant Control – Fire	CDF inmate crew fire preparation 5 days @250/day, Prescribed burn plan preparation with CDF Forester	$5,675
Spineflower Habitat Management	Spineflower habitat assessment and propagation	$18,360
Coordination Meetings	Coordination with adjoining land managers	$4,200
Total Annual Cost		*$149,373*

Trail Management Costs

The Wash Plan HCP provides only take authorization of covered species and mitigation measures for the operations and maintenance of the documented trail system within the Wash Plan boundary (development and maintenance of staging areas are planned for areas outside the Wash Plan boundaries). Operation and maintenance of the trail system within the Plan Area is a covered activity, therefore, the HCP includes measures to avoid, minimize and mitigate impacts associated with the operation of the trail system. Some minimization or mitigation activities will require specific additional maintenance, such as trash can placement, additional patrols provided either by volunteers or paid rangers, and placement and repair of signage. These costs are not included here because are the responsibility of the entities operating the trail system.

Monitoring and Reporting Costs

The species covered in the Wash Plan HCP will be monitored regularly as required in Section 5.2.2 of the HCP and reflected in the annual workplan. Where protocols exist for species

monitoring, those protocols will be used by qualified biologists. Where existing survey protocols are not available or appropriate to meet the biological goals and objectives of the HCP, an acceptable protocol has been developed in the AMMP. The survey methods and protocols will be included in each annual workplan and approved as part of the workplan development process.

A comprehensive annual report of activities undertaken as part of the annual workplan, including all required work, unplanned work, enhancement and land commitment tracking will be provided to the HCP Implementation Team to demonstrate progress and inform the process of preparing the next annual workplan. Both the annual report and workplan will be prepared the Conservation District and will be provided to all participating Task Force entities including the resource agencies for comment prior to final approval. Additional costs associated with data preparation and database management and analysis are anticipated, including the preparation of maps and figures. The cost estimate for species and habitat monitoring, reporting, and data management are included in Table 7-3, below.

Table 7-3. Habitat Management Cost Estimate

Monitoring and Reporting	Assumptions	Estimated Cost per year
Vegetation Monitoring	Annual vegetation survey with photo documentation	$14,160
Spineflower Monitoring	Annual population survey	$6,860
Woollystar Monitoring	Focused survey (once every three years)	$14,275
Cactus Wren/ Gnatcatcher Monitoring	Focused survey (once every three years)	$14,275
SBKR Monitoring	Focused survey (once every two years)	$15,525
Compliance monitoring	Compliance and effectiveness monitoring	$5,500
Monitoring Total		*$70,595*
Data Management		$10,750
Annual Reporting	Annual report to management committee	$5,500
Comprehensive Reporting	Report every 5 years	$7,000
Reporting and Data Management Total		*$23,250*
Total Monitoring and Reporting		*$93,845*

Emergency Funds, Contingency, and Administrative Overhead

Funds to address unanticipated emergencies or other changed circumstances have been added into the annual budget in addition to the calculated cost estimates for known monitoring, management, and reporting. The overhead costs of administering the HCP (including administrative support, and repair/replacement of office and field equipment and supplies) have also been estimated as approximately 20% of the total costs. The emergency, contingency, and overhead costs are included in Table 7-4, below.

Table 7-4. Emergency, Contingency, and Overhead Cost Estimate

Monitoring and Reporting	Assumptions	Estimated Cost per year
Emergency Fund	Changed Circumstances (Fire and/or flood recovery)*	$ 17,472.25
Contingency	Management Contingency	$ 4,368.06
Overhead (20%)	Admin. support and equipment repair/replacement	$ 80,000.00
Contingency/ODC Total		*$ 101,840.31*

The total annual cost estimated for implementation of the Wash Plan HCP is $388,768. This does not include the funds required to complete the jump start conservation actions, which are described in the next section. The Wash Plan Task Force has developed a formula to equitably share the cost of HCP implementation among the permittees, including funding of the jump start and the endowment.

Conservation Actions Jump Start

As described in Section 1.2.6 Phasing of the HCP, some covered activities such as mining occur in phases throughout the duration of the HCP implementation (see Tables 1-3 and 2-2). However, many of the other covered activities, including all new facilities construction and most operations and maintenance activities, occur in Phase 1 of Wash Plan HCP implementation. Therefore, it is important that adequate conservation actions occur early in HCP implementation to establish credit to mitigate these early impacts and keep the conservation actions in rough step with the impacts.

To accomplish this, the Wash Plan HCP implementation will provide a "jump start" on conservation actions to ensure that sufficient mitigation credit is available in the early years of Phase 1. Jump Start activities provide 250 acres of early conservation, including 200 acres that will become actively managed within the first seven years of Phase1. These activities focus on: 1) controlling invasive vegetation, primarily grasses, in areas known to support spineflower and 2) enhancing the quality of the important biological corridor by thinning or controlling invasive vegetation along the corridor margins. These activities are estimated to cost $33,000 per year for the first seven years. The jump start costs are included in Table 7-5, below.

