











Public Review Draft:

Upper Santa Ana River Wash Plan Habitat Conservation Plan

January 2018

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Upper Santa Ana River
WASH PLAN HABITAT CONSERVATION PLAN

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WashPlan
UPPER SANTA ANA RIVER

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Acronyms and Abbreviations

ACEC	Areas of Critical Environmental Concern
AMMP	Adaptive Management and Monitoring Program
ATI	Agreement to Initiate
Basin Plans	Regional Water Quality Plans
BLM	U.S. Bureau of Land Management
CalIPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act of 1970
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
COI	Certificates of Inclusion
Conservation District	San Bernardino Valley Water Conservation District
Conservation Trust	San Bernardino Valley Conservation Trust
CWA	Clean Water Act
Eagle Act	Bald and Golden Eagle Protection Act
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EVWD	East Valley Water District
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
Flood Control	San Bernardino County Flood Control District
FLPMA	Federal Land Policy and Management Act of 1976
FR	Federal Register
GIS	geographic information system
Gnatcatcher	Coastal California gnatcatcher
HCP	Habitat Conservation Plan
HCP Handbook	*Habitat Conservation Planning Handbook*
IA	Implementing Agreement
ITP	Incidental Take Permit
IWMP	integrated weed management plan
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation Monitoring and Reporting Plan
MSHCP	multiple species habitat conservation program
MWD	Metropolitan Water District of Southern California
NCCP	Natural Community Conservation Plan

NCCPA	Natural Community Conservation Planning Act
NEPA	National Environmental Policy Act
NNG	Non-Native Grassland
NPDES	National Pollutant Discharge Elimination System
NWPs	nationwide permits
O&M	operation and maintenance
OHV	off-highway vehicle
PAC	Policy Action Committee
PAR	Property Analysis Record
Porter-Cologne	Porter-Cologne Water Quality Control Act
Preserve Manager	Habitat Conservation Manager
RAFSS	Riversidean alluvial fan sage scrub
RNA	Research Natural Area
ROW	right-of-way
RSS	Riversidean sage scrub
RWQCBs	Regional Water Quality Control Boards
SART	Santa Ana River Trail
SBCFCD	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
SSC	Species of Special Concern
State Water Board	State Water Resources Control Board
TAC	Technical Advisory Committee
Trail Plan	Trail Management Plan
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Wash Plan HCP or HCP	Upper Santa Ana River Wash Habitat Conservation Plan
WDRs	Waste Discharge Requirements
Wildlife Agencies	USFWS and CDFW
woolly-star	Santa Ana River woolly-star
WoUS	Waters of the United States
WSPA	Santa Ana River Woolly-star Preserve Area

Overview of the Upper Santa Ana River Wash Habitat Conservation Plan

The primary goal of the Upper Santa Ana River Wash Habitat Conservation Plan (Wash Plan HCP or 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 part of the Incidental Take Permit (ITP) application submitted by the San Bernardino Valley Water Conservation District (Conservation District) to the U.S. Fish and Wildlife Service (USFWS). A number of other entities wish to participate in the implementation of the HCP through a Certificate of Inclusion (COI, described below) in order to receive coverage for their planned projects. They include the City of Redlands, City of Highland, San Bernardino Valley Municipal Water District (SBVMWD), East Valley Water District (East Valley), Cemex, Inc., and Robertson's Ready-Mix. The San Bernardino County Flood Control District (SBCFCD or Flood Control) will pursue an independent Implementing Agreement (IA) and ITP under the HCP.

The Conservation District is asking the USFWS to authorize incidental take under Section 10 of the Federal Endangered Species Act (FESA) for the coastal California gnatcatcher (*Polioptila californica californica*), San Bernardino kangaroo rat (SBKR) (*Dipodomys merriami parvus*) and cactus wren (*Campylorhynchus brunneicapillus*). The Conservation District is also asking for coverage of the Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*, woolly-star) and slender-horned spineflower (*Dodecahema leptoceras,* spineflower). Woolly-star and spineflower are also state-listed species and the Conservation District is also is seeking state authorization (Section 2081 permit under the California Endangered Species Act [CESA]) for incidental take of these species from the California Department of Fish and Wildlife (CDFW).

Coverage of Non-Federally Listed Species and Plants

The Wash Plan HCP includes avoidance, minimization, and mitigation measures for each of the Covered Species, whether or not it is currently federally listed. Although it is not currently federally listed, the Conservation District seeks incidental take coverage for the cactus wren in the event that it becomes listed during the proposed 30-year permit term. Note that the FESA does not prohibit take of listed plant species; however, the Conservation District has included two of them in the Wash Plan HCP and requests assurances for them under USFWS's "No Surprises" assurances regulation (see Section 1.3.1, *Federal Endangered Species Act*).

The Wash Plan HCP was prepared in accordance with USFWS guidance provided in the 1996 *Habitat Conservation Planning Handbook* (*HCP Handbook*), the 2000 Addendum to the *HCP Handbook* and the revised 2016 *HCP Handbook.*

This HCP will do the following:

1. Provide for the conservation of the five Covered Species and their habitat within the Plan Area as mitigation for the effects of Covered Activities on Covered Species.

2. Fulfill the requirements for an ITP as specified in Section 10(a)(1)(B) of the FESA, and FESA implementing regulations (Code of Federal Regulations (CFR), Title 50, Sections 17.22[b][2][i] and 17.32[b][2][i]).
3. Support the Conservation District's request to CDFW for an ITP pursuant to Section 2081(b) of the CESA.
4. Inform a FESA Section 7 consultation between USFWS and the U.S. Bureau of Land Management (BLM) regarding effects on listed species on federal lands in connection with activities covered by the Wash Plan (see Section 1.3, *Regulatory Framework*).
5. Fulfill the requirements of the 2008 Upper Santa Ana River HCP Wash Land Management and Habitat Conservation Plan Document 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.

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, including:

- 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 and Golden Eagle Protection Act (Eagle Act)
- California Environmental Quality Act of 1970 (CEQA)
- Clean Water Act Sections 401, 402, and 404
- Porter-Cologne Water Quality Control Act
- Fish and Game Code Sections 1601–1607 (Lake or Streambed Alteration Agreement)

Compliance with these 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.

The Conservation District will act as permit holder for the ITP and will convey the permit authority to other participants (Participating Entities) under Certificates of Inclusion (COI). Each COI will be associated with a single Participating Entity and will address one or a group of closely related Covered Activities. Flood Control has committed to work with USFWS to finalize their IA and ITP within two years of the issuance of the Conservation District's ITP under this HCP.

The HCP will be implemented in two phases. The phasing of conservation and impacts from Covered Activities is outlined in Table ES-1.

Table ES-1. Phasing of the Wash Plan HCP

Phase	HCP Preserve	Conservation	Impacts of Covered Activities
Phase 1 (pre-BLM land exchange)	**Total Phase 1 Conservation 1,171.0 acres** District Conserved 482.8 acres SBCFCD Conserved 185.7 acres District Managed 502.5 acres	• Land dedication of all HCP Preserve areas identified as District Conserved Lands that are not part of the BLM land exchange • Management and monitoring of all District Conserved Lands that are not part of the BLM land exchange • Management and Monitoring of all District managed Lands that are not part of the BLM land exchange	• Mining identified for Phase 1 is 201.3 acres (Table 2-2) • Construction related to all non-mining Covered Activities • Ongoing operations and maintenance
Phase 2 (post-BLM land exchange)	**Total Phase 2 Conservation 488.4 acres** District Conserved 294.8 acres District Managed 193.6 acres	• Completion of BLM land exchange[1] • Dedication of all HCP Preserve Lands obtained by the Conservation District in the BLM land exchange • Management and monitoring of all District Managed Lands and District Conserved Lands which were part of the BLM land exchange • Ongoing management and monitoring of the whole HCP Preserve	• Mining identified for Phase 2 is 200.2 acres (Table 2-2) • Ongoing operations and maintenance

Plan Area

The HCP Plan Area 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, and roadways. 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.

[1] BLM will maintain current administrative measures to manage the lands for conservation, and the Permittee will continue to work with BLM to ensure that habitat values are not degraded prior to the transfer (e.g., continuing patrol and controlling unauthorized access and use).

The BLM is 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 exchange 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 ES-2. The vegetation communities in the Plan Area that support these species are quantified with other land cover types in Table ES-3.

Table ES-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
Cactus wren	*Campylorhynchus brunneicapillus*	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 ES-3. Vegetation and Land Cover Types in the Plan Area (acres)

Vegetation Community/Land Cover Types	**Acres**
Riversidean Alluvial Fan Sage Scrub (RAFSS) – Pioneer	470.9
RAFSS – Intermediate	1,129.7
RAFSS – Intermediate/Mature	1,057.8
RAFSS – Mature	536.8
RAFSS – Mature/NNG	109.2
Riversidean Upland Sage Scrub (RSS)	9.4
Sage Scrub Subtotal	*3,313.7*
Willow Thickets	11.3
Mule Fat Scrub	1.4
Aquatic Vegetation	0.2
Riparian/Aquatic Subtotal	*12.9*
Non-Native Grassland (NNG)	156.3
Perennial Pepper Weed	21.1
Tamarisk Thickets	30.0
Non-Native Subtotal	*207.4*
Recharge Basin	68.9
Active Sedimentation Basin	2.9
Developed/Disturbed	1,286.4
Existing Feature Subtotal	*1,358.2*
Total	**4,892.2**

Covered Activities

The Wash Plan HCP 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. Aggregate Mining—the areas in which gravel and rock (aggregate) mining operations by Robertson's Ready-Mix and Cemex, Inc. will continue (existing mining) and expand (new mining) as delineated in this HCP and 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.[2]
3. Wells and Water Infrastructure—activities related to the creation of new wells and access roads and the maintenance of existing wells 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 (provisional).
7. Habitat Enhancement and Monitoring—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 (O&M). 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 Phase 2. O&M Covered Activities will occur in both phases.

There are a number of activities that are not addressed by the Wash Plan HCP, including utility infrastructure construction and maintenance by entities that are not participants in the HCP or subject to its terms (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; or other general urban development. Any potential take of species associated with these activities would not be covered by the Wash Plan HCP ITP.

[2] The new wells are not expected to affect surface water supplies due to put and take (recharge and extraction in balance) and separation between groundwater and surface flows. See Section 2.2.3, *Wells and Water Infrastructure*, for more information.

Potential for Take and Estimating Impacts

The estimated amount of take of (for wildlife) and impacts on (for plants) each Covered Species associated with the Covered Activities must be quantified to demonstrate that the proposed conservation (mitigation, management, and monitoring) is sufficient to offset the impacts on the Covered Species and the take authorized under the ITP. The anticipated amount of impacts 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. Impacts from Covered Activities on species habitats and vegetation communities are summarized in Table ES-4 and ES-5, respectively. Potential impacts, in acres, are shown with occurrence record locations and critical habitat in the figures in Chapter 4, *Potential for Take and Estimated Impacts*.

Table ES-4. Effects on and Conservation of Covered Species[3]

Species	Impacts		HCP Preserve				Future SBCFCD Mitigation Area	Neutral Lands
	Permanent	Temporary	District Conserved Lands	SBCFCD Conserved Lands	District Managed Lands	*HCP Preserve Total*		
Slender-horned Spineflower								
Extant Patches	1	0	3		17	*20*	1	
Historic Occurrences	12	0	8		28	*36*		
Slender-horned Spineflower Subtotal	*13*	*0*	*11*		*45*	*56*	*1*	
Santa Ana River Woolly-star								
Known Occupied Grid Areas	34.3	3.7	94.5	5.4	104.5	*204.3*	4.4	7.6
Cactus Wren (acres)								
Cactus Patches (Primary Nesting Habitat)	13.4	0.2	14.1	0.0	18.4	*32.5*		4.6
Coastal California Gnatcatcher (acres)								
High Quality (potential nesting and wintering habitat)	0.4	1.4	35.3	12.3	22.8	*70.5*		12.6
Medium Quality (potential wintering habitat)	9.2	5.4	30.7	34.7	124.8	*190.2*	36.9	66.0
Low Quality (potential foraging and dispersal habitat)	414.6	25.7	531.0	72.3	428.2	*1,031.5*	89.0	366.2
Coastal California Gnatcatcher Subtotal	*424.2*	*32.5*	*597.0*	*119.3*	*575.9*	*1,292.2*	*125.9*	*444.8*
San Bernardino Kangaroo Rat (acres)								
High Suitability	22.4	1.9	117.8	3.6	170.4	*291.8*	0.7	5.1
Medium Suitability	67.7	1.4	85.5	36.6	105.6	*227.6*	11.5	7.8
Low Suitability	120.1	4.8	132.4	59.4	126.1	*317.9*	76.0	23.9
Very Low Suitability	359.1	55.6	299.0	22.4	237.7	*559.2*	40.8	467.5
Ecological Process Area	1.6	45.4	121.3	61.8	42.9	*226.0*	21.1	46.6
San Bernardino Kangaroo Rat Subtotal	*570.9*	*109.1*	*756.0*	*183.8*	*682.7*	*1,622.5*	*150.0*	*551.0*

[3] Values shown as 0.0 are less than 0.04 acres.

Table ES-5 Effects on and Conservation of Vegetation Communities (acres)[4]

Vegetation	Impacts		Conservation - HCP Preserve				Future SBCFCD Mitigation Area	Neutral Lands
	Permanent Impact	Temporary Impact	District Conserved Lands	SBCFCD Conserved Lands	District Managed Lands	*HCP Preserve Total*		
Sage Scrub								
RAFSS –Pioneer	1.4	36.5	119.9	87.0	35.9	*242.7*	56.5	90.9
RAFSS –Intermediate	158.8	17.9	230.6	74.9	236.8	*542.3*	79.3	163.8
RAFSS –Intermediate/Mature	258.9	10.5	160.0	7.9	316.5	*484.4*	11.7	118.4
RAFSS –Mature	116.6	7.8	166.3	9.0	57.3	*232.6*	0.0	93.1
RAFSS –Mature/NNG	9.8	7.5	27.8		0.0	*27.8*		69.3
RSS	7.8	0.0						1.6
Sage Scrub Subtotal	*553.3*	*80.3*	*704.6*	*178.7*	*646.4*	*1,529.8*	*147.5*	*537.1*
Riparian/Aquatic Vegetation								
Willow Thickets	0.2							11.1
Mule Fat Scrub		2.7						1.4
Aquatic Vegetation								0.2
Riparian/Aquatic Subtotal	*0.2*	*2.7*						*12.7*
Non-Native Vegetation								
Non-Native Grassland (NNG)	24.1	16.7	7.0	2.1	19.3	*28.4*	1.4	101.5
Perennial Pepper Weed	0.1	0.0						21.0
Tamarisk Thickets	7.6							22.4
Non-Native Subtotal	*31.8*	*16.7*	*7.0*	*2.1*	*19.3*	*28.4*	*1.4*	*144.9*
HCP Impacts and Conservation Subtotal	*585.3*	*99.7*				*1558.2*		

[4] Values shown as 0.0 are less than 0.04 acres.

Vegetation	Impacts		Conservation - HCP Preserve					
	Permanent Impact	Temporary Impact	District Conserved Lands	SBCFCD Conserved Lands	District Managed Lands	*HCP Preserve Total*	Future SBCFCD Mitigation Area	Neutral Lands
Existing Features								
Recharge Basin	1.2	15.0	10.8		8.8	*19.6*		48.1
Active Sedimentation Basin	0.0							2.9
Developed/Disturbed	29.2	102.0	55.2	4.9	21.6	*81.7*	2.0	523.2
Existing Feature Subtotal	*30.4*	*117.0*	*66.0*	*4.9*	*30.4*	*101.3*	*2.0*	*574.2*
Total Acreage in Plan Area	**615.7**	**216.6**	**777.6**	**185.7**	**696.1**	***1,659.5***	**150.9**	**1,269.0**

Conservation Program

The conservation program (Chapter 5) describes the actions that the Conservation District and the Participating Entities will implement to avoid, minimize, monitor, and mitigate the effects of incidental take of (for wildlife) and impacts on (for plants) the Covered Species and contribute to their survival and recovery. The biological goals of the Wash Plan HCP are as follows:

- Conserve and enhance populations of Covered Species and their habitats in the Plan Area by conserving land in a configuration and area sufficient to maintain ecological processes, and protect core habitat areas and the connections between them.
- Avoid and minimize effects on Covered Species and their habitats during Covered Activities.
- Actively manage conserved lands within the Plan Area for the benefit of Covered Species, including control of invasive plant species, selective vegetation thinning, revegetation, and species and habitat monitoring.

To achieve these goals for each Covered Species, management activities, and minimization and avoidance practices have been developed. The biological goals and objectives of the HCP will be accomplished through the implementation of conservation, management, and monitoring actions, which are defined as follows:

- *Conservation actions* are any actions taken to preserve, manage, and monitor land for conservation of Covered Species that is suitable for the species and configured and connected such that the Covered Species can maintain sustainable populations within the HCP Preserve.
- *Management actions* are those actions taken to improve and maintain 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 (e.g., invasive plant infestations or trespass).
- *Monitoring actions* are those actions that are taken to track the status and trend of Covered Species populations and of their habitats within the HCP Preserve. Monitoring actions will 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 management actions through time.

The conservation actions will conserve, monitor, and manage the Covered Species habitat and vegetation communities as shown in Tables ES-4 and ES-5, above.

Plan Implementation

Implementation of the HCP begins when the Conservation District's Implementing Agreement (IA) is executed and the Conservation District's ITP is issued. Primary responsibility for HCP implementation rests with the Conservation District, with contributions by Flood Control (under their own ITP and IA), the Participating Entities, and support from USFWS and CDFW for review of annual reports, participation in the Preserve Management Committee, and other guidance and input as needed.

Implementation will be monitored through time to determine if conservation, management, and monitoring measures are achieving goals and objectives of the HCP. Two tracking processes will be undertaken: quantification of impacts on the Covered Species through time (tracking of incidental

take) and biological monitoring (tracking of species and habitat conditions). The Conservation District will track impacts and be responsible for the biological monitoring. 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 (for wildlife) and impacts (for plants) that have occurred by vegetation community and species habitat type. The acreages will be accompanied by geographic information system (GIS) figures documenting the location of Covered Activity impacts and will be included in an annual report to the USFWS and CDFW (Wildlife Agencies).

The San Bernardino Valley Conservation Trust (Conservation Trust), a California nonprofit benefit corporation and 501(c)(3) organization, was established on March 10, 2016, with the mission to directly support the protection and stewardship of lands and endowments protecting natural resources, endangered species habitats, open space, and outdoor recreational areas in the San Bernardino Valley through the Wash Plan and other future projects. The Conservation District will contract with the Conservation Trust to hold, invest, manage, and distribute proceeds of the non-wasting endowment for HCP implementation at the Conservation District's direction, pursuant to the following:

1. The Conservation Trust or successor nonprofit shall segregate the endowment funds into a separate non-wasting endowment fund, accounted for consistent with standards promulgated by the Governmental Accounting Standards Board, or any successor entity.
2. The Conservation Trust or successor nonprofit shall invest and manage funding in accordance with the Statement of Investment Policy approved by the Conservation District Board of Directors.

Primary responsibility for implementation under the separate Flood Control IA and ITP will rest with Flood Control. The Task Force, Conservation District, and Conservation Trust will not be responsible for the required actions under the Flood Control IA and ITP. However, Flood Control may, but is not required to, reach a separate agreement with the Conservation District or Conservation Trust, or both, regarding combined management or administration of both Wash Plan and Flood Control ITP and IA responsibilities.

Phase 1 Conservation Activities (Pre-BLM Land Exchange)

To generate sufficient conservation to accommodate Covered Activities early in the HCP implementation, the Conservation District will initiate *Jump Start* conservation activities in years 1-3 of implementation. These Jump Start activities will ensure that a significant initial contribution to the conservation component of the HCP will be made early in the life of the permit and that conservation can stay ahead of impacts by at least 5%.

Jump Start Activities (Years 1–7)

Jump Start activities will provide for 200 acres of conservation, management and monitoring within the first 3 years of permit issuance.

In Years 1–3:

1. In year 1 of the ITP, the Conservation District will record a conservation easement approved by the Wildlife Agencies on 200 acres of the identified District Conserved Lands.

2. Initiate control of 20 acres of invasive vegetation, primarily non-native annual grasses, in and adjacent to spineflower patches.
3. Enhance the quality of the linkage between the Santa River and Plunge Creek, consisting of the 1938 and 1969 flood channels created by the Santa Ana River (breakout area), by controlling non-native annual grasses and other invasive vegetation within the linkage and corridor margins, adding a crossing for SBKR of the "D-Dike," and thinning shrubs if necessary.
4. Initiate general land stewardship on the 200 acres, including installation of fencing and signage where appropriate, trash removal, minimization and clean-up of illegal dumping, restricting unauthorized access, and maintenance of facilities and equipment needed for habitat management.

In Years 4–7:

5. Complete the management measures initiated in Years 1–3.

Other Phase 1 Conservation

The Conservation District will initiate additional management and monitoring on all Phase 1 District Conserved Lands and District Managed Lands. Phase 1 conservation activities must stay ahead of the Phase 1 impacts by at least 5%. Accounting will be in acres; for example, for each acre of temporary or permanent impacts there will be at least 1.05 acre of funded and initiated monitoring and management. By the end of Phase 1, or within 10 years of permit issuance, whichever comes first, all 494.2acres of Phase 1 District Conserved Lands and all 502.5 acres of District Managed Lands will be protected and managed. Conservation easements approved by the Wildlife Agencies will be placed over all Conservation District designated Preserve lands which are not part of the proposed land exchange.

General land stewardship, management, and monitoring will expand onto all Phase 1 District Conserved Lands and District Managed Lands as they are added to the HCP Preserve. General land stewardship includes installation of fencing and signage where appropriate, trash removal, minimization and clean-up of illegal dumping, restricting unauthorized access, and maintenance of facilities and equipment needed for habitat management.

Phase 2 Conservation Activities (Post-BLM Land Exchange)

Management and monitoring activities during Phase 2 must be initiated early enough to provide sufficient conservation for Phase 2 Covered Activities. The Phase 2 management and monitoring activities and funding for them must stay ahead of the Phase 2 impacts by at least 5%. Accounting will be in acres; for example, for each acre of temporary or permanent impacts there will be at least 1.05 acre of funded and initiated monitoring and management.

Following completion of the BLM land exchange, conservation easements approved by the Wildlife Agencies will be placed over the lands received in the exchange by the Conservation District that are designated as District Conserved Lands. This will occur in phases as Certificates of Inclusion are issued for Covered Activities. The acres of permanently protected land (i.e., acres with a conservation easement) will stay ahead of the acres of permanent impacts from Covered Activities by at least 5%.

By the end of Phase 2, the Conservation District will manage and monitor 696.1 acres of District Managed Lands. These areas of District Managed Lands are on land involved in the BLM land exchange. Therefore, the BLM land exchange must be completed before the initiation of Phase 2 Aggregate Mining Covered Activities. Once the BLM land exchange is complete, general land stewardship, management, and monitoring will expand onto all Phase 2 District Managed Lands as they are added to the HCP Preserve.

During Phase 2 the Conservation District will continue to fully implement management and monitoring activities on all 1,659.5 acres of the HCP Preserve (District Conserved and District Managed Lands). These management, monitoring, and general land stewardship actions will continue in perpetuity.

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 regulation describes the obligations of the Permittees 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 Permittees or USFWS, and that result in a substantial and adverse change in status of the Covered Species. The purpose of the No Surprises regulation 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 HCP has identified and addressed 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 HCP, permit renewal (as well as permit suspension or revocation), and a description of the institutional structure of the HCP and the relationship between the Conservation District and the Participating Entities are also covered in Chapter 6.

Minor amendments are changes in the Wash Plan HCP that would not appreciably change the impacts associated with Covered Activities, implementation of the conservation strategy, or the amount of take, or require an amendment to the permit. The minor amendment process would be accomplished through an exchange of letters between the Conservation District, San Bernardino County Flood Control, and USFWS. *Major amendments* to the HCP would require an amendment to the permit and would involve changes that do affect the amount of impacts from Covered Activities, hinder implementation of the conservation strategy, or increase the amount of take. Major

amendments would 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, one or both Permittees may request renewal of the permit in accordance with regulations in effect at the time of the request. USFWS may suspend or revoke the ITP in accordance with the regulations in effect at the time of such suspension or revocation.

A Habitat Conservation Manager (Preserve Manager) will be responsible for overseeing development and implementation of the management programs for conserved habitat, preparation of annual work plans and reports, coordination and consultation with the Preserve Management Committee, consultation with the Wildlife Agencies as needed, and completion of implementation actions in fulfillment of HCP commitments. The Preserve Manager will also review all Covered Activities prior to ground-breaking by the Permittees and the Participating Entities to ensure consistency with the HCP and authorized level of take.

A Preserve Management Committee will be formed to provide advice and feedback to the Preserve Manager. They will review and vote on the annual work plan, annual budget, and annual report, and make recommendations to the Conservation District for their approval. The Conservation District is the Permittee with respect to the Preserve Management Committee. Flood Control as an independent Permittee is responsible for preserve management under the Flood Control IA and ITP.

All Participating Entities will demonstrate consistency with the HCP prior to receiving a COI from the Conservation District (to convey the permit authority) authorizing take associated with ground-disturbing Covered Activities. Each COI will be associated with a single participant and will address one or a group of closely related Covered Activities. The Participating Entity will provide documentation to the Conservation District demonstrating the activity will be in compliance with the terms and conditions of the ITP, and demonstrating that the Participating Entity's performance will be in compliance with ITP requirements. The Permittees 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 Conservation District's Program Manager and will be certified by the Executive Director before issuance of a COI. Payment for conservation, management and monitoring, agreed upon land dedication, and program administration will be completed prior to the issuance of each COI.

Funding

There are three components of HCP implementation that require 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 1,659.5 acres to be conserved and managed in the Plan Area (including District Conserved Lands and District Managed Lands) are in public ownership, and all of the private land is owned by either the Conservation District or Participating Entities. 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) activities undertaken for general land stewardship and (2) activities and actions undertaken to support or improve habitat for

Covered Species. Some ongoing costs of the HCP implementation will be directly funded by the Participating Entities, while other costs will be funded through income generated by a non-wasting endowment. The estimated endowment needed to fund the ongoing management and monitoring of the HCP Preserve is $10 million (in 2016 dollars).

It is important that adequate conservation actions occur early in HCP implementation to mitigate Phase 1 impacts. Wash Plan HCP implementation will provide a Jump Start on conservation actions to ensure that sufficient conservation is achieved 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 7 years.

Chapter 7, *Funding*, 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 ES-6.

Table ES-6. Summary of Estimated Costs per Year for HCP Implementation

HCP Implementation Activity	Conservation District ITP Estimated Cost	Flood Control ITP Estimated Cost
Stewardship	$43,710	$3,000
Habitat Management	$149,373	$12,580
Habitat and Species Monitoring	$70,595	$29,950
Reporting and Data Management	$23,250	$5,190
Annual Contingency	$4,368	$327
Annual Changed Circumstances[1]	$17,472	$1,308
Administrative Overhead	$80,000	$8,000
Total Annual Cost	*$388,768*	*$60,355*

[1] A 5-year reserve will be established. Funds in excess of the 5-year reserve in current year dollars may be used as part of the annual monitoring and management contingency fund.

Alternatives

As required by the FESA, multiple alternatives were considered regarding ways to avoid take of listed species or to minimize take through other HCP alternatives. 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 Plan Area would be conducted to avoid take of SBKR and gnatcatcher, and to avoid impacts on 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 the Participating Entities.

Alternative 2: No Loss of Slender-horned Spineflower

Of the five proposed Covered Species, spineflower is the rarest and least well known in the Plan Area. The cryptic nature of this plant and limitations on what is known about why it occurs in certain areas makes it difficult to completely avoid impacts on its habitat. This alternative is impractical because adverse effects may inadvertently occur during periods when this species is very difficult to detect. Because of the known and potential occurrence of spineflower on lands that would be managed under the HCP, implementation of the conservation measures has the potential to directly contribute to the recovery of this species. Currently, few management resources exist for the extant populations. Without the management and monitoring provided through the HCP the probability of local extirpation would increase.

Alternative 3: Reduced Take of SBKR and Reduced Loss of 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 impacts 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 relative amount of conservation in proportion to take of SBKR and impacts on woolly-star, with a focus on increased conservation and management of habitat adjacent to the Santa Ana River Woolly-star Preserve Area, an existing preserve that provides habitat for both these species.

Alternative 4: Comprehensive Multiple Species Conservation Program

Under this alternative, a Natural Community Conservation Plan (NCCP) or other comprehensive multiple species habitat conservation program (MSHCP) would be prepared and implemented for the Plan Area instead of the HCP and CESA permit for the five listed species. The decision not to pursue a comprehensive program and to only focus on the five Covered Species was made to expedite implementation of the Wash Plan HCP rather than a rejection of a multiple species conservation strategy. The HCP does not preclude the development of a comprehensive program in the future and could serve as both precursor and part of a future MSHCP.

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 that will implement the Upper Santa Ana River Wash Habitat Conservation Plan (Wash Plan HCP or HCP). USFWS is being asked to authorize incidental take of two federally listed species and the cactus wren:

- Coastal California gnatcatcher (*Polioptila californica californica*)
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*)
- Cactus wren (*Campylorhynchus brunneicapillus*).

In consideration of the conservation benefits provided by the HCP, USFWS is also being asked to include coverage for two listed plant species:

- Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*, woolly-star)
- Slender-horned spineflower (*Dodecahema leptoceras*, spineflower)

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

The Wash Plan HCP was prepared in accordance with USFWS guidance provided in the 1996 *Habitat Conservation Planning Handbook* (*HCP Handbook*), and the 2000 Addendum to the *HCP Handbook*.

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 Plan Area as mitigation for the effects of incidental take (animals) and other adverse impacts (plants).
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) and FESA implementing regulations (50 Code of Federal Regulations [CFR] 17.22[b][2][i] and 17.32[b][2][i]).
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:

- Inform a FESA Section 7 consultation between USFWS and the U.S. Bureau of Land Management (BLM) regarding effects on listed species on federal lands in connection with activities covered by the Wash Plan HCP.
- Fulfill the requirements specified in the 2008 Upper Santa Ana River Wash Land Management and Habitat Conservation 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 as follows:

- Ensure the continued ability of the Conservation District to replenish the Bunker Hill Groundwater Basin with native Santa Ana River water using existing and planned future water recharge facilities and associated wells.
- Ensure the ability of the Conservation District to construct new facilities and operate and maintain facilities associated with the mission of the Conservation District.
- Ensure the continued ability of the San Bernardino County Flood Control District (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 Plan Area.
- 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.
- Provide trails for public enjoyment of the existing environment.

To achieve these objectives, the Wash Plan HCP 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, USFWS and CDFW (Wildlife Agencies), 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 more land use in the Plan Area. 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 Plan Area. 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 Plan Area designated for the specified land uses, which formed the basis for the HCP. 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 in the HCP cross land ownerships (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 Plan Area was reached by the TAC in early 2000. In order to create the framework for joint funding and governance from all Participating Entities for the proposed land management plan, a Task Force was formed. Membership in the Task Force includes the County of San Bernardino, the Cities of Highland and Redlands, Redlands Municipal Utility District, the Conservation District, BLM, Cemex Inc., Robertson's Ready-Mix, Flood Control, and East Valley Water District (EVWD). 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 Task Force. The Conservation District operates as project manager and staff support for this body.

The Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Document, as described in previous California Environmental Quality Act (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. Subsequent to the preparation of the draft Document and circulation of the CEQA documents, in response to public and agency comments, the Conservation District revised its conservation strategy, reducing the acreage of permanent impacts and increasing the size and number of conservation areas.

Key implementing actions include the following:

- Adoption of the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Document by the Conservation District (2008).
- Revision of the 2008 Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Document to reduce impacts and increase species and habitat conservation (2014).

- The land exchange of 43.5 acres between Flood Control and Robertson's (anticipated to occur by 2018.[5]
- The land exchange between BLM and the 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 2018.
- Preparation of a detailed Adaptive Management and Monitoring Program (AMMP) 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 HCP EIR (anticipated to occur by the end of 2018).
- Preparation of the HCP (to be complete in 2018)
- Creation of a detailed geodatabase providing additional Covered Activity detail from all proposed land uses, including operations and maintenance activities; and detailed descriptions of conservation activities at a vegetation community level.

1.2 Scope of the HCP

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

1.2.1 Permittees and Participating Entities

The Conservation District and Flood Control will each be the Permittees of independent ITPs issued by USFWS. The following parties will be Participating Entities of the Conservation District ITP:

- City of Redlands, including the Redlands Municipal Utility District (Redlands)
- City of Highland (Highland)
- San Bernardino Valley Municipal Water District (SBVMWD)
- East Valley Water District (EVWD)
- Cemex Inc. (Cemex)
- Robertson's Ready-Mix (Robertson's)

While the Conservation District will be one of two ITP holders, the other being Flood Control, only the Conservation District will have the ability to convey the permit authority to the Participating Entities under Certificates of Inclusion (COI). Each COI will be associated with a single Participating Entity and will address one or a group of closely related Covered Activities. The COIs will specify the required mitigation of impacts in advance of implementation of the Covered Activity and will identify and require payment of any associated costs for conservation, management, monitoring, and program administration prior to the initiation of planned Covered Activities. If a participant operating under a COI violates any term of the COI or the permit, the take authorization conveyed through the COI will be revoked immediately and any subsequent take of Covered Species will not

[5] This land exchange will increase the size of the WSPA and improve habitat connectivity along the Santa Ana River. It will also make lands adjacent to the existing mining pits available to Robertson's for mining. The Conservation District will provide additional management on the lands that become part of the WSPA as part of its conservation strategy to mitigate for the impacts of Covered Activities.

be covered by the ITP until the violation is corrected and the COI is modified, as appropriate. Specific terms of the COI, including required payments and/or land dedication prior to issuance of the COI, will be established in the Conservation District's Implementing Agreement (IA).

A consistency determination process will occur prior to the issuance of each COI to ensure that the proposed activities of the entity wishing to participate in the HCP are consistent with the HCP and its authorized levels of take (wildlife) and expected adverse effects (plants) and that its commitments of land and/or Preserve Management funding are sufficient and meet the stay-ahead provision. The consistency determination process is described in Chapter 6, *Plan Implementation*.

Breach of the terms of the COI also triggers notification of the Wildlife Agencies.

The ITP may be extended to other parties, subject to the amendment process described in Section 6.6, *HCP Amendment Process*, and the HCP IA.

If fewer of the Participating Entities apply for COIs than necessary to ensure implementation of the conservation strategy in Phase I of the HCP, including the permanent protection and management of 963.4 acres of District Conserved Lands, the Conservation District will notify the Wildlife Agencies and complete the conservation strategy. The Wildlife Agencies would recognize any conservation values in the HCP Preserve that are not mitigation for Covered Activities. The Conservation District could make those values available to projects that are not Covered Activities. This process does not eliminate or remove the Permittees' responsibilities to accomplish the conservation Jump Start or comply with the stay-ahead provision.

1.2.2 Plan Area

The area covered by the Plan Area is located in southwestern San Bernardino County, California, approximately 1 mile downstream of the Seven Oaks Dam (Figure 1-1). The Plan Area encompasses approximately 4,892.2 acres, extending approximately 6 miles westward from Greenspot Road in the Highland to Alabama Street in Redlands.

For planning and implementation purposes, the Plan Area is divided into nine subcomponents (Figure 1-2), as described below. The HCP Preserve includes three preserve area types: (1) District Conserved Lands, (2) District Managed Lands, and San Bernardino County Flood Control District (SBCFCD) Conserved Lands. These are the areas identified as mitigation to offset the impacts of the Wash Plan HCP Covered Activities. There are several Other Conservation Areas (existing mitigation areas and one area identified for future mitigation of Flood Control's impacts not covered by the Wash Plan HCP) that exist within the Plan Area. There are three main categories of Covered Activities: mining, groundwater facilities, and all other Covered Activities. Lands not affected by impacts associated with Covered Activities and not included in the HCP Preserve or Other Conservation Areas are identified as Neutral Lands. Any remaining lands are private inholdings or California Department of Transportation (Caltrans) rights-of-way and are not a part of the Plan Area.

HCP Preserve

1. District Conserved Lands – lands that will be permanently conserved for the five species covered by the HCP. These areas include lands owned by Conservation District and Redlands, and lands included in the land exchange between BLM and the Conservation District.
2. SBCFCD (Flood Control) Conserved Lands – lands that will be permanently conserved for the five species covered by the HCP and under the Flood Control IA and ITP. These areas include lands owned by Flood Control.
3. District Managed Lands – certain BLM lands and 42.29 acres of Woolly-star Preserve Area (WSPA)[6] lands for which the HCP will provide additional management and monitoring for the benefit of the Covered Species. These areas will include lands retained by BLM after the land exchange.

Covered Activities

1. Existing Mining and Mining Impact Areas – the areas in which aggregate mining operations by Robertson's and Cemex will continue and expand as delineated in the HCP, its EIR, and the EIS for the land exchange between the Conservation District and BLM.
2. 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*).

Other Areas within the Plan Area Boundary

1. Existing Conserved Lands – In addition to BLM lands, two other areas within the Plan Area have already been placed in conservation:
    a. Santa Ana River Woolly-star Preserve Area (WSPA)[7] – an existing 764-acre area preserve established as mitigation for impacts on SBKR, spineflower, and woolly-star resulting from the construction and operation of the Seven Oaks Dam.
    b. Highland Biological Mitigation Area – this mitigation area includes two 10-acre parcels available for Highland to mitigate impacts not associated with HCP Covered Activities.
2. Future SBCFCD (Flood Control) Mitigation Area – approximately 150.9 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.
3. 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 (*Lepidium latifolium*) (but not non-native grasses) to ensure they are not a source for infestation of conserved and managed lands. Management would occur when possible.