Table 7-5. Jump Start Cost Estimate

Jump Start Activities	Assumptions	Estimated Cost per year
<u>Baseline Survey</u>		
Baseline species surveys	One annual survey per covered species	$5,500
Baseline vegetation mapping	Aerial photo interpretation and ground-truthing	$5,000
<u>Invasive Species Control</u>		
Control invasive grasses and other problem species	Labor (3 crewmembers/4 weeks)	$20,000
Field supplies	Gyphosate, spray marker, surfactant	$2,500
Jump Start Total		*$33,000*

Endowment Establishment and Management

During the duration of HCP implementation some ongoing costs of the program will be directly funded by the participants, while other costs will be funded through income generated by a non-wasting endowment. The primary purpose of the endowment will be to fund the costs of management, monitoring and administration in perpetuity.

The required endowment funding amount was determined using the above estimated costs, which were generated though a PAR analysis approach. Initial funding of the endowment will be incremental to allow for "rough step" contributions as covered activities are initiated. The estimated endowment to fund the ongoing management and monitoring of the Wash Plan HCP preserve lands is $10 million (in 2015 dollars). Annual returns on endowment fund balances were assumed to equal 4%. The endowment will be managed in a prudent manner by a qualified financial investment entity to provide 4% annual return on average.

7.1.2 Funding Sources and Assurances

The cost of plan implementation will be shared by the covered parties, based on the formula approved by the Task Force. In addition, the HCP Implementation Team will seek monitoring and research grants from government, non-profit, and private sources to provide supplemental funding for species and habitat management and monitoring activities, including activities beyond those required in this HCP.

The detailed financial obligations of the permittees are described in the Implementation Agreement, which will provide assurances that adequate funding can be provided. Permittees implementing covered activities with permanent impacts (e.g., construction of new facilities) will pay the proportional mitigation fee to the Conservation District six months prior to the planned initiation of ground disturbing activities. The Conservation District will transfer the mitigation fee to the qualified financial investment entity within seven days of receipt of payment to ensure investment in the endowment within 30 days of receipt of payment.

Permittees with covered ongoing operations and maintenance will fund the annual proportional cost of the covered activities each year plus a proportional contribution to the endowment investment. These annual payments will be required from permittees implementing ongoing covered operations and maintenance activities within 12 months after initiation of HCP implementation. The initiation of any covered activity will also trigger a contribution to the Jump Start funding if the activity is initiated within the Jump Start period (first seven years of HCP implementation). If a permittee who only has operations and maintenance activities elects to pay annually, their Jumps Start amount will include the prepayment of 2 years of annual contributions. Annual payments will always be paid in full at least 12 months in advance of the beginning of the operations and maintenance activities for that year. Failure to pay the mitigation fee in full by the required due date will result in the revocation of Incidental Take Authority for that permittee and the notification of the resource agencies. Modification of the mitigation fee or payment schedule is not allowed except under warranted special circumstances, and must be negotiated with Conservation District and approved by the Task Force and resource agencies.

Should the endowment not generate sufficient funds to implement the annual work plan, the Wash Plan Task Force will consult with the resource agencies and develop modifications to the Wash Plan HCP.

As an added assurance that adequate funding is available to initiate plan implementation, the covered parties will establish and maintain a Jump Start fund adequate to cover priority management and monitoring activities within the first seven years of program implementation. Based on the estimated costs, the Jump Start fund will be approximately $231,000 or $33,000 per year.

Chapter 8
Alternatives Considered but Rejected

As part of the development of this HCP, multiple alternatives were considered regarding ways to avoid take of listed species and other conservation strategies. The primary alternatives considered and the reasons why each alternative was not selected are as follows.

8.1 Complete Avoidance of Take

Under this alternative, activities in the Wash Plan Area would be conducted to avoid take of SBKR, gnatcatcher, woolly-star, and spineflower. Because of the broad distribution of SBKR and woolly-star, complete avoidance of take of all listed species would require substantial changes to existing and future O&M activities and to the design and implementation of planned projects in the Wash by all of the proposed covered parties. The impracticality of this alternative was the trigger for preparation of the Wash Plan as well as this HCP. The alternative was rejected in favor reconciling land use and species/habitat conservation goals for the Wash and seeking authorization for incidental take.