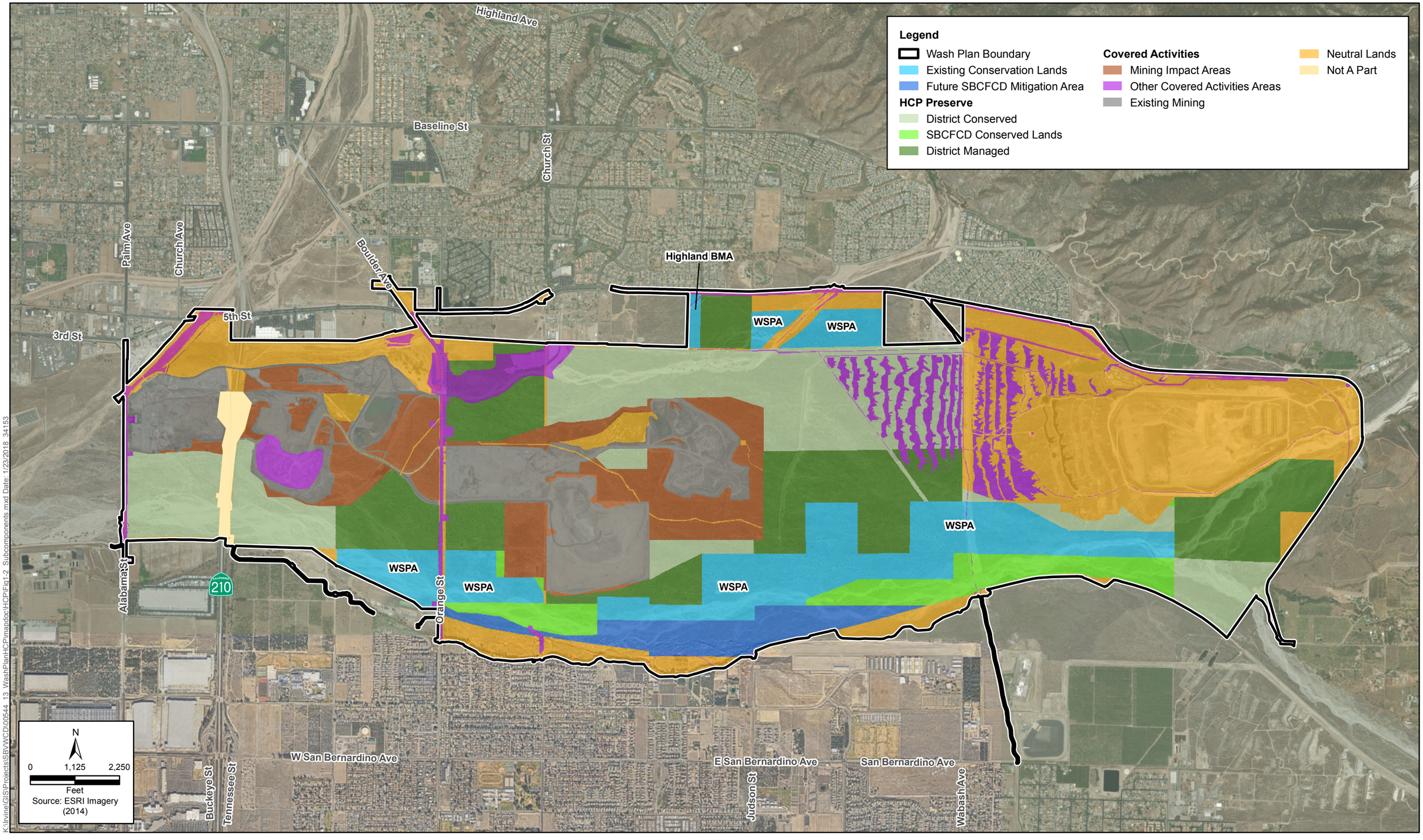
[6] The Conservation District will provide additional management of 43.5 acres of land that is being added to the Santa Ana River Woolly-star Preserve Area through a land exchange between Flood Control and Robertson's.

[7] As indicated above, the Conservation District will provide for Additional Management of 43.5 acres of land that is in the process of being added to the WSPA.



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Figure 1-1
Regional Context and Plan Area Boundary
Wash Plan HCP



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ICF

Figure 1-2
Plan Area Subcomponents
Wash Plan HCP

WashPlan
UPPER SANTA ANA RIVER

4. Not A Part – lands owned by other entities including areas within the Caltrans right-of-way (ROW) along State Route 210 and other lands with private owners who are not Permittees or Participating Entities under the HCP. These areas are inholdings in the Plan Area and are not addressed by the HCP.

The HCP Preserve is defined as that area that will be conserved, managed, and monitored under the direction and responsibility of the Conservation District. It includes the District Conserved Lands and the District Managed Lands. The HCP Preserve also includes Flood Control Conserved Lands that are the responsibility of Flood Control, including funding and implementation of a Habitat Mitigation and Monitoring Plan for this area. The 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 are woolly-star, spineflower, SBKR, gnatcatcher, and cactus wren. The incidental take authorization under Section 10 of the FESA will apply to the wildlife species. 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 (Table 1-1).

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*	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

The species covered by the incidental take authorization under the CESA are woolly-star and spineflower. State authorization for incidental take of other wildlife 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 "an act which actually kills or injures wildlife [and] may include 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 (Section 86 of the California Fish and Game Code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"), 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 as Covered Species in recognition of the conservation measures provided for them under the HCP and will receive "No Surprises" regulatory assurances under the federal ITP. For purposes of state law, take will have the same meaning provided in Section 86 of the California Fish and Game Code.

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, and will take effect for an unlisted Covered Species upon the listing of such species. Any reference in this HCP to incidental take of Covered Species refers to potential impacts on all Covered Species, regardless of current state or federal listing status. The cactus wren is the only Covered Species in the HCP 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, aggregate 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.

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

- Any activity conducted by a non-Permittee or entity not holding a COI is not covered under the HCP, for example:
    - 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 Covered Activity and included as part of the Covered Activity's design.
- Routine freeway operation and maintenance activities that occur within the 210 Freeway ROW within the Plan Area.
- 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.
- Take of a Covered Species, species proposed for federal listing, state-listed species, or state candidate species as a result of the use of herbicides or other pesticides, or other chemical agents.[8]

[8] Activities associated with the application of herbicide that may result in take of a Covered Species (e.g., the operation of an all-terrain vehicle in SBKR habitat resulting in the collapse of an SBKR burrow) are covered by the HCP. However, take resulting from the herbicide itself would not be covered. Applicators must use pesticides according to the label. This includes limits on applications to avoid impacts on wildlife.

Table 1-2. Covered Activity Types Included in the Wash Plan HCP

Activity Type	Description
Aggregate Mining	The areas in which gravel and rock extraction operations (aggregate mining) by Robertson's and Cemex will continue and expand as delineated in this HCP and the 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 provisional development and maintenance of specified trails.
Habitat Enhancement and Monitoring	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 is seeking a 30-year ITP, which would accommodate the expected schedule for completion of aggregate mining operations in the Plan Area and ongoing associated operations and maintenance. Flood Control is seeking an independent ITP to be issued within two years of issuance of the Conservation District ITP. The Flood Control permit term will be determined at the time of issuance and will be established to coincide with the duration of the Conservation District ITP. For example, if the Flood Control ITP is issued one year after the Conservation District ITP, then the Flood Control ITP duration will be 29 years.

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, each Permittee 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 Permittee will initiate the permit renewal process prior to the expiration of the permit term 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 two phases linked to the BLM land exchange. The phasing of conservation and impacts is outlined in Table 1-3 and depicted in Figure 1-3.

Table 1-3. Phasing of the Wash Plan HCP

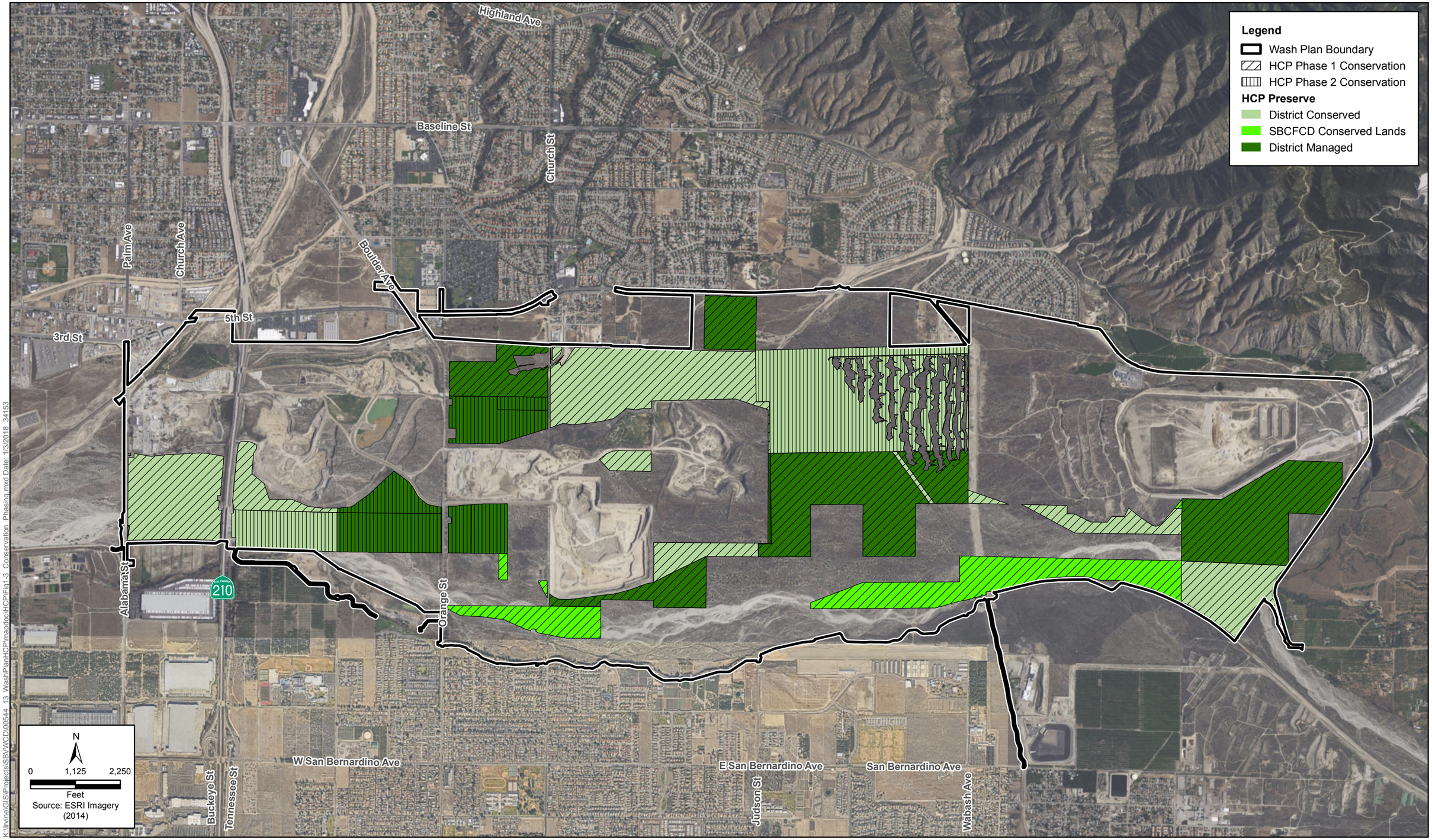
Phase	HCP Preserve	Conservation	Impacts of Covered Activities
Phase 1 (pre-BLM land exchange)	**Total Phase 1 Conservation 1,171.0 acres** District Conserved 482.8 acres SBCFCD Conserved 185.7 acres District Managed 502.5 acres	• Land dedication of all HCP Preserve areas identified as District Conserved Lands that are not part of the BLM land exchange • Management and monitoring of all District Conserved Lands that are not part of the BLM land exchange • Management and Monitoring of all District Managed Lands that are not part of the BLM land exchange	• Mining identified for Phase1 is 201.3 acres (Table 2-2) • Construction related to all non-mining Covered Activities • Ongoing operations and maintenance
Phase 2 (post-BLM land exchange)	**Total Phase 2 Conservation 488.4 acres** District Conserved 294.8 acres District Managed 193.6 acres	• Completion of BLM land exchange[9] • Dedication of all HCP Preserve Lands obtained by the Conservation District in the BLM land exchange • Management and monitoring of all Preserve Lands which were part of the BLM land exchange • Ongoing management and monitoring of the whole HCP Preserve	• Mining identified for Phase 2 is 200.2 acres (Table 2-2) • Ongoing operations and maintenance

1.3 Regulatory Framework

The Wash Plan HCP is designed to comply with the FESA and CESA. The HCP 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 and Golden Eagle Protection Act (Eagle Act)
- California Environmental Quality Act of 1970 (CEQA)
- National Environmental Policy Act of 1969 (NEPA)

[9] BLM will maintain current administrative measures to manage the lands for conservation, and the Permittee will continue to work with BLM to ensure that habitat values are not degraded prior to the transfer (e.g., continuing patrol and controlling unauthorized access and use).



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Figure 1-3
Conservation Phasing
Wash Plan HCP

- Clean Water Act (CWA) Sections 401, 402, and 404
- Porter-Cologne Water Quality Control Act (Porter-Cologne)
- Fish and Game Code Sections 1601–1607 (Lake or Streambed Alteration Agreement)
- National Historic Preservation Act

1.3.1 Federal Endangered Species Act (U.S. Code, Title 16, Section 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 wildlife 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 wildlife species by significantly impairing essential behavioral patterns, including 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 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 $100,000 for individuals or $200,000 for corporations and/or imprisonment of up to 1 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 that meets the requirements outlined in Section 10(a)(2)(A). Section 10(a)(2)(B) of the FESA identifies the criteria that must be met for USFWS to issue a permit.

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 to the proposed taking considered by the applicant.

- Additional measures USFWS 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 IA, as appropriate, (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* (FR) to allow for public comment. USFWS also prepares an Intra-Service Section 7 Biological Opinion; and prepares a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application 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 NEPA, which has gone out for a 30-day, 60-day, or 90-day public comment period. An IA may be 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 the following:

- 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.
- 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 402.02, 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 overlap in some respects. 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.

The USFWS will conduct an internal Section 7 consultation and prepare a biological opinion on its action, the issuance of the Conservation District's ITP for the Wash Plan HCP. Although not Covered Activities under the HCP, where associated 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. Note that a separate Section 7 consultation will be required for the issuance of the Flood Control ITP.

1.3.2 California Endangered Species Act

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 the 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 were designed to meet 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

The MBTA of 1918, as amended, implements various treaties and conventions between the United States 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. 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 HCP are protected under the MBTA.

The gnatcatcher and 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 HCP. The designation of conservation easements and funding of monitoring and management also will be a significant benefit to the migratory bird resources.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (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 HCP. The HCP 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 Activities or overall HCP 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.[10] 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 HCP, 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*)

Fully protected species are not Covered Species under the HCP. The HCP does not seek a permit for fully protected species because take is not anticipated in association with Covered Activities or overall HCP implementation.

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 HCP 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 state authorization for take of nests or eggs of covered birds pursuant to Section 3503.[11]

[10] CDFW can issue permits authorizing the incidental take of fully protected species under the CESA, so long as any take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan (NCCP). The Conservation District is not seeking an NCCP Permit.

[11] Because cactus wren is not a federally listed species, no MBTA coverage could be provided for this species through the HCP. Therefore, take of its eggs or nests could still be prohibited under the MBTA.

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 HCP. However, the HCP 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

The purpose of 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 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 HCP.

1.3.6 Federal and State Wetland Laws and Regulations

Note: The HCP has been developed to support permitting under the federal and state Endangered Species Acts. Compliance with federal and state Wetland Laws and Regulations must be achieved through the permit processes established by the regulatory agencies.

The 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 Resources Control Board (State Water Board) or the Regional Water Quality Control Boards (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 United States (WoUS), which are waters that cannot be filled without permits from the USACE, under Section 404 of the CWA. The USACE publishes protocols for delineating WoUS and certifies the adequacy of such delineations.

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 but are outside of federal jurisdiction.

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 may be required for the fill of any waters that are considered jurisdictional under Sections 401 and 404 of the CWA, 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 Plan Area that propose to fill WoUS.

The HCP 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 HCP. 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 HCP. Accordingly, provided that Covered Activities requiring Section 404 permits are implemented consistent with the HCP, it is expected that there will not be mitigation or other offsetting measures for effects on Covered Species beyond those already

required by the HCP. The Section 7 biological opinion issued for the HCP also can serve as the basis for any future biological opinions in the Plan Area for Covered Activities.

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 HCP does not include certifications under Section 401 or WDRs under Porter-Cologne; however, the HCP Permittees and Participating Entities implementing Covered Activities that comply with the terms of the HCP should find their permit process streamlined with the RWQCB or State Water Board because the HCP 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 HCP 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 HCP that need a streambed alteration agreement are expected to partially or fully meet the standards of the streambed alteration agreement through compliance with the HCP.

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.

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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Chapter 2
Covered Activities

2.1 Identification of Covered Activities

This chapter describes the activities covered under the HCP that could result in take of (with respect to wildlife) or adverse impacts on (with respect to plants) 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., aggregate 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, and within the designated phase (pre- or post-BLM land exchange).
- **Impact.** The Covered Activity has a reasonable likelihood of resulting in take[12] of (with respect to wildlife) or adverse impacts on (with respect to plants) 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 HCP to the satisfaction of the Wildlife Agencies.
- **Practicability.** The activity can be included in the HCP without substantially increasing the scope and cost of HCP development or implementation (e.g., adding significant complexity to the analysis, or adding significant new controversy).
- **Control.** Activities can only be covered by the HCP permit if they are under the direct control or jurisdiction of the Permittee or a Participating Entity.

2.2 Description of Covered Activities

The HCP 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 Activities are expected to

[12] 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 which actually kills or injures wildlife [and] may include significant habitat modification." Note that *take* is not the same as an adverse impact. The definition of take under the CESA is narrower than the federal definition, which is why the federal definition is used for the criterion.

occur are shown in Figure 1-2, and Figure 2-1 shows the specific location, type, and Participating Entity responsible for each Covered Activity.

All Covered Activities have been subdivided into the following categories:

1. **Aggregate Mining** – the areas in which mining operations by Robertson's and Cemex will continue and expand as delineated in this HCP, 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. **Habitat Enhancement and Monitoring** – activities that support the restoration and maintenance of habitat values in the HCP Preserve.
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 O&M.

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.

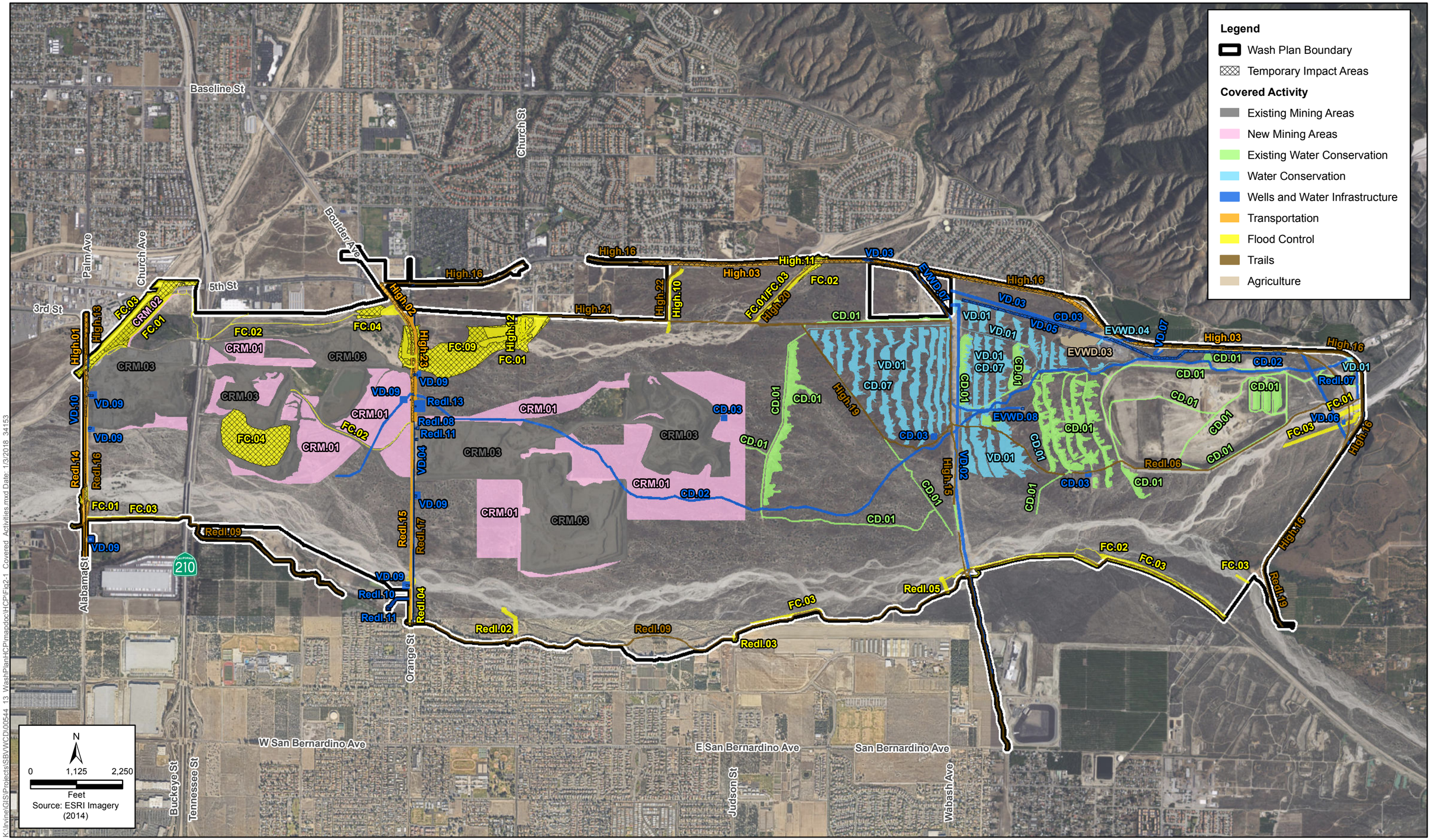


Figure 2-1
Location of Covered Activities
Wash Plan HCP

Table 2-1. Covered Activity ID Codes, Project Names, and Total Acreages (Permanent Habitat Impacts)[13]

Unique ID	Owner	Project Name	Project Class	Project Type	Total Acres of Permanent Impact
CD.01	Conservation District	Existing Recharge Basins and Access Roads	Water Conservation	Maintenance	-
CD.02	Conservation District	Conservation District Canal	Wells and Water Infrastructure	Maintenance	-
CD.03	Conservation District	Existing Wells	Wells and Water Infrastructure	Maintenance	-
CD.04	Conservation District	Greenspot Levee Removal	Habitat Enhancement and Monitoring	Habitat Enhancement	-
CD.05	Conservation District	D-Dike Habitat Enhancement	Habitat Enhancement and Monitoring	Habitat Enhancement	0.0
CD.06	Conservation District	Plunge Creek Habitat Enhancement	Habitat Enhancement and Monitoring	Habitat Enhancement	1.8
CD.07	Conservation District	New Access Roads for Spreading Basins	Water Conservation	New Construction	12
CD.09	Conservation District	Cone Camp Property Dedication	Habitat Enhancement and Monitoring	Habitat Enhancement	-
CD.10	Conservation District	Flood Control Land Dedication	Habitat Enhancement and Monitoring	Habitat Enhancement	-
CD.11	Conservation District	Spineflower Preservation Area	Habitat Enhancement and Monitoring	Habitat Enhancement	-
CD.12	Conservation District	District Conserved and Managed	Habitat Enhancement and Monitoring	Habitat Enhancement	-
CD.13	Conservation District	Species Surveys, Monitoring, and Research	Habitat Enhancement and Monitoring	Monitoring	-
CRM.01	Cemex and Robertson's	Aggregate Mining	Aggregate Mining	New Construction	400.7
CRM.02	Cemex and Robertson's	Haul Road Expansion	Aggregate Mining	New Construction	0.8
CRM.03	Cemex and Robertson's	Ongoing Mining Operations	Aggregate Mining	Operations	0.0

[13] Values shown as 0.0 are less than 0.04 acres. Values shown as "-" are zero.

Unique ID	Owner	Project Name	Project Class	Project Type	Total Acres of Permanent Impact
EVWD.03	East Valley Water District	Grove Maintenance	Agriculture	Maintenance	-
EVWD.04	East Valley Water District	Spreading Basins	Water Conservation	Maintenance	0.5
EVWD.07	East Valley Water District	Pipe 125	Wells and Water Infrastructure	Maintenance	-
EVWD.08	East Valley Water District	Well 125	Wells and Water Infrastructure	Maintenance	-
FC.01	San Bernardino County Dept. of Public Works	In-stream Maintenance	Flood Control	Maintenance	-
FC.02	San Bernardino County Dept. of Public Works	Access Road Maintenance	Flood Control	Maintenance	-
FC.03	San Bernardino County Dept. of Public Works	Levee Maintenance	Flood Control	Maintenance	-
FC.04	San Bernardino County Dept. of Public Works	Stockpiling	Flood Control	Maintenance	-
FC.09	San Bernardino County Dept. of Public Works	Elder/Plunger Creek Restoration-Reasonably Foreseeable Project	Flood Control	New Construction	15.7
High.01	City of Highland	Alabama Street Improvements	Transportation	New Construction	1.6
High.02	City of Highland	Orange Street/Boulder Avenue Improvements	Transportation	New Construction	3.9
High.03	City of Highland	Greenspot Road Improvements	Transportation	New Construction	9.8
High.10	City of Highland	Weaver Street Channel	Flood Control	Maintenance	-
High.11	City of Highland	Greenspot Road Drain Outlets	Flood Control	Maintenance	-
High.12	City of Highland	Church Street Channel	Flood Control	Maintenance	-
High.13	City of Highland	Alabama 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	-

Unique ID	Owner	Project Name	Project Class	Project Type	Total Acres of Permanent Impact
High.21	City of Highland	Pole Line Trail	Trails	New Designation	-
High.22	City of Highland	Weaver Street Trail	Trails	New Designation	-
High.23	City of Highland	Highland/Redlands Regional Connector	Trails	New Construction	3.7
Redl.02	City of Redlands	Church Street Drainage Pipe	Flood Control	New Drainage Facility	2.0
Redl.03	City of Redlands	Judson Street Drainage Pipe	Flood Control	New Drainage Facility	0.2
Redl.04	City of Redlands	Orange Street Drainage Dissipater	Flood Control	New Drainage Facility	0.0
Redl.05	City of Redlands	Wabash Street Drainage Pipe	Flood Control	New Drainage Facility	0.0
Redl.06	City of Redlands	Borrow Pit South Rim Trail	Trails	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.09	City of Redlands	Santa Ana River Trail	Trails	New Construction	3.0
Redl.09.2	City of Redlands	Santa Ana River Trail River Crossing	Trails	New Construction	0.2
Redl.10	City of Redlands	Orange Street Well Access Road	Wells and Water Infrastructure	Maintenance	-
Redl.11	City of Redlands	N Orange Street 1 & 2 Well	Wells and Water Infrastructure	Maintenance	-
Redl.13	City of Redlands	North Orange 3 Well and Connector Pipeline	Wells and Water Infrastructure	New Construction	1.5
Redl.14	City of Redlands	Alabama Street Improvements	Transportation	New Construction	10.5
Redl.15	City of Redlands	Orange Street Improvements	Transportation	New Construction	5
Redl.16	City of Redlands	Alabama Street Trail	Trails	New Designation	-
Redl.17	City of Redlands	Orange Street Trail	Trails	New Designation	-
Redl.19	City of Redlands	Greenspot Road Trail	Trails	New Designation	-
VD.01	SBVMWD	Enhanced Recharge Project	Water Conservation	New Construction	149.6
VD.02	SBVMWD	East Branch Extension Phase 2	Wells and Water Infrastructure	Maintenance	-

Unique ID	Owner	Project Name	Project Class	Project Type	Total Acres of Permanent Impact
VD.03	SBVMWD	Foothill Pipeline	Wells and Water Infrastructure	Maintenance	-
VD.04	SBVMWD	Orange Street Connector Pipeline	Wells and Water Infrastructure	New Construction	-
VD.05	SBVMWD	Plunge Pool Pipeline	Wells and Water Infrastructure	New Construction	-
VD.06	SBVMWD	SARC Pipeline and Turnout	Wells and Water Infrastructure	Maintenance	-
VD.07	SBVMWD	Santa Ana Low Turnout Rebuild	Wells and Water Infrastructure	New Construction	0.2
VD.09	SBVMWD	Wells and Connector Pipeline	Wells and Water Infrastructure	New Construction	3.6
VD.10	SBVMWD	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 HCP boundary. As part of the implementation of the HCP, the existing mining area will be expanded for new aggregate mining. In addition, within the current 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 (also see Figure 2-1).

Aggregate Mining (CRM.01)

New mining activities will occur on 400.7 acres, and will occur in two phases. Prior to mining a new area, the limits of mining will be clearly defined and marked, and applicable impact minimization measures will be instituted. CRM.01 includes 400.7 acres of permanent impacts.

Haul Road Expansion (CRM.02)

To facilitate mining operations and to improve and make highway access safer, a 1,700-linear-foot haul road extension will be constructed. It will cross Plunge Creek as well as City Creek underneath the existing 5th Street Bridge. The majority of the road occurs within the boundary of CRM.01; therefore, it will only result in 0.8 acre of additional permanent impacts which are included in phase one with the new mining activities in Table 2-2.

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

HCP Implementation Phase	Acreage
Phase 1 (pre-BLM land exchange)	201.3 acres
Phase 2 (post-BLM land exchange)	200.2 acres
Total New Aggregate Mining	401.5 acres

Ongoing Aggregate Mining Operations (CRM.03)

Ongoing aggregate mining operations within the disturbed areas of the mining pits are expected to result in incidental take of a small number of individual SBKR in marginal habitat such as the edges of haul roads and temporary dirt stockpiles. Some woolly-star plants may also become established and subsequently crushed. It is estimated that 3 acres of permanent impacts on SBKR and woolly-star occupied habitat will occur as a result of continued mining in the existing mining pits during the life of the permit. CRM.03 is within the existing mining pits; therefore, there are no new acreages of permanent or temporary impact and these acreages are not included in Table 2-1.

2.2.2 Water Conservation

Water conservation and management activities, both ongoing and planned future activities comprise 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 (see Figure 2-1).

San Bernardino Valley Water Conservation District Activities

Maintenance of Facilities (CD.01)

The maintenance of Conservation District facilities is expected to occur over approximately 30.8 acres of temporary impacts. The maintenance activities are described below and include the following facilities:

- Santa Ana River Spreading Facility
- Stockpile and processing areas
- Access roads
- Spreading basins

The Santa Ana River Spreading Facility utilizes river water diverted via the Cuttle Weir to the Sandbox. Water leaves the Sandbox and enters the Conservation District's main channel; prior to entering the spreading basins, the incoming water is measured on a daily basis at the Conservation District's Parshall Flume. The Conservation 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.

Basins

The groundwater recharge basin 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, preventing 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 is typically left if it does 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 approximately every 5 years when precipitation rates are near average. During years with above-average precipitation cleaning and maintenance may be required on a 1- to 3-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, the percolation rate is monitored as often as daily by the field crew to see which ponds need to be regraded or reshaped once the spreading is cut off. 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 that could affect dike integrity.

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 or hauled to storage areas and eventually transported off site or sold.

Within both the Santa Ana and Mill Creek spreading grounds, trespass, vandalism, theft, and trash are major issues that must be managed 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 with herbicide 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 includes one loader, one dozer, and one excavator.

Maintenance of Access Roads

The Conservation District maintains numerous access or service maintenance roads throughout the Plan Area. Although these roads are on Conservation District property, the Conservation 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 of 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 farther 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. Access road maintenance accounts for 8.1 acres of the total 30.8 acres for conservation district facility maintenance.

Construction of New Access Roads (CD.07)

The Conservation District will construct a limited number of new access or service maintenance roads to access new spreading basin facilities to be constructed in the Plan Area. As with the existing access roads, the Conservation District will give consent to several agencies to use them for their public service activities. Access roads will be 12–15 feet wide and surfaced with native material such as gravel or compacted soil. These roads will be maintained as described above for existing access roads. Construction of new access roads may permanently impact up to 12.0 acres and 3.7 acres temporary impacts for operations and maintenance.

San Bernardino Valley Municipal Water District Activities

Enhanced Recharge Project (VD.01)

The following components of the Enhanced Recharge Project are summarized below:

- Construction and Maintenance of Enhanced Facilities
- Enhanced Recharge Canal
- Greenspot Channel Improvements

The Enhanced Recharge Project may permanently impact up to 149.6 acres. Note that alteration of hydrologic conditions at and below the point of diversion for the Enhanced Recharge Project will not be allowed until the effects of such hydrologic changes on the endangered Santa Ana sucker (*Catostomus santaanae*) have been analyzed and permitted as appropriate under the FESA.

Construction and Maintenance of Enhanced Facilities

Newly constructed recharge basins (spreading grounds) are planned on the northwestern portion of the Plan Area to be operated by SBVMWD on Conservation District lands. Phase A is composed of 11 basins and Phase B is composed 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 off site. No earthen or rock stockpiles will be placed within the HCP

Preserve. The new basins will be maintained by the Conservation District as described above in *Maintenance of Facilities (CD.01)*. Boulder rows may be placed in areas where unauthorized access occurs frequently or to prevent unauthorized vehicle access.

Enhanced Recharge Canal

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

Greenspot Channel Improvements

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-Dike will be raised approximately 2 feet and an outlet allowing water to scour the area west of the levee will be constructed.

East Valley Water District Activities

East Valley Water District Spreading Basin (EVWD.04)

This project includes the construction and maintenance of one new spreading basin and maintenance of two existing spreading basins (0.5 acre each) on the existing East Valley Water District Facilities. The additional basin to be constructed will receive Santa Ana River water as part of an educational/outreach facility on groundwater management. The maintenance of the new spreading basin and the other two existing basins, intended to recharge storm flows from the developed property, consists of sediment and debris removal and re-contouring as necessary. These basins recharge locally produced storm water into the aquifer. The construction of the new spreading basin will result in 0.5 acres of permanent impacts and 0.15 acre temporary impact for construction and 0.5 acres for operations and maintenance.

2.2.3 Wells and Water Infrastructure

There are currently ten wells, some with associated tanks and boosters, in use or proposed in the Plan 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 Activities

SBVMWD plans to construct 8–13 new wells located off Alabama and Orange Streets, which will include an access road, up to four small detention basins, a 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 Plan Area. SBVMWD 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 SBVMWD's conjunctive use project. If SBVMWD constructs more than eight wells and associated infrastructure they will provide an additional 1.5 acres of District Conserved Lands. The 1.5 acres is based on the estimated acreage of additional impacts and the quality of habitat that would be affected. The 1.5 acres must be within or contiguous to the Plan Area and contiguous to the HCP Preserve or the WSPA. The SBVMWD will provide for the permanent conservation and management of the 1.5 acres. The location and acreage of the habitat, the management budget, and the permanent protection mechanism (e.g., conservation easement) must be approved by the Wildlife Agencies.

Water will be stored by groundwater recharge in advance for future extraction during dry years. An estimation of the water stored via recharge is modeled. Evapotranspiration and reject (non-percolation) are accounted for in the model. Water extraction is limited to the stored amount. These new wells will maintain a net positive or zero balance on pre-stored water in the groundwater basin. Additional extraction (i.e., extraction greater than the amount of water stored) will not occur.

The new wells will be maintained in the same manner as existing wells. See *General Well Maintenance* below.

Wells and Connector Pipeline (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 by 150 feet (0.5 acre), with a permanent footprint of the well site at 0.25 acre (approximate 120- by 80-foot permanent well pad boundary). In addition, eight 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 by 30 feet (0.4 acre) and would be considered permanent impacts because they will also be used for access during maintenance activities. The total impacts may include up to 8.4 acres of temporary and 3.6 acres of permanent impacts. Operations and maintenance impacts are expected to be 1.3 acres.

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 off site at approved facilities. No earthen or rock stockpiles will be placed within the HCP Preserve. 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-inch) 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 by 20 feet (1.2 acres) within the existing disturbed habitat per pipeline for a total of 2.4 acres of additional 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 ROW in the north-south direction connecting to individual wells.

Connector Pipeline

Eight permanent connector pipelines (up to 30-inch diameter) will be placed below ground 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 the Alabama Street and Orange Street ROW (also described below). The area of impact for construction of this pipeline will be approximately 600 by 30 feet (0.41 acre) per well site. All impacts will be confined to the footprint of the permanent access roads (described below).

Other Water Transmission and Connector Pipelines

Orange Street and Alabama Street Connector Pipelines (VD.04 and VD.10)

A transmission pipeline (up to 36-inch diameter) 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 Plan Area. The transmission pipeline will be constructed wholly within the public road ROW, and no impacts will occur outside of those limits.

Orange Street Connector Pipeline (VD.04)

A new service pipeline will be located in the Orange Street ROW. 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* below. Construction of this pipeline will result in up to 23.0 acres of temporary impacts for construction of the pipeline and 5.3 acres for operations and maintenance.

Alabama Street Connector Pipeline (VD.10)

A new service pipeline will be located in the Alabama Street ROW. 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* below. Construction of this pipeline will not result in any permanent habitat impacts but will have 25.2 acres of temporary construction impact and 5.3 acres of operations and maintenance impacts.

SARC Pipeline and Turnout (VD.06)

The SARC Pipeline and Turnout are existing facilities used to direct water to different facilities in the Plan Area. The pipeline is underground. Temporary impacts from O&M of the facility are expected to be 3.0 acres over the life of the HCP. Maintenance of this pipeline will result in up to 1.1 acres of temporary construction impacts accounting for the assumed replacement of the portion of the pipeline that crosses the Santa Ana River.

Santa Ana Low Turnout Rebuild (VD.07)

The Santa Ana Low Turnout Rebuild involves the maintenance of equipment (valve replacement and/or repair) and facilities at this location. Activity will be limited to the existing footprint. Construction of this facility will result in up to 0.2 acres of permanent impacts and 1.0 acre of temporary impacts for the proposed rebuild.

Plunge Pool Pipeline (VD.05)

The Plunge Pool Pipeline will be constructed by SBVMWD and maintained by the Conservation District. The pipeline is part of the Enhanced Recharge project and will provide water to the Enhanced Recharge Spreading Basins (VD.01). See *General Water Pipeline Maintenance* below. Construction of this pipeline will result in up to 14.5 acres of temporary impacts and 3.3 acres of operations and maintenance impacts.

East Branch Extension, Phase 2 (VD.02)

See *General Water Pipeline Maintenance* below. Maintenance of this pipeline will result in up to 3.1 acres of temporary impacts for operations and maintenance accounting for 2.0 acres for the assumed replacement of the portion of the pipeline that crosses the Santa Ana River.

Foothill Pipeline (VD.03)

See *General Water Pipeline Maintenance* below. Maintenance of this pipeline will result in up to 2.0 acres of temporary impacts for operations and maintenance assuming a 50 foot wide disturbance is necessary if the pipeline must be excavated for maintenance.

City of Redlands

North Orange 3 Well and Connector Pipeline (Redl.13)

Redlands plans to construct one new well that will be located off Orange Street. The final locations will be identified in consultation with the Wildlife Agencies and subject to their approval. The well site work area is 160 by 160 feet (0.9 acre), with a permanent footprint of the well site of 0.7 acre. Construction of the well will be consistent with the description provided under *Wells and Connector Pipeline (VD.09)* above. This new well will be tied in to the service pipeline that is located in the Orange Street/Boulder Avenue ROW. This well will be maintained in the same manner as existing wells. See *General Well Maintenance* below.

Increased water production within, or adjacent to, the river is expected to have no effect on fish species or their habitat that occur farther downstream because the water level within the groundwater basin has no influence on surface flows. There is 150 vertical feet difference between the two; therefore, there is no direct hydraulic connection. The construction of this facility will result in 1.0 acre of temporary construction impacts and 1.5 acres of permanent impacts. Maintenance of this well and pipeline will result in 0.4 acre of additional temporary impacts for operations and maintenance.

Orange Street Well Access Road (Redl.10)

The Orange Street Well Access Road is 12–15 feet wide and surfaced with native material such as gravel or compacted soil. The road will be maintained as described for existing access roads.

Maintenance of this access road will result in 0.1 acre of temporary impacts for operations and maintenance.

North Orange 1, North Orange 2, and Orange Street Wells (Redl.11)

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 ROW. See *General Well Maintenance* below. Maintenance of these wells may result in up to 0.3 acre of temporary impacts for operations and maintenance and 0.3 acres of temporary impacts for pump testing or other major maintenance.

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. The pipeline will be located in the Orange Street ROW and 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* below. Construction of the new connector pipeline will not result in any permanent impact and 0.2 acres of temporary impacts for construction and 0.3 acres for operations and maintenance.

Redlands Aqueduct Tunnel (Redl.07)

See *General Water Pipeline Maintenance* below. Maintenance of this facility may result in up to 0.3 acre of temporary impacts for operations and maintenance.

East Valley Water District Activities

Pipe 125 (EVWD.07)

See *General Water Pipeline Maintenance* below. Maintenance of this pipeline may result in up to 1.4 acres of temporary impacts for operations and maintenance.

Well 125 (EVWD.08)

See *General Well Maintenance* below. Maintenance of this well may result in up to 0.1 acre of temporary impacts for operations and maintenance and 0.1 acres for pump testing or other major maintenance.