8.2 No Take of Slender-Horned Spineflower

Of the five proposed covered species, spineflower is the most at risk. The Plan Area is one of only eight remaining locations for this narrow endemic plant species and one of only two locations in San Bernardino County. Further, the cryptic nature of this plant and limitations on what is known about why it occurs in certain areas make it difficult to plan for its conservation or to identify effective mitigation for impacts. Excluding spineflower from the list of species covered by the plan and authorizations for take was considered in the early stages of HCP preparation but was rejected in favor of the approach developed in cooperation with USFWS and CDFW. That approach conditions take of spineflower on the successful development of a relocation and habitat enhancement program for spineflower in the Wash as part of HCP implementation. Because of the known and potential occurrence of spineflower on lands that would be managed under the HCP, development of the relocation and enhancement program has the potential to directly contribute to the recovery of this species. In that context, a limited amount of incidental take could occur without posing jeopardy to the species.

8.3 Reduced Take of SBKR and Woolly-Star

Under this alternative, impacts on SBKR and woolly-star would be reduced either by setting a limit on the acres of habitat or number of individuals taken or by limiting the size and location of the areas where take could occur in connection with mining and the Conservation District's proposed water conservation projects (the two Covered Activities that would entail substantial impacts on both species). Limits on the size and locations of impact areas were considered in detail in the Wash Plan EIR, which analyzed a reduced mining area impact area, alternate locations for mining operations, and alternate plans for the water conservation projects. These options were rejected in favor of increasing the amount of conservation in proportion to take and creating a Wash-wide preserve system for these species by adding conserved lands in areas adjacent to the WSPA.

8.4 Comprehensive Multiple Species Conservation Program

Under this alternative, an NCCP or other comprehensive multiple species conservation program would be prepared and implemented for the Plan Area instead of the HCP for the five listed species. This approach was considered at several stages in the planning process, and a preliminary draft of a multiple species HCP was prepared while the Wash Plan was being completed. The decision to focus on the five listed species was a matter of expediting implementation of the Wash Plan rather than a rejection of a multiple species conservation strategy. Nothing in the HCP for the five species precludes a multiple species program for the Wash. Further, implementation of the HCP will be coordinated with the Wash Plan HEP and the USACE's proposed MHMP for the WSPA.

Chapter 9
HCP Preparation Team

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Chapter 10
Glossary

Adaptive Management – A decision process that promotes flexible decision making, which can be adjusted in the face of uncertainties as outcomes from management actions and other events are better understood. Careful monitoring of these outcomes advances scientific understanding and allows for the adjustment of policies and/or operations as part of an interactive learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity.

California Environmental Quality Act – California Public Resources Code 21000 21177 et seq., including all regulations promulgated pursuant to that Act.

California Endangered Species Act – California Fish and Game Code Section 2050 et seq., including all regulations promulgated pursuant to that Act. CESA prohibits CDFW from authorizing any Incidental Take of a state-listed threatened or endangered species if that take would jeopardize the continued existence of the species; all impacts on state-listed species must be fully mitigated.

Changed Circumstances – Changes affecting a species or geographic area covered by the Plan that can reasonably be anticipated and planned for by Plan developers and the USFWS.

Clearing – The removal of natural vegetation by any means, including brushing and grubbing.

Conserve – To protect land for its natural resource values.

Corridor – A specific route that is used for movement and migration of species. A corridor may be different from a linkage because it represents a smaller or narrower avenue for movement.

Covered Activities – activities in the Plan Area undertaken by the plan participants and covered by the authorizations for incidental take.

Covered Species – Those species within the HCP that will be adequately conserved through implementation of the HCP.

Developed Land – Land that has been constructed upon or otherwise covered with a permanent or semi-permanent unnatural surface shall be considered developed (Holland 12000). Regardless of substrate, areas covered by a large amount of debris or other materials may also be considered developed.

Disturbed Land – Land which has been significantly modified by previous legally authorized human activity, but continues to retain a soil substrate shall be considered disturbed land (Holland Code 11300). This shall include areas that have been graded, repeatedly cleared for fuel management purposes, and/or experienced recurring use resulting in compacted soils and minimal potential for natural revegetation (i.e., dirt parking lots, incised trails, etc.).

Edge Effects – Indirect impacts on a preserve area caused by development adjacent to the preserve area. Indirect impacts can be temporary and/or permanent, such as: drainage, invasive species, lighting, brush management, trails, contour grading and construction/operational noise.

Emergency – An event or situation that poses considerable risk to human health and safety. This includes, but is not strictly limited to, loss of human life, property damage, or air and water contamination threatening human health and safety.

Endangered Species – A species listed as endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA).

Endangered Species Act – The federal Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.), including all regulations promulgated pursuant to that Act.

Fully Protected Species – Those species listed in Sections 3511 (Fully Protected Birds), 4700 (Fully Protected Mammals), 5050 (Fully Protected Reptiles and Amphibians), and 5515 (Fully Protected Fish) of the California Fish and Game Code that may not be taken or possessed at any time and for which 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.