San Bernardino Valley Water Conservation District Activities

Conservation District Canal (CD.02)

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. Any maintenance activities would be limited to inspection and maintenance of the fence, and clearing any debris from the channel. Maintenance of this channel may result in up to 7.0 acre of temporary impacts for operations and maintenance and an additional 1.0 acre of temporary impact for a major clean out or wash out.

Existing Wells (CD.03)

The 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* below. Maintenance of these wells may result in up to 0.4 acre for operations and maintenance and 1.6 acres of temporary impacts for major repairs.

General Well Maintenance

Long-term maintenance activities necessary to operate the wells will be conducted by the Conservation District and the Participating Entities on their respective facilities as often as daily with visits to the well by staff for inspection, sampling, repairs, etc. Weeding, minor grading, 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 constructed 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.

The equipment that may be used for well rehabilitation, redevelopment, testing, and/or replacement follows:

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)
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.

2.2.4 Transportation

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 Activities

Alabama Street Improvements (High.01)

Within Highland from 3rd Street to approximately 800 feet 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 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. This Covered Activity also includes operation and maintenance of the planned improvements. The road widening within Highland will result in up to 1.6 acre of permanent and 1.9 acres of temporary impacts.

Orange Street/Boulder Avenue Improvements (High.02)

Within the Cities of Highland and Redlands, Boulder Avenue/Orange Street from Greenspot Road to the south limit of the Plan Area 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. The road widening within Highland will result in up to 3.9 acres of permanent and 5.5 acres of temporary impacts.

Greenspot Road Improvements (High.03)

Greenspot Road will be widened on the south side between Weaver Street and Santa Paula Street and on both sides between Santa Paula Street and the new Greenspot Road Bridge realignment. The widened road way 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. The road widening will result in 9.8 acres of permanent impact and 16.8 acres of temporary impacts.

City of Redlands Activities

Alabama Street Improvements (Redl.14)

Within Redlands beginning approximately 0.1 mile north of the intersection of River Bluff Avenue, Alabama Street will be widened and improved to the Highland city limits. The road widening within Redlands will result in up to 10.5 acres of permanent and 7.6 acres of temporary impacts.

Orange Street Improvements (Redl.15)

Within Redlands beginning at Riverview Drive, Orange Street will be widened and improved to the Highland city limits. It 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. The road widening within Redlands will result in up to 5.0 acres of permanent impacts and 7.3 acres of temporary impacts.

General Road Maintenance

Maintenance must also take place on other paved roads throughout the Plan Area. Maintenance on these roads includes shoulder grading 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.[14]

[14] All work will take place within the defined ROWs of the roads and as depicted and defined in the HCP.

2.2.5 Flood Control

San Bernardino County Flood Control District Activities

The 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.

Elder/Plunge Creek Restoration (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 Orange Street where they are impeded by sedimentation in the stream channels, (3) reduce the probability of habitat type conversion in the Plan Area by diverting nuisance flows into a retention basin, and (4) reduce flood risk in the Elder Creek watershed, specifically in the neighborhood adjacent to Abbey Way. The construction of this project will result in 15.7 acres of permanent impact associated with new flood control facilities, and 48.6 acres of temporary impacts for construction and 4.3 acres for operations and maintenance associated with improvement of the hydrologic function and processes required to support native habitats.

In order to construct the project, lead remediation will be required on a parcel within the Plan Area 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 address potential impacts associated with the lead itself.

Coverage for this project is contingent upon review and approval of the final project design by the Wildlife Agencies. It is understood that species impacts resulting from 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)

Flood Control maintains flood control levee structures on the Santa Ana River, Plunge Creek, Mill Creek, and City Creek within the 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. In-stream maintenance activities may result in up to 34.2 acres of temporary impacts for operations and maintenance based on the assumption that full clean out will happen twice in the life of the Plan (i.e., over 30 years).

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). Access road maintenance may result in up to 7.1 acres of temporary impacts for operations and maintenance.

Levee Maintenance (FC.03)

Flood Control maintains flood control levees and other bermed structures on the Santa Ana River, Plunge Creek, Mill 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. 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. Levee maintenance may result in up to 12.5 acres of temporary impacts for operations and maintenance.

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. See *Ongoing Aggregate Mining Operations (CRM.03)* in Section 2.2.1, *Aggregate Mining*, for details on estimated impacts on SBKR. Stockpiling will result in no new acreages of permanent or temporary impacts.

City of Highland Activities

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

- Impacts related to the use of equipment in herbicide application to control weeds and the use of 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, and signage.
- Installation of drains, pipes, or utilities crossing drainage facilities.

- Grading and earthwork to maintain the flow lines of the channels.

Weaver Street Channel (High.10)

Maintenance and operation of an existing city drainage channel would occur south of Greenspot Road along the southerly projection of Weaver Street. This channel connects to the natural water course of Plunge Creek. Drainage channel maintenance may result in up to 1.8 acres of temporary impacts, and 1.8 acres for operations and maintenance.

Greenspot Road Drain Outlets (High.11)

Maintenance and operation of the existing outlets of two city storm drains in Greenspot Road would occur on the east side of Plunge Creek south of Greenspot Road and would include the concrete headwalls, grouted riprap, and the dirt channel area near the outlets. Drain outlet maintenance may result in up to 0.1 acre of temporary impacts, and 0.1 acre for operations and maintenance.

Church Street Channel (High.12)

Maintenance and operation of an existing city drainage channel would be 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 Flood Control. Drainage channel maintenance may result in up to 0.3 acre of temporary impacts, and 0.4 acre for operations and maintenance.

City of Redlands Activities

Church Street Drainage (Redl.02)

Redlands plans to construct a drainage pipe and a 30- by 30-foot energy dissipater at the terminus of Church Street. Currently runoff during storm events flows across the surface of the floodplain to the active channel of the Santa Ana River. The pipe will carry water that would otherwise be surface flow. The pipeline and dissipater are expected to reduce erosion. The project is expected to result in 2.0 acres of permanent impacts. Construction may result in up to 2.0 acres of temporary impacts and 0.1 acre for operations and maintenance.

Judson Street Drainage (Redl.03)

Redlands plans to construct a drainage pipe and a 30- by 30-foot energy dissipater at the terminus of Judson Street. Currently runoff from Orange Street during storm events flows across the surface of the floodplain to the active channel of the Santa Ana River. The pipe will carry water that would otherwise be surface flow. The pipeline and dissipater are expected to reduce erosion. The project is expected to result in 0.2 acre of permanent impacts, 0.2 acre of temporary impacts, and 0.1 acre for operations and maintenance.

Orange Street Drainage (Redl.04)

Redlands plans to construct a 30- by 30-foot energy dissipater at the terminus of Orange Street. The dissipater will connect to an existing pipe. Currently, runoff from Orange Street during storm events flows across the surface of the floodplain to the active channel of the Santa Ana River. The dissipater is expected to reduce erosion. The project is expected to result in 900 square feet of permanent impacts and 2.7 acres of temporary impacts, and 0.04 acre for operations and maintenance.

Wabash Avenue Drainage (Redl.05)

Redlands plans to construct a drainage pipe and a 30- by 30-foot energy dissipater north of the terminus of Wabash Avenue. The dissipater will connect to an existing pipe. Currently runoff during storm events flows across the surface of the floodplain to the active channel of the Santa Ana River. The dissipater is expected to reduce erosion. The project is expected to result in 900 square feet of permanent impacts and 1.1 acres of temporary impacts, and 0.02 acre for operations and maintenance.

2.2.6 Trails

Trail Designations

Local Trails within the HCP Preserve

The Preserve has the potential to provide recreational benefit to those in nearby communities and beyond, and can also serve as an educational opportunity to illustrate the benefits of species and open space protection. A carefully planned trail system that does not diminish habitat and species conservation can further conservation goals as well as provide recreational opportunities. The HCP addresses Covered Species and their habitats associated with the development and operation of a trail system within the Plan Area using only existing roads and access easements to minimize impacts on vegetated areas. The HCP Preserve trail system is intended for non-motorized recreational use. Note that the proposed trail crossing of the WSPA to connect a trail to the Santa Ana River Trail (SART) in Redlands is not a Covered Activity in this HCP, and approval of the WSPA crossing will require independent Wildlife Agency approval. The WSPA crossing is discussed here only to provide a full description of activities contemplated in the Plan Area.

The construction, operation, and maintenance of local trails is covered by the HCP and is considered a conditionally compatible use, meaning trails are permissible following preparation of a Trail Management Plan (Trail Plan)and its approval by the Wildlife Agencies. The Trail Plan will detail how Covered Species and habitats will be protected and trail-related impacts will be avoided, minimized, monitored, and managed. The Trail Plan will include the following:

1. Patrol section detailing the type and frequency of patrols, including periodic patrols of the area by law enforcement personnel.
2. Local ordinance(s) prohibiting unauthorized off-trail travel, providing provisions for temporary or permanent trail closures in the event of resource damage, and providing enforcement authority for violations.
3. Sign plan with informational, interpretive, regulatory, and directional signs.
4. Access section including barricades, gates, and/or fencing to deter motorized and other unauthorized uses and plans for informational kiosks/signs at trailheads to inform visitors about safe and appropriate trail use.
5. Trail maintenance plan and schedule detailing the frequency and methods of trail maintenance.
6. Weed management plan to address the potential spread of invasive species along the trail route.
7. Long-term funding section including a non-wasting endowment for the operation and maintenance of the trail system.

8. Measures to address any resource damage caused by on- or off-trail use.

The Trail Plan will detail public safety considerations associated with operating the HCP Preserve trail system. All HCP Preserve trails would be located on or along existing streets, service roads, or old railroad beds. No new ground disturbance is permitted HCP Preserve trails. (Covered regional trails are discussed below.) No off-road vehicles would be permitted on trails. Recreational off-road vehicle use is not a Covered Activity in this HCP.

Use of the HCP Preserve for local and regional trail activities will likely require staging areas that are assumed to be outside project boundaries and are not addressed here. Trails segments whose designation and maintenance are conditionally compatible in the HCP include the following:

- Alabama Street Trail (High.13)
- Borrow Pit South Rim Trail (Redl.06)
- Highland/Redlands Regional Connector (High.23)
- Cone Camp Road Trail (High.15)
- Greenspot Road Trail (High.16/Redl.19)
- 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)
- Alabama Street Trail (Redl.16)
- Orange Street Trail (Redl.17)

Santa Ana River Trail (Redl.09)

An extension of the SART, a significant regional trail system ultimately planned to extend 110 miles, is planned on the southern border of the Plan Area. Portions of the SART pass outside the southern border of the Plan Area, as is reflected in the General Plans of Highland and Redlands. The SART extension through the Plan Area would intersect two of the HCP Preserve trails, the proposed Orange Street Trail in the western part of the Plan Area, and the proposed Greenspot Road Trail east of the Plan Area.

Unlike the local trails in the HCP Preserve, which would utilize existing dirt roads, portions of the SART extension would be new trail with permanent impacts on Covered Species habitat. Also, because the SART is a heavily used multi-use trail (i.e., hikers, bicycles, and horses), a post and cable barrier or equivalent will be constructed between the SART and the HCP Preserve to reduce the potential for unauthorized trail use in the HCP Preserve. The fence design must be approved by the Wildlife Agencies. Construction of this portion of the SART would result in up to 3.0 acres of permanent impacts, 8.2 acres of temporary impacts for construction, and 0.28 acre for operations and maintenance.

Santa Ana River Trail River Crossing (Redl.09.2)

This is the portion of a connection between the SART and the HCP Preserve trails that lies between the SART and the WSPA. Connections between the SART and HCP Preserve trails across the WSPA would require approval by the Wildlife Agencies as described above.

The routing of the Santa Ana River trail within the Plan Area would be subject to the General Avoidance and Minimization Measures found in Section 5.5, *Impact Avoidance and Minimization Measures*, and a management plan sufficient to ensure the protection of the HCP Preserve will need to be developed by the County of San Bernardino or other managing entity and approved by the

Wildlife Agencies. A trail crossing of the Santa Ana River and the WSPA is envisioned by trail planners. Note that the portion of the potential crossing over the WSPA is not covered by this HCP.

Highland/Redlands Regional Connector (High.23)

The Highland/Redlands Regional Connector project is a class one bike lane planned to be constructed along Orange Street. The trail will be constructed on the east side of Orange Street between Greenspot Road and the stoplight at the entrance to the mining facilities, and the west side of the road between the stoplight and the City of Redlands. High.23 represents the portion of the bike lane constructed within the City of Highland and has 3.7 acres of permanent impact. Temporary construction impacts for the portion of the trail within the City of Highland are part of the temporary impacts for the Orange Street widening within the City of Highland. The portion of the trail within the City of Redlands will fall completely within the confines of the Orange Street widening project.

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, rolling 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.

Patrol

Regular patrol of the trails by paid staff and volunteers will be essential to minimize damage to the resource and, more specifically, impacts on Covered Species from off-trail use. The HCP Preserve Trail Plan will require that trail use be limited to authorized trails, and no non-administrative off-trail travel will be permitted. Local ordinances will be adopted to provide enforceability. It is expected that patrols of HCP Preserve trails will occur under the direction of the Conservation District, Redlands, and Highland. The SART will be patrolled by the San Bernardino County code enforcement.

2.2.7 Agriculture

East Valley Water District Activities

Grove Maintenance (EVWD.03)

A 6.7-acre citrus grove is operated within the Plan 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. Grove maintenance activities may result in up to 2.4 acres of temporary impacts for operations and maintenance.

2.2.8 Habitat Enhancement and Monitoring

The conservation and mitigation strategy (Chapter 5, *Conservation Program*) is designed to mitigate impacts of Covered Activities on 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 (for wildlife) or adverse impacts (for plants) and, therefore, are being addressed in this HCP as Covered Activities. Activities related to implementation of the conservation and mitigation strategy that may require take authorization include the following:

- Habitat enhancement, restoration, and creation.
- Operational changes to enhance in-stream habitat.
- Control of invasive species (e.g., mowing, hand clearing).
- Relocation of Covered Species from impact sites to the HCP Preserve (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 the Plan Area that are consistent with HCP requirements will be covered by the HCP.

Planning for all conservation, mitigation, restoration and enhancement, and management activities will include input from the Preserve Management Committee.

Specific covered conservation and mitigation activities include but are not limited to those discussed in detail in the following sections.

Conservation District Activities

Greenspot Levee Removal (CD.04)

The Conservation District intends to remove or notch the levee near the eastern boundary (Greenspot Road) of the Plan Area to restore historic flooding and scour to a significant portion of the HCP Preserve. This project is intended to restore natural fluvial processes on approximately 30 acres. The project may require the temporary placement of boulders or other obstructions to route flows onto habitat areas. Implementation of this project is dependent on favorable hydrologic studies and additional permitting, including by Flood Control. The Conservation District will complete a feasibility study within 5 years and work with the Wildlife Agencies, Flood Control, and

others toward implementation of this project within the HCP permit duration. It will also obtain the necessary permits if the project is determined to be feasible. Removal of sufficient material to provide a 200-foot-wide notch in the levee to restore flows would require the removal of approximately 33,000 cubic yards of rock and other materials. The work area during the duration of the project would cover 1.5 acres near the closest road based on the results of the feasibility study. The work would be completed by a Conservation District contractor through either the sale of rock or removal of the rock and hauling to the borrow pit. Should the project not be feasible, the estimated removal and hauling cost of $137,000 (in 2016 dollars)[15] would be applied to habitat restoration activities south of the existing levee. Work would be directed by the Preserve Management Committee and would be completed prior to permit expiration. This work may be funded by proceeds from rock removal, outside grants and funding sources, or by a cost share by COI participants. The Greenspot levee removal is expected to result in up to 1.0 acre of temporary impacts.

D-Dike Habitat Enhancement (CD.05)

The D-Dike facility is currently maintained for water conservation, but may be preventing the movement of wildlife, including SBKR, along a corridor established by the 1969 flood event. In order to facilitate passage between the Santa Ana River and Plunge Creek, a 50 -foot-wide ramp of appropriate soil for SBKR will be constructed on either side of D-Dike and graded to facilitate passage of wildlife species. To maintain function for water management, several culverts will be placed along the eastern side of the D-Dike under the ramp. The construction of the D-Dike enhancement is expected to result in 0.5 acre of temporary impacts.

Plunge Creek Habitat Enhancement (CD.06)

In addition to potential thinning of vegetation, the Conservation District seeks to restore fluvial processes to portions of the braided channel of Plunge Creek where these processes have ceased due to human modification of the stream. The primary goals of the project are to increase the area of suitable habitat for SBKR and other sensitive species, and to increase groundwater recharge without increasing the risk of flooding or erosion on non-Conservation District owned or managed land. Furthermore, the methods developed for this experimental project, and results achieved, could be used as guidance for further habitat restoration and water conservation projects in similar alluvial fans. Plunge Creek has several formerly active channel segments that formed during previous flood events, but have subsequently been disconnected from today's active channel and are separated from the low-flow channel by a terrace up to 8 feet high. The project would excavate sections of pilot channels through the terrace barrier to connect the low-flow channel with the channel remnants, thus reactivating a large area south of the existing channel with the potential to create substantial new SBKR habitat. The project would use massive boulders scattered throughout the site to stabilize bed elevations and create immobile flow obstructions at key locations designed to direct flow paths into the new pilot channels and reoccupied remnant channels. As the project evolves placed boulders would be moved to new strategic locations in future years to force flow into different channel remnants and create new areas of SBKR habitat. The project is expected to result in 1-acre of temporary impacts. The final project proposal for the Plunge Creek restoration will be reviewed and approved by the Wildlife Agencies.

[15] If a determination is made that the project is infeasible, the Consumer Price Index for All Urban Users (CPI-U) for the Los Angeles area will be used to adjust the $137,000 to current dollars. The current dollar amount would be applied to restoration.

Preserve Habitat Management Activities (CD.09, CD.10, CD.11, CD.12)

Habitat restoration and enhancement in the Plan Area is expected to provide a net benefit to the natural habitats and species conserved under the HCP. However, some of these activities will result in ground disturbance and/or the removal of undesirable vegetation, resulting in short-term adverse effects to Covered Species and their habitat. Therefore, these actions are included as Covered Activities. It is estimated that habitat management activities will result in approximately 48.5 acres of temporary impacts over the life of the permit.

The Conservation District will conduct habitat enhancement activities in the following areas:

- Cone Camp Property Dedication Area (CD.09)
- Flood Control Land Dedication Area (CD.10)
- Spineflower Preservation Area (CD.11)
- District Conserved and District Managed Lands (CD.12)

Species Surveys, Monitoring, and Research (CD.13)

Under the direction of the Conservation District, the Preserve Manager, 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 HCP, is covered by the HCP.

Research conducted on the HCP Preserve in support the biological goals and objectives of the HCP is covered by the HCP ITP if it is approved by the Conservation District, is conducted by persons with appropriate permits or other authorizations, and will have negligible effects on populations of Covered Species. Research not meeting these criteria will not be covered by the HCP. It is estimated that species surveys and monitoring will result in 0.5 acres of temporary impacts.

2.3 Projects and Activities Not Covered by the HCP

During development of the HCP, other activities were considered but rejected for inclusion as Covered Activities. These activities are not covered by this HCP. If take authorization is needed for any activities not covered by the HCP, it would have to be obtained independently from the Wildlife Agencies by the appropriate party.

2.3.1 Utility Construction and Maintenance

Public and private utility infrastructure maintained by entities that are not the Permittees or HCP Participating Entities, 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 HCP. If improvements to utilities are required as

part of an HCP Covered Activity and included as part of the Covered Activity design, those improvements are covered as part of that Covered Activity.

2.3.2 Freeway Operation and Maintenance

Freeway operation and maintenance activities that occur within the 210 Freeway ROW or any other areas within the Plan Area are not covered by the HCP.

2.3.3 Potential Trail Across the Woolly-star Preserve Area

As noted above a trail crossing of the Santa Ana River and the WSPA is envisioned by trail planners to connect to the Santa Ana River Trail in Redlands. This potential crossing is not covered by this HCP. The envisioned trail would cross the WSPA at Cone Camp Road and would be subject to relevant or applicable authorities and approvals. It is recognized here only to provide a full description of activities contemplated in the Plan Area.

2.3.4 Greenspot Bridge and Road Realignment

The City of Highland recently realigned a portion of Greenspot Road and upgraded the realigned area from a two- to a four-lane roadway. It also constructed a new four-lane bridge where Greenspot Road crosses the Santa Ana River. This was originally contemplated as a Covered Activity in the HCP but Highland constructed the project prior to HCP completion. It separately provided biological mitigation for 3.4 acres of temporary impacts and 4.4 acres of permanent impacts on SBKR critical habitat through a FESA Section 7 consultation with the USFWS. Highland has participated both financially and as a member of the Task Force in the development of the HCP. It continues to participate as a Task Force member. Because of Highland's participation and investment in the development of the HCP, the HCP has reserved the mitigation values for Highland's Greenspot Road for a project outside the Plan Area. The reserved mitigation value, 7 acres, can be used to offset impacts on SBKR unoccupied critical habitat.

2.3.5 General Urban Development

Any development projects 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.

2.4 Take Authorization for Activities on Federal Lands

For activities associated with the HCP that occur on federal lands, such as groundwater recharge basin construction, aggregate mining, management and monitoring, and O&M activities on BLM lands, exemption for any associated incidental take will be provided through a formal Section 7 consultation on the proposed land exchange between the BLM and the Conservation District or through other future formal consultation. The HCP includes an analysis of HCP associated activities on Federal land in the Plan Area and provides mitigation for them in the form of permanent conservation and management and avoidance and minimization measures. The impacts analysis and mitigation provided in the HCP will be incorporated into the Section 7 consultation.

Chapter 3
Plan Area and Biological Resources

3.1 Physical Characteristics

3.1.1 Geology and Soils

The Plan Area[16] 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 vicinity of the Plan Area. The down-dropped San Bernardino Valley block underlies the Plan Area 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 Plan Area. 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 class sizes vary from that of fine size to boulders. All materials within the Plan Area are classified in the Soboba Series, specifically Soboba stony loamy sand.

The Plan Area 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 groundwater 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 in 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

[16] The information about the Plan Area in this chapter is drawn primarily from the biological technical reports prepared by URS, LSA, and Dudek in connection with preparation of the 2008 Upper Santa Ana River Land Management and Habitat Conservation Plan Document, the Wash Plan Habitat Conservation Plan (this HCP), the Wash Plan HCP EIR, and the EIS for the BLM land exchange and SCRMP amendment.

sand. A small area of Hanford coarse sandy loam occurs in the northeastern part of the Plan Area. This is a well-drained soil formed in recent granitic alluvium on valley floors and alluvial fans that contains sandy loam to a depth of about 60 inches.

3.1.2 Climate

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

3.1.3 Groundwater

The Plan Area overlies the Bunker Hill Basin. The Bunker Hill Basin is one of the largest groundwater basins in the upper Santa Ana River watershed and is a groundwater recharge zone. Its boundaries are generally defined by earthquake faults, which effectively act as subsurface dams trapping groundwater, and the basin 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 groundwater, 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 basin have been identified. These are commonly referred to as Bunker Hill I, Bunker Hill II, and the Pressure Zone. The Plan Area overlies the Bunker Hill II subarea. The Pressure Zone to the west is an area where high groundwater levels have historically existed.

Many natural and artificial phenomena such as rainfall, natural stream inflow, evaporation, groundwater extractions through wells, and spreading operations for replenishment of the water supply influence groundwater levels in the Bunker Hill Basin. The Bunker Hill Basin is actively recharged by several agencies. Included are surface stream diversions made for groundwater 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 groundwater recharge. The Conservation District and its predecessors have been diverting water from the Santa Ana River and Mill Creek for over 100 and 40 years, respectively.

3.2 Land Use and Ownership

3.2.1 Existing Land Use

Existing land uses in the Plan Area 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 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 WSPA is 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. The Inland Fish and Game Club maintains an abandoned shooting range on approximately 20 acres of land in the northern part of the Plan Area on BLM land.

3.2.2 Ownership and Easements

The majority (1,906.9 acres) of the Plan Area is owned by the Conservation District, in large contiguous parcels throughout the Plan Area (Figure 3-1, Table 3-1). The County of San Bernardino, mostly Flood Control, owns the corridor along the Santa Ana River, and the parcels along Plunge Creek (1,034.6 acres). 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 mainstem and Plunge Creek. Redlands owns parcels of land in the 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. Highland owns one parcel south of Greenspot Road in the northeast portion of the Plan Area, as well as two parcels in the north-central portion of the Plan Area just west of Plunge Creek (39.9 acres).

Table 3-1. Ownership in the Plan Area

Ownership	Acres in Plan Area
Permittees and Participating Entities	
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
Others	
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**

Robertson's Ready-Mix Properties, a private landowner, owns land both in the center and on the northwest portions of the Plan Area (338.8 acres); the center property is approximately 250 feet 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 Orange County Flood Control District owns land in the farthest southeast portion of the Plan Area (14.8 acres). The remaining acreages of ownership (198.7 acres) are owned by several different entities: roadway ROWs (149.8 acres), Caltrans (37.6), and MWD (5.5 acres). Conservation easements and existing mitigation areas in the Plan Area include a conservation easement established by the Conservation District as mitigation for an aggregate

vehicle haul road, the WSPA established as mitigation for the Seven Oaks Dam, and Highland's biological mitigation areas (Figure 3-2).

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) within the South Coast Resource Management Plan (SCRMP). Approximately 972.3 acres of BLM public land managed under the SCRMP are within the Plan Area. These public lands are managed primarily for protection of sensitive species habitat, open space, and water conservation.

BLM has designated portions of land it owns in the Plan Area as an ACEC where special management attention is needed to protect and prevent irreparable damage to important wildlife resources and other natural processes. ACECs were authorized as part of the Federal Land Policy and Management Act of 1976 (FLPMA), which gives priority to the designation and protection of ACECs. Secondary designations can also be attached to an ACEC depending on the type of resources present. In the Plan Area, the secondary designation of Research Natural Area (RNA) has been applied. An RNA 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. Approximately 695.4 acres (14% of the Plan Area) are designated as an ACEC and RNA.

BLM Land Exchange

In order to facilitate conservation of the most valuable wildlife resources and to allow aggregate mining in areas with less wildlife value, a land exchange between the Conservation District and the BLM is planned for Phase 2 of the Wash Plan HCP. BLM would dispose of isolated lands of lower conservation value in exchange for higher value lands that contribute to the conservation of the covered species. The exchange would locate future aggregate mining activities adjacent to the existing mining pits and would place new lands in the Plunge Creek area, which preserve important ecological processes, build on existing conservation values in the Plan Area, and secure connectivity between them.

Approximately 315 acres of BLM land and approximately 320 acres of Conservation District land would be exchanged (Figure 3-3). Additionally, up to 85 acres of BLM land and up to 60 acres of Conservation District land are identified as "equalization parcels" and are available for exchange to equalize exchanged values, so land values are approximately equal between the parties, as required by law. 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 HCP (Table 3-2).

If the transfer of one or more equalization parcels affects the respective acreage of each of the two conservation land categories (District Conserved and District Managed Lands), then acreage would be subtracted from one category and added to the other as needed. Regardless of the ultimate balance between these two conservation land categories, the total acreage of conservation lands in the HCP Preserve will remain the same.

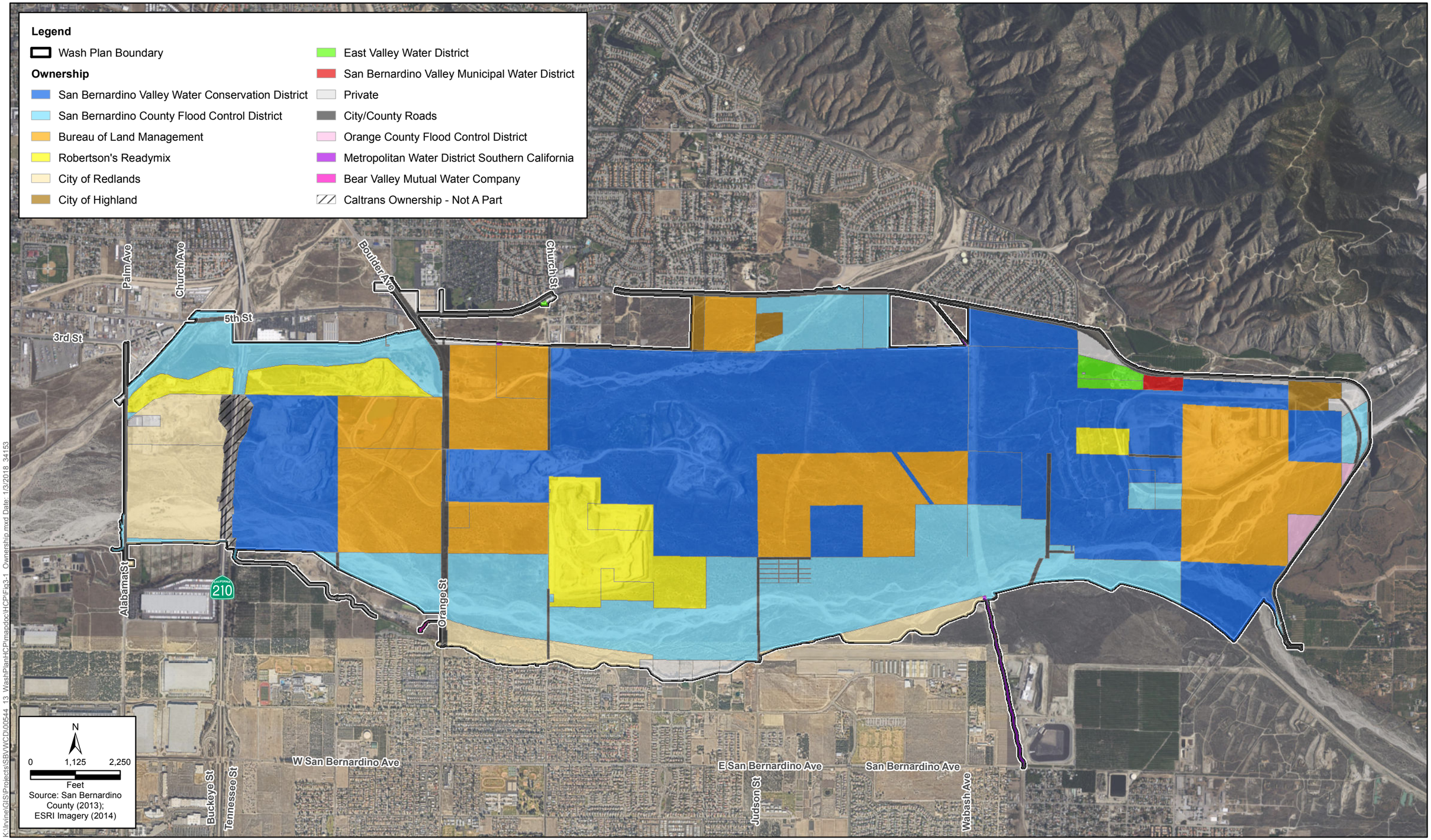
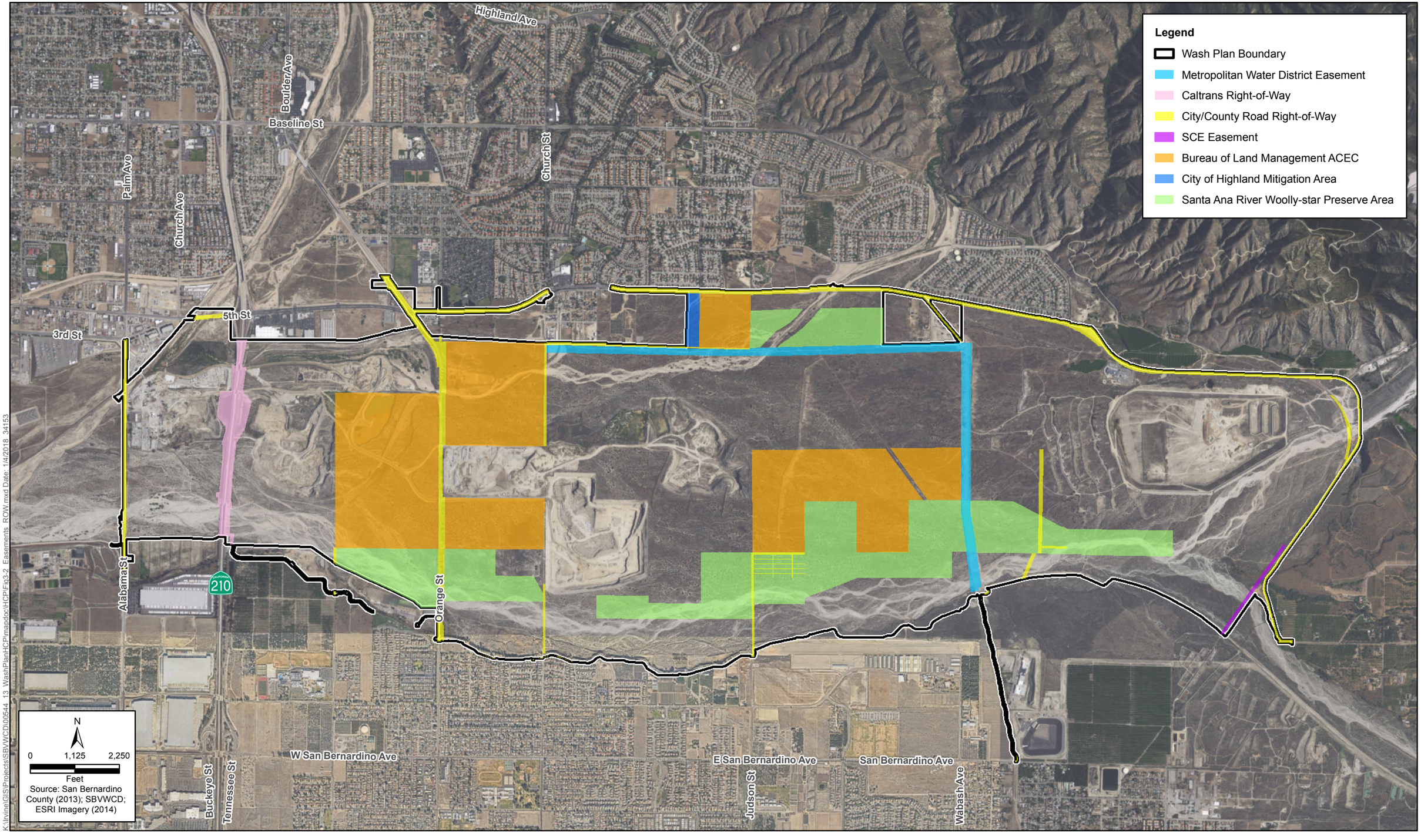


Figure 3-1
Ownership within the Plan Area
Wash Plan HCP



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Figure 3-2
Easements, Right-of-Ways, and ACEC Wash Plan HCP

WashPlan
UPPER SANTA ANA RIVER

Legend

- Wash Plan Boundary
- Existing Mining

Impact Areas

- Permanent Impacts
- Temporary Impacts

HCP Preserve

- District Conserved
- District Managed

BLM Land Exchange

- Conservation District Lands Transferred to BLM
- BLM Lands Transferred to Conservation District
- BLM Equalization Parcel to Conservation District
- Conservation District Equalization Parcel to BLM

Highland Ave
Church St
5th St
3rd St
Alabama St
210
Orange St
W San Bernardino Ave
E San Bernardino Ave
San Bernardino Ave
Buckeye St
Tennessee St
Judson St
Wabash Ave

N

0 1,125 2,250

Feet

Source: San Bernardino County (2013); ESRI Imagery (2014)

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Figure 3-3
BLM Land Exchange
Wash Plan HCP

WashPlan
UPPER SANTA ANA RIVER

Table 3-2. Proposed Land Exchange between the BLM and the Conservation District

	Proposed Land Use							
	Conservation		Permanent Impacts					
Land Exchange	**District Conserved Lands**	**District Managed Lands**	**New Mining**	**Water Conservation**	**Other**	**Existing Mining**	**Neutral Lands**	**Total**
From BLM to Conservation District – Core	- -	109.7	149.9	- -	8.6	41.5	17.5	**327.2**
From BLM to Conservation District – Equalization	- -	83.8	- -	- -	2.5	1.6	2.4	**90.3**
Subtotal	- -	193.5	149.9	- -	11.1	43.1	19.9	**417.5**
From Conservation District to BLM – Core	237.4	- -	- -	73.9	- -	- -	0.7	**312.0**
From Conservation District to BLM – Equalization	58.9	- -	0.4	- -	- -	0.1	0.0	**59.4**
Subtotal	296.3		0.4	73.9	- -	0.1	0.7	**371.4**
Total	**296.3**	**193.5**	**150.3**	**73.9**	**11.1**	**43.2**	**20.6**	**788.9**

Notes: If one or more of BLM equalization parcels are not transferred to the Conservation District, the acres of conservation will not change but will, instead, be categorized as District Managed Lands.
If the Conservation District equalization parcel is not transferred to BLM, the land use designation will remain District Conserved Lands.

The Conservation District proposes to transfer mining leases on lands containing sensitive habitat areas and areas necessary for long-term water recharge operations to land presently owned by BLM, which is immediately adjacent to existing mining operations. Therefore, the exchange will result in a minor loss of lands for water conservation. The Conservation District proposes to allow aggregate mining on portions of the land 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 an ACEC for habitat preservation and water conservation purposes. The land exchange will not result in an increase of total area mined, as described in this HCP.

After the land exchange, former BLM lands would either be used for Covered Activities (aggregate mining) or become part of the HCP Preserve as District Conserved Lands (Table 3-2). The Conservation District will provide for the permanent conservation of the District Conserved Lands under their ownership by recording a conservation easement approved by the Wildlife Agencies on the properties. Land that BLM receives from the Conservation District and the ACEC lands they

retain will contribute to the Wash Plan HCP conservation strategy. They will not be available for aggregate mining, off-highway vehicle use, or other activities that are incompatible with the conservation of Covered Species. The land they receive from the Conservation District will be designated under the HCP as District Conserved Lands. Of the 788.9 acres of land potentially involved in the land exchange, 235.3 acres would be permanently impacted by Covered Activities, 489.8 acres would be conserved as part of the HCP Preserve, 20.6 acres would be designated as Neutral Lands, and 43.2 acres are existing mining lands.

The BLM land exchange was initiated in 2005 with an Agreement to Initiate (ATI) between the Conservation District and the BLM. The ATI was revised and renewed in 2015. Initial environmental review was completed with the circulation of a draft EIS. The current HCP has been developed, in part, as a response to comments received on that draft EIS, which requested more specificity regarding species and habitat management. During the environmental review process for this HCP, an appraisal will be conducted such that at the Record of Decision for the HCP EIS, the land title can be transferred to complete the exchange.

Authority to initiate the land exchange through the FLPMA requires federal legislative action to remove an early twentieth century land use restriction. Absent this legislative action, Phase 1of the Wash Plan HCP may be implemented, but Phase 2 and the associated take of Covered Species cannot be authorized through the Wash Plan HCP.

3.3 Vegetation and Land Covers

Eight primary vegetation and land covers have been mapped on site. 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 3-4). Table 3-3 lists the acres of each vegetation or land cover type in the Plan Area.

3.3.1 Sage Scrub Habitats

Riversidean Alluvial Fan Sage Scrub (RAFSS)

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.