Grading - Any excavating or filling or combination thereof, including the land in its excavated or filled condition according to the County's Grading Ordinance.

Grubbing – The removal of natural vegetation by any means, including removal of the root system.

Incidental Take Permit – The permit granting take of listed species provided such take is incidental to and not the purpose of the carrying out of an otherwise lawful activity. For purposes of the Section 10(a)(1)(B) permit, Incidental Take refers solely to species other than plant species.

Linkage – An area of land which supports or contributes to the long-term movement of wildlife and genetic exchange by providing live-in habitat that connects to other habitat areas, including agricultural lands that contribute to wildlife movement.

Migratory Bird Treaty Act – The federal Migratory Bird Treaty Act (16 U.S.C. § 701 et seq.), including all regulations promulgated pursuant to that Act.

Non-native Grassland – Land which supports non-native grassland (Holland 42200) as generally indicated by the presence of *Avena*, *Bromus*, *Erodium*, *Brassica*, and other annual species.

Plan Area – the lands covered by the HCP and its authorizations and requirements.

Population – An interbreeding group of individuals of the same species. The geographical limits of a population should be delineated as most appropriate for that species depending on its mobility, method of reproduction, and known distribution. Portions of a population shall generally be determined based on the number of individuals; however, area may be appropriate for some species.

Rare Species – A species that exists in such small numbers throughout all or a significant portion of its range that it may become endangered or threatened, as defined by CESA or FESA, if factors affecting its survival worsen.

Section 10(a)(1)(B) Permit – A permit issued by the USFWS under Section 10(a)(1)(B) of FESA (16 U.S.C. § 1539(a)(1)(B)) to allow the Incidental Take of Species Adequately Conserved and/or Covered Species, to the extent Take of such species is otherwise prohibited under Section 9 of FESA. The Take of listed plant species is not prohibited under FESA or authorized

under a Section 10(a)(1)(B) permit. However, plant species adequately conserved by this Plan are listed in the 10(a)(1)(B) permit in recognition of the conservation measures and benefits provided for them under the Plan and receive assurances pursuant to the USFWS "No Surprises" Rule.

Section 1600 – Section 1600 of the California Fish and Game Code, which regulates alterations to permanent or intermittent stream courses.

Section 4(d) Special Rule – The regulation concerning the California gnatcatcher published by the USFWS on December 10, 1993 (58 Fed. Reg. 65088) and codified at 50 C.F.R. Section 17.41(b) pursuant to FESA which describes one particular set of conditions under which the Incidental Take of the California gnatcatcher in the course of certain land use activities is lawful.

Section 7 – Section 7(a)(2) of FESA (16 U.S.C. § 1536 (a)(2)) which requires that any federal agency that permits, licenses, funds, or otherwise authorizes activities that may affect species listed under FESA consult with the USFWS to ensure that its actions will not jeopardize the continued existence of any listed species or adversely modify the designated critical habitat of a listed species.

Sensitive Species – Species which meet any of the following criteria: (1) those species that are included on generally accepted and documented lists of plants and animals of endangered, threatened, candidate, or of special concern by the federal government or State of California; (2) narrow endemic species or sensitive plant species (as defined herein); or (3) those species that meet the definition of "rare or endangered species" under Section 15380 of the CEQA Guidelines.

Suitable habitat - An area that meets the habitat needs of a species and is likely to be utilized by that species at some point within a 5-year period. If an area appears to contain the appropriate elements for a species and is within dispersal distance of known populations and without substantial barriers, it should be considered suitable unless demonstrated otherwise through appropriate and adequate field surveys.

Take – Refers to the meaning provided by FESA and the California Fish and Game Code, including relevant regulations and case law. Under FESA, "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 (16 U.S.C. § 1532(19)) and "harm" has been further defined to "include any act which actually kills or injures fish or wildlife" including "significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife (40 Fed. Reg. 44412 and 46 Fed. Reg. 54748).

Take Authorization – Permit authority granted through a Section 10(a)(1)(B) permit pursuant to FESA, a Section 2081 permit granted pursuant to CESA, or a Section 2835 permit pursuant to the NCCPA.

Threatened Species – A species listed as "threatened" under FESA or CESA that is likely to become endangered in the foreseeable future.

Unforeseen Circumstances – Changes in circumstances affecting a species or geographic area covered by the Plan that could not reasonably have been anticipated by Plan developers or the USFWS at the time of the Plan's negotiation and development, which result in a substantial and adverse change in the status of the Covered Species.

Viable – Capable of maintaining normal ecosystem functions over the long term that sustain a full suite of native or naturalized species without intensive direct human intervention.

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Chapter 11
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Appendix A: Implementing Agreement

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Appendix B: Adaptive Management and Monitoring Plan

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