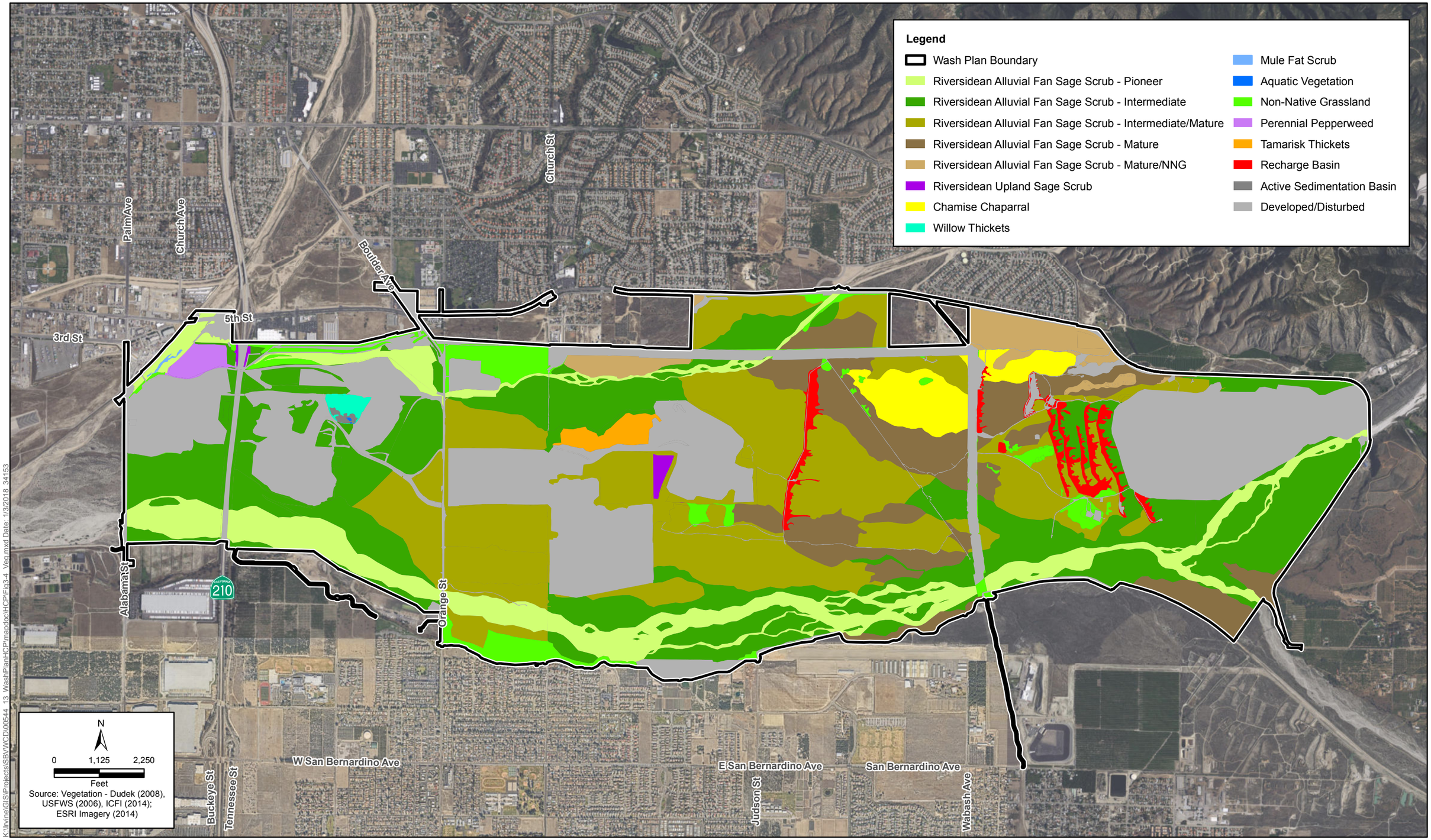


Figure 3-4
Vegetation Types in the Plan Area
Wash Plan HCP

Table 3-3. Vegetation and Land Cover Types in the Plan Area

Vegetation Community / Land Cover Types	Acres
RAFSS –Pioneer	470.9
RAFSS –Intermediate	1,129.7
RAFSS –Intermediate/Mature	1,057.8
RAFSS –Mature	536.8
RAFSS –Mature/Non-Native Grassland	109.2
Riversidean Upland Sage Scrub (RSS)	9.4
Sage Scrub Subtotal	*3,313.7*
Willow Thickets	11.3
Mule Fat Scrub	1.4
Aquatic Vegetation	0.2
Riparian/Aquatic Subtotal	*12.9*
Non-Native Grassland	156.3
Perennial Pepper Weed	21.1
Tamarisk Thickets	30.0
Non-Native Subtotal	*207.4*
Recharge Basin	68.9
Active Sedimentation Basin	2.9
Developed/Disturbed	1,286.4
Existing Feature Subtotal	*1,358.2*
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 cryptogamic soil crusts.[17] 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 RAFSS – intermediate/mature.

Mature Riversidean Alluvial Fan Sage Scrub

The highest elevated terraces are where flooding only occurs during extreme and rare events and support 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*) and holly-leaved cherry (*Prunus ilicifolia*) for the mature phase. Total vegetative cover in the 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 (RSS)

RSS 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. RSS 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 (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), California encelia (*Encelia californica*), and several species of sage (*Salvia* sp.) (Holland 1986). Other common species include brittlebush (*Encelia farinosa*), lemonade berry (*Rhus integrifolia*), sugarbush (*Rhus ovata*), yellow bush penstemon *(Keckiella antirrhinoides*), Mexican elderberry (*Sambucus mexicana*), sweetbush *(Bebbia juncea*), boxthorn *(Lycium californicum),* coastal prickly-pear *(Opuntia littoralis),* coastal cholla *(Cylindropuntia prolifera)*, tall prickly-pear (*Opuntia oricola*), and species of dudleya *(Dudleya sp.).*

[17] Cryptogamic soil crusts, also known as *biological soil crusts*, are communities of living organisms on the soil surface in arid and semi-arid ecosystems. They perform important ecological roles including soil stabilization.

On site, RSS includes brittlebush, deerweed (*Acmispon glaber*), spiny redberry (*Rhamnus crocea*), California sagebrush, California buckwheat, white sage (*Salvia apiana*), and yerba santa (*Eriodictyon crassifolium*). Physical characteristics include gravely, sandy, and/or silty soil with few cobbles. Within the Plan Area, RSS predominantly occurs on cut slopes that have been revegetated where no alluvial processes are present.

3.3.2 Riparian and Aquatic Habitats

Willow Thickets

The active aggregate 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 Fremont 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 include black willow, pepperweed, and California sagebrush.

Aquatic Vegetation

The active aggregate 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.

3.3.3 Non-Native Habitats

Non-Native Grassland

Disturbance by maintenance (e.g., mowing, scraping, discing, spraying), 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 (*Bromus* spp.) as well as native and non-native annual forb species. Physical characteristics include clay soils or fine-textured loamy soils.

Perennial Pepperweed

One area dominated by perennial pepperweed, 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 pepperweed, as well other species such as mustards (*Brassica* spp.) 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 aggregate 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 are 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.

Other Invasive Species

Fountain grass, (*Pennisetum* setaceum), stinknet (*Oncosiphon piluliferum*), non-native mustards and other invasive species have been detected at various locations in the Plan Area. They do not constitute distinct habitats but are found interspersed within the native upland and riparian plant communities. They will be controlled as part of the larger invasive plant species management program and the temporary impacts resulting from these control efforts has been incorporated into the overall numbers for invasive species control.

3.3.4 Existing Features

Recharge Basins

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

Active Sedimentation Basin

The active aggregate 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 be 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/Disturbed

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. Areas identified as disturbed are areas that lack vegetative cover or have vegetative cover dominated by non-native species, such as shortpod mustard (*Hirschfeldia incana*) and red-stemmed filaree (*Erodium cicutarium*). These areas are generally the result of severe or repeated

mechanical disturbance. Areas dominated by non-native grasslands are not included in the disturbed category.

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, cactus wren, gnatcatcher, and SBKR), which also summarize what is known about their occurrence in the Plan Area.

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Table 3-4. 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 (ICF 2014). See Figure 3-5.	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 USFWS 2010c). Soil textures 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 (IPNI 2014) based on its morphological and phylogenetic distinctiveness (USFWS 2010c). 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 (USFWS 2010c). Plants are mostly outcrossing but also self-fertile (Ferguson and Ellstrand 1999). 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 (USFWS 2010c). The single-seeded fruits are located in involucres with hooked spines that may attach to wildlife for dispersal. Seeds are glabrous with no dispersal mechanisms of their own (Reveal 2005). Although not well understood, seed dispersal may occur by local overland flow during rain events (USFWS 2010c). 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 2010c).	Primary threat is habitat modification or destruction from development, aggregate 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 (USFWS 2010c).

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 (USFWS 2010c). Three flowers per involucre; one fruit per flower; one seed per fruit (Reveal 2005).	Typically germinates with a 6–52% survival rate in February (USFWS 2010c, Ferguson and Ellstrand 1999). Blooming period is typically from April to June (CNPS 2014). Seed banks are long-lasting, which helps maintain the species in dry years (USFWS 2010c). Within each population, wide fluctuations in population size occur due to seasonal rainfall (USFWS 2010c).

Special Management Considerations

With very few occurrences of this species within the Plan Area, each location has conservation value. This species has very particular micro-habitat requirements, which also adds value to the current extant occurrences. A management approach that can propagate the species in new areas and also allow for successful transplantation will be required to secure future populations and allow development in currently occupied areas.

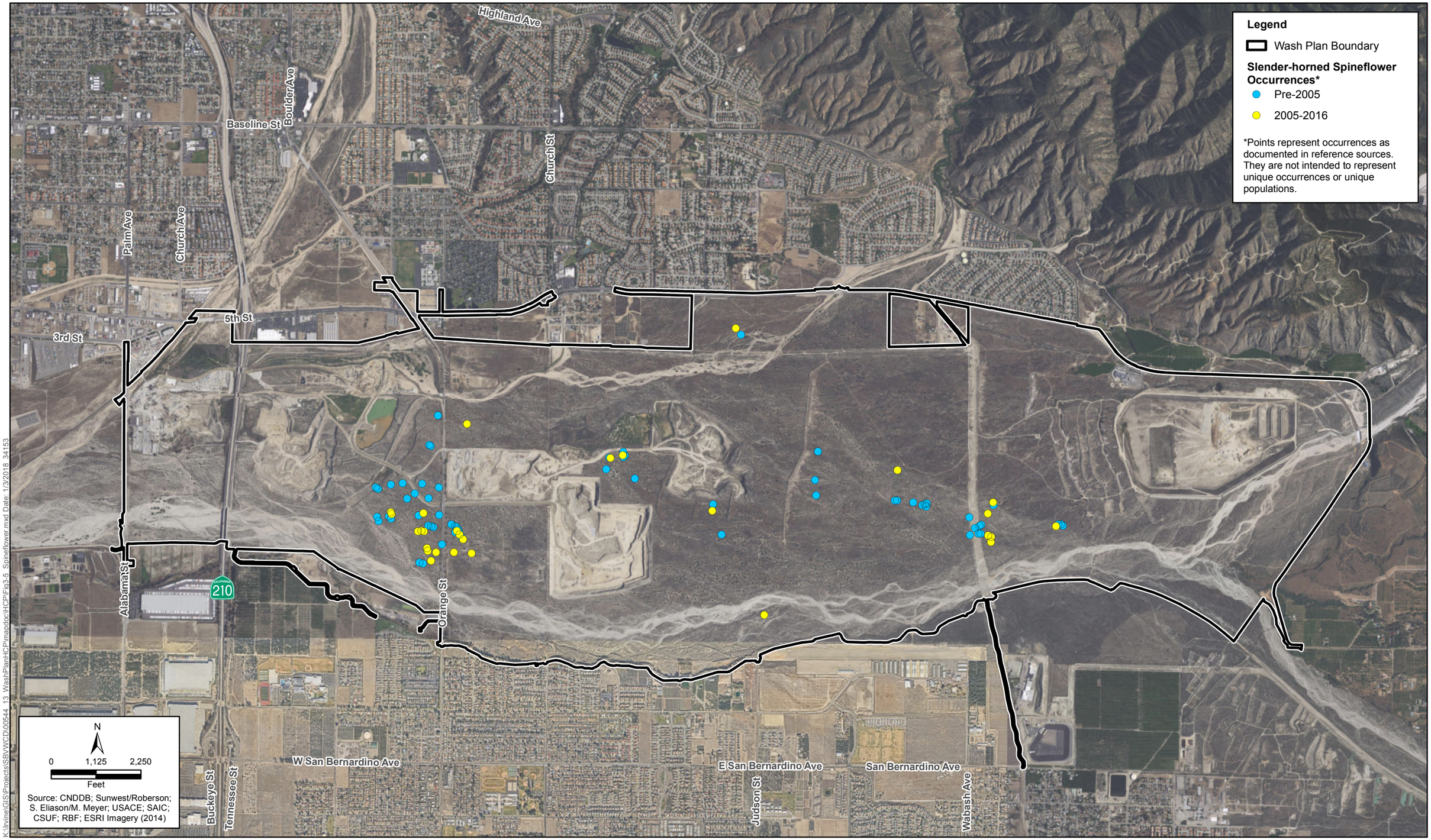
Other Relevant Information

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 (USFWS 2010c). 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											

CRPR = California Rare Plant Rank; FE = Federally Endangered; SE = State Endangered



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Figure 3-5
Slender-horned Spineflower Occurrences
Wash Plan HCP

WashPlan
UPPER SANTA ANA RIVER

Table 3-5. 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, occurs on the terraces associated with the Santa Ana River, Plunge Creek, Mill Creek, and City Creek. See Figure 3-6.	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 (USFWS 2010d). 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 (IPNI 2014). 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 (USFWS 2010d).	Self-incompatible and an obligate outcrosser (USFWS 2010d). 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*) (USFWS 2010d). 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 (USFWS 2010d), but some stay in the capsule that can remain on the plant for several years (USFWS 2010d). Seeds and capsules can be transported longer distances by floodwater (USFWS 2010d).	The primary threat is habitat alteration from development, aggregate 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 (USFWS 2010d).

Life History/ Demography	Seasonal Phenology
Perennial subshrub. Typically living 5 years but some individuals known to live to 10 years (USFWS 2010d). Each head typically produces 4–30 flowers, each flower 1 fruit (a capsule), each with 6–33 seeds (De Groot 2014). Seeds germinate with the first major fall rainfall (USFWS 2010d).	Blooming is typically from April to September (CNPS 2014), but most heavily in June. Fruiting typically occurs from mid-July to mid-October (USFWS 2010d).

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.

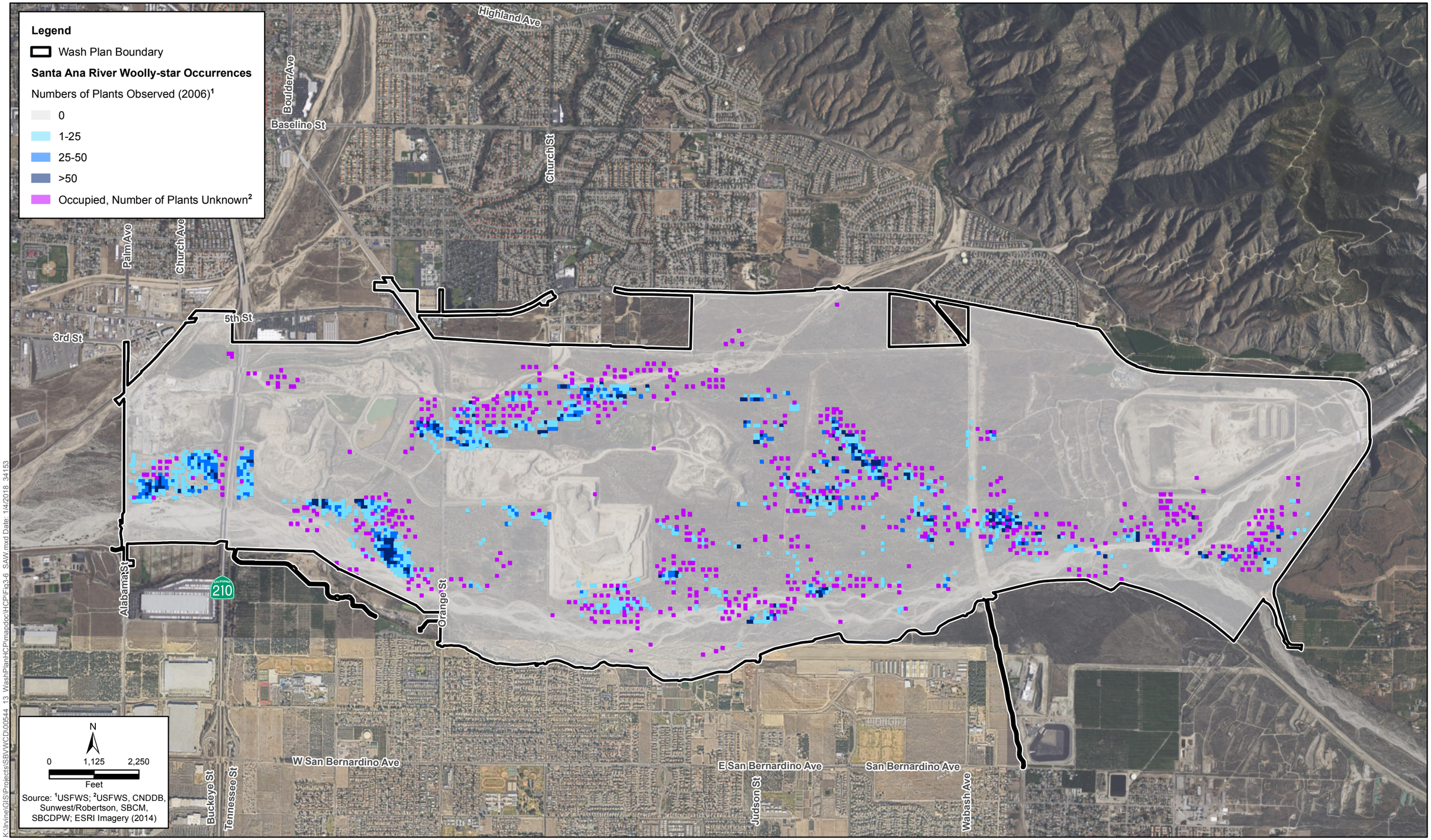
Other Relevant Information

The building of the Seven Oaks Dam has reduced the Plan Area's natural flooding pattern that would create scour and suitable habitat for this species. Active management practices of redirecting flows to mature terraces can be an effective management technique, as can creating new sand lenses.

Phenology

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

CRPR = California Rare Plant Rank; FE = Federally Endangered; SE = State Endangered



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Figure 3-6
Santa Ana River Woolly-star Occurrences
Wash Plan HCP

Table 3-6. Cactus Wren (*Campylorhynchus brunneicapillus*)

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 (Hamilton et al. 2011). Within the Plan Area, occurs along the alluvial plains of the Santa Ana River, Plunge Creek, and Mill Creek. See Figure 3-7.	Requires native scrub with extensive cholla (*Cylindropuntia*) or prickly-pear (*Opuntia*), (typically ≥3.3 feet tall). In preferred scrub, non-cactus shrubs are 1.6–3.3 feet tall, especially California buckwheat (*Eriogonum fasciculatum*) and California sagebrush (*Artemisia californica*). Scrub types dominated by shrubs >6.6 feet tall or sages (*Salvia* spp.) tend to be avoided (Hamilton et al. 2011).	Nests in prickly pear, cholla, or yucca between 3 and 6 feet tall (Hamilton et al. 2011), and averaging 4 to 5 feet tall (Solek and Szijj 2004). Other documented nest shrubs include chamise, juniper, and mountain mahogany. Both male and female build the nest (Hamilton et al. 2011, Cornell 2014). Lays 3–5 eggs per clutch (Solek and Szijj 2004). Only female incubates, which lasts for 16–17 days (Hamilton et al. 2011, Solek and Szijj 2004), and eggs hatch asynchronously (Hamilton et al. 2011). Nestlings fledge 17 to 23 days after hatching (Hamilton et al. 2011). Cactus patches preferred for nesting have minimal percent cover of shrubs within the cactus, and those shrubs are normally below level of nest placement (Hamilton et al. 2011).	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 (Hamilton et al. 2011). 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 (Solek and Szijj 2004, Preston and Kamada 2012). Development has removed large tracts of cactus and has fragmented what is left, which limits dispersal between patches of suitable habitat, creating isolated populations. Decreased gene flow could weaken a population's ability to adapt to changing environmental conditions and potentially lead to localized extinction (Hamilton et al. 2011, Preston and Kamada 2012). Anthropogenic increase in cover of exotic grasses and forbs in scrub understory may decrease foraging efficiency (Hamilton et al. 2011).

Daily/Seasonal Activity	Diet and Foraging	Systematics	Territoriality/ Home Range
Year-round, non-migratory resident. Typically does not make long distance seasonal movements (Hamilton et al. 2011, Solek and Szijj 2004). Breeds February to September (Hamilton et al. 2011, Simons and Martin 1990). Builds nests throughout the year for roosting (Solek and Szijj 2004).	Forages on the ground or low in shrubs (Hamilton et al. 2011, Solek and Szijj 2004). Diet consists mainly of insects, such as grasshoppers, ants, beetles, and wasps (Hamilton et al. 2011). As summarized in (Solek and Szijj 2004), 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* (Hamilton et al. 2011), two occur within southern California. *C.b. sandiegensis* is found in San Diego County and southern Orange County, whereas populations elsewhere on the coastal slope are classified as *C.b.anthonyi* (Solek and Szijj 2004). Current molecular evidence does not support historical separation of gene lineages between *C.b. sandiegensis* and *C.b. anthonyi* populations (Teutimez 2012), but does indicate recent genetic differentiation of subpopulations, presumably due to habitat fragmentation (Barr et al. 2013).	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 mile from breeding areas (Hamilton et al. 2011). Within southern California, territories typically range from 1.2 to 5 acres (Solek and Szijj 2004). Larger territories have been recorded in drought conditions, when prey populations are depressed (Hamilton et al. 2011). Territories have been recorded as large as 16.5 acres (Hamilton et al. 2011).

Special Management Considerations

The presence of healthy mature cactus patches is the most important factor for cactus wren habitat. Appears to be affected by edge-related habitat degradation, rather than aversion to the edge per se, which suggests that restoration of cactus scrub habitat along urban edges could be beneficial (Hamilton et al. 2011). Long recovery times for cactus after fire limit the species' ability to recolonize suitable habitat for long periods after fire; use of planted cactus patches or nest boxes may speed the process (Hamilton et al. 2011). These types of enhancement actions could also benefit cactus wrens in locations where cactus patches are in poor health (possibly due to disease and/or drought).

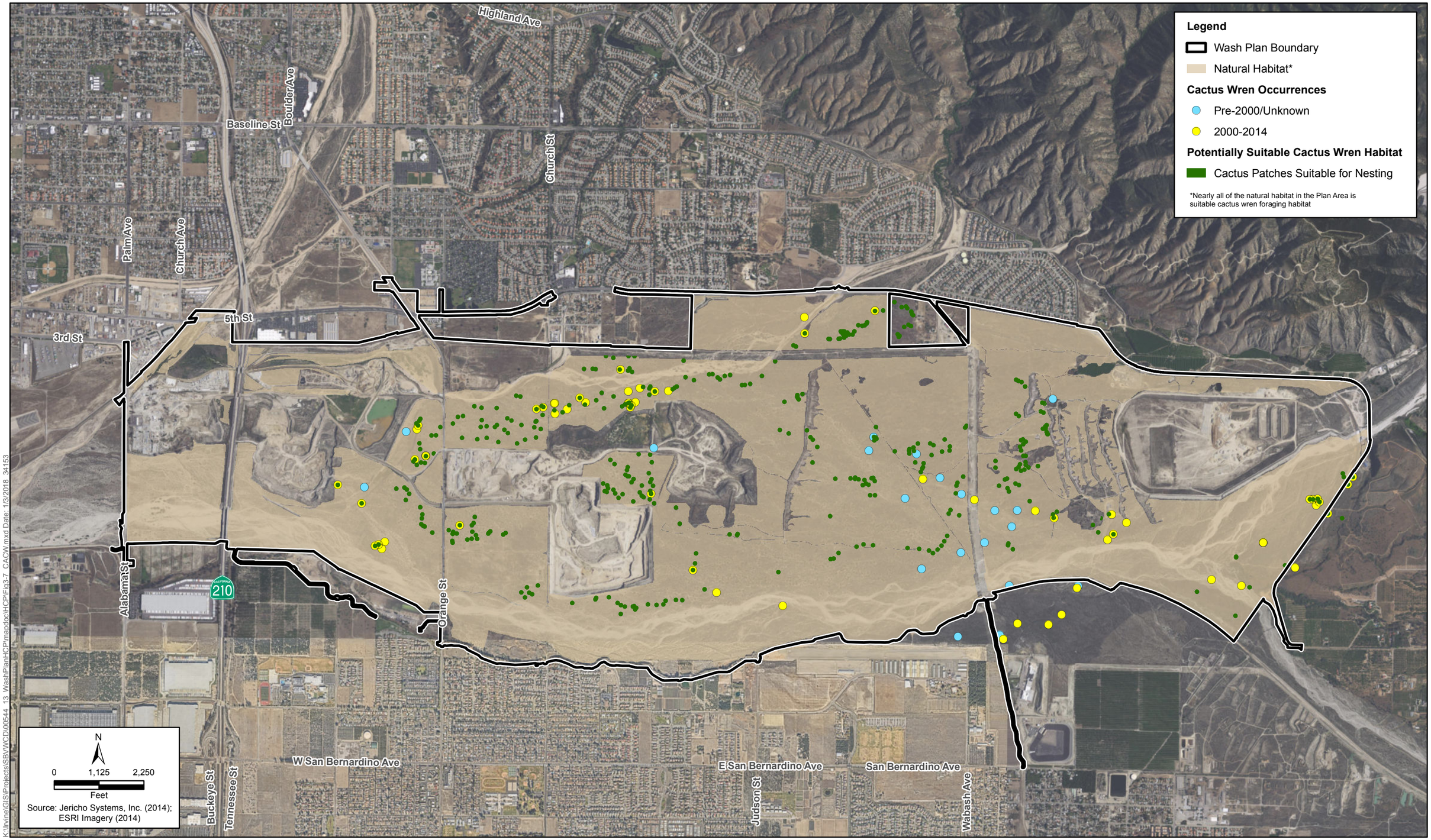
Other Relevant Information

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

Phenology

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

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Figure 3-7
Potentially Suitable Cactus Wren Habitat and Occurrences
Wash Plan HCP

Table 3-7. Coastal 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 the Plan Area, it has been recorded sporadically within the Santa Ana River Wash and Mill Creek (ICF 2014, USFWS 2014, eBird 2012). A small breeding population also occurs just outside the Plan Area to the south from near Opal Avenue and eastward. See Figure 3-8.	Occurs in sage scrub and alluvial sage scrub habitats (Atwood 1993). Suitable sage scrub habitat includes canopy cover of 50% or greater with a height of approximately 3 feet and typically includes *Artemisia californica, Eriogonum fasciculatum, Encelia californica, E. farinosa*, and various species of *Salvia* (Beyers and Wirtz 1997).	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 (USFWS 2010b). 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 (Atwood 1993). Natal dispersal is largely connected with corridors of native vegetation. Juveniles generally disperse approximately 1.4 miles from their natal site depending on habitat availability and condition (Bailey and Mock 1998). Maximum recorded dispersal distances for juvenile male and female Gnatcatcher were 6 and 18 miles, 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 (Atwood 1993).

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 (Atwood 1993).	Gleans insects from vegetation, primarily *Artemisia* and *Eriogonum* (Atwood 1993). May eat some seeds (Kucera 1997). Foraging range is dependent on condition of coastal sage scrub (variation of plant species and shrub cover), food availability, and time of year (breeding season vs. non-breeding season) (Atwood 1993).	One of three subspecies of gnatcatcher. The coastal California gnatcatcher (*P.c. californica)* is the northernmost subspecies of California gnatcatcher. Other subspecies (*P.c. pontilis* and *P.c. margaritae*) are located in Baja California (Atwood 1993).	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 (Kucera 1997). The size of a territory ranges between 2 and 14 acres (USFWS 2010b) 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*, as 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 Area-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)												

Legend

Wash Plan Boundary

Coastal California Gnatcatcher Occurrences

Pre-2000/Unknown

2000 - 2011

Coastal California Gnatcatcher Habitat Assessment

High Quality (potential nesting and wintering habitat)

Medium Quality (potential wintering habitat)

Low Quality (potential foraging and dispersal habitat)

Highland Ave
Church St
Palm Ave
Church Ave
5th St
3rd St
Alabama St
210
Orange St
W San Bernardino Ave
Buckeye St
Tennessee St
E San Bernardino Ave
Judson St
San Bernardino Ave
Wabash Ave

N

0 1,125 2,250

Feet

Source: Chambers Group, Gonzales, SAIC; USFWS; ESRI Imagery (2014)

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ICF

Figure 3-8
Coastal California Gnatcatcher Habitat Assessment and Occurrences
Wash Plan HCP

WashPlan
UPPER SANTA ANA RIVER

Table 3-8. 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 (USFWS 1998). Within 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 3-9.	Primary habitat is Riversidean alluvial fan sage scrub within active alluvial floodplains (USFWS 1998). 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 (USFWS 2002). A high density of non-native grass is the best negative predictor of occupancy (USFWS 2010b).	Reproductive activities peak in June and July (USFWS 2009), but pregnant or lactating females can be present January to November (USFWS 1998). Capable of more than one litter per year and typical size is 2–3 individuals (Jones 1993). Breeding varies in relation to ecological conditions, with individuals not breeding when plant productivity is poor (Brown and Harney 1993).	Philopatric so tends to establish home ranges close to natal range (French 1993). Movements of 44–66 yards are common (USFWS 1998), and long-distance events can be over 263 yards (Zeng and Brown 1987). However, more than 85% of individuals disperse less than 136 yards (Jones 1989). Dispersal is slightly male-biased (Jones 1989).	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 (Brown and Harney 1993), and therefore can be active at the surface year-round. Crepuscular (emerging from burrows at dusk to forage	Primarily granivores (seed eaters), but consume herbaceous material and insects when available (Reichman and Price	One of three subspecies of Merriam's kangaroo rat (*Dipodomys merriami*) in California (USFWS 2009). No genetic studies conducted (USFWS 2009).	Individuals are primarily solitary but have overlapping home ranges (Randall 1993). Tend to tolerate familiar neighbors more than strangers and may have long-term	

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 (Behrends et al. 1986). Surface activity reduced during full moon periods (Daly et al. 1992a).	1993). Collects seeds in cheek pouches and stores them in surface caches (Daly et al. 1992b) or in burrow. Water requirements satisfied by seeds and herbaceous material consumed (French 1993).	However, is the most highly differentiated subspecies of *Dipodomys merriami* (Lidiker 1960).	associations with the same individuals (Randall 1993). Actively defend small core areas near burrows (Jones 1993). Sand baths may be important to establish familiarity between individuals (Randall 1991). Average male home ranges may be slightly larger than that of females (1.83 versus 0.64 acres) (Jones 1989).

Special Management Considerations

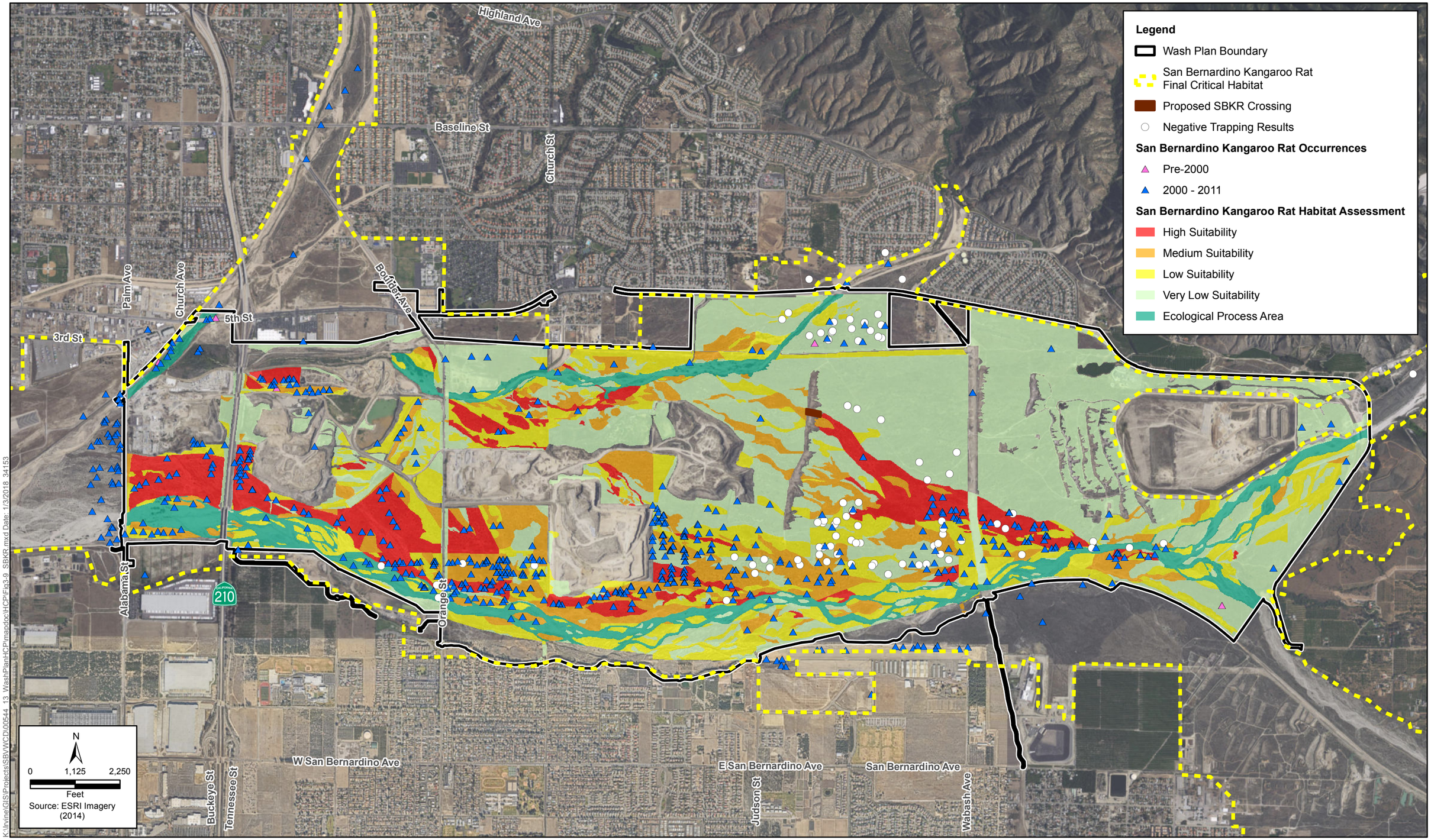
Because existing flood control structures, roads, and dams have altered fluvial processes, long-term maintenance of high-quality habitat through vegetation management and fluvial processes will be important for conservation in the Plan Area. Pioneer- and intermediate-stage alluvial fan sage scrub, which tends to occur on the terraces above the low flow channel, provides the highest quality habitat because it is sandy and fairly open, and has low vegetation cover. The density of non-native annual grasses is particularly important as it affects the species' burrowing, locomotion, and foraging ability. Results from published reports typically suggest a negative relationship between perennial canopy cover and the species' abundance, especially when canopy cover exceeds 30–50% (Stamp and Omhart 1978, Braden and McKernan 2000). Experimental thinning of vegetation in the Santa Ana River resulted in an increase in use of the more open habitat. Mature-stage alluvial fan sage scrub is less suitable as primary habitat because of the typical dense vegetation cover, but is important as refugia in high flow events. Consequently, natural fluvial processes, whereby cycles of flooding and dry periods result in dynamic fluctuations of terraces and habitat, are crucial.

Other Relevant Information

Currently, the suitable habitat connection between City Creek and the Santa Ana River is constrained at Alabama Street with a very narrow swath of habitat. The suitable habitat connection between City Creek and Plunge Creek is constrained at Interstate 210 and Plunge Creek where only a very narrow swath of habitat is present. The suitable habitat connection between Plunge Creek and the Santa Ana River is constrained by maturing vegetation characteristics and the presence of non-native grasses.

Phenology

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



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Figure 3-9
San Bernardino Kangaroo Rat Habitat Assessment Results and Trapping Data
Wash Plan HCP

3.4.1 Mapping Species 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 for wildlife and impacts for plants), 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 were 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 suitable habitat was used in conjunction with occurrence data. Supplemental habitat assessment surveys were conducted to map habitat suitability for SBKR and gnatcatcher.

Predicted 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 geographic information system (GIS) database that can affect the suitability of habitat.

It is important to note that the predicted 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 HCP Preserve 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, U.S. Geological Survey (USGS) 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.
- Results of the 2006 slender-horned spineflower surveys conducted by California State University Fullerton.
- Eliason and Meyer 1997.
- Surveys conducted by RBF in 2012.
- Surveys conducted by Science Applications International Corporation (SAIC) in 2005 and 2006.

Mapping Habitat Distribution

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 Adverse Impacts and Developing the Conservation Strategy

Identification of HCP Preserve lands (District Conserved and District Managed Lands) focused on concentrations of known occupied habitat, while future spineflower surveys will be conducted throughout the HCP Preserve to inform future management and monitoring for this species. Potential loss of spineflower from Covered Activities is calculated based on the known occurrences. Pre-activity surveys will document actual loss 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 area surveys conducted by California State Fullerton and Psomas.
- Sunwest/Robertson's woolly-star dataset (Lilburn Corporation 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- by 25-meter grid system that was established as part of the 2006

surveys conducted by California State Fullerton and Psomas was overlaid onto the HCP boundary. Each grid area 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 areas marked as not present. If a recorded observation of woolly-star occurred within a not present grid, that grid was reassigned to "present, number unknown." All grid areas were considered occupied where one of these categories were present (>50, 25–50, 1–25, and present, number unknown), and the pattern of occupied grid areas was used to map the species distribution in the Plan Area.

Applications for Estimating Adverse Impacts and Developing the Conservation Strategy

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

Coastal 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 gnatcatcher habitat was mapped by identifying the areas of RSS with appropriate structure. Gnatcatcher fitness is positively correlated with increased perennial structure, which is evenly distributed horizontally, perennial shrub cover that is nearly continuous (not patchy), increasing vertical perennial structure (different shrub heights), and decreasing perennial diversity (most of the plants are the same species) (Braden et al. 1997). Using these variables, the gradient of the vegetation structure was evaluated and ranked as not suitable, low, medium, or high quality habitat for gnatcatcher.

Applications for Estimating Take and Developing the Conservation Strategy

The number of gnatcatcher occurrences in the Plan Area is limited. Therefore, the assessment of the of HCP Preserve lands (District Conserved and District Managed Lands) for gnatcatchers focused on the areas of high and medium quality habitat with the potential to support nesting and/or wintering individuals. Future gnatcatcher surveys will be conducted throughout the HCP Preserve to inform future management and monitoring for this species. Potential take of the species from Covered Activities is calculated based on the distribution of suitable nesting habitat and the known occurrences. Pre-activity surveys will document actual take that is unavoidable just prior to initiation of the Covered Activity.

Cactus wren

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

- San Bernardino County Museum occurrence database.

- 2014 fieldwork completed specifically for the Wash Plan HCP.
- Cactus wren Conservation Group database.
- USGS cactus wren genetic study (2012).

Mapping Habitat Distribution

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

Nearly all of the natural habitat in the Plan Area is suitable cactus wren foraging habitat.

Applications for Estimating Take and Developing the Conservation Strategy

The identification of HCP Preserve lands (District Conserved and District Managed Lands) focused on the areas of suitable nesting habitat. Future cactus wren surveys will be conducted throughout the HCP Preserve to inform future management and monitoring for this species. Potential take of the species from Covered Activities is calculated based on the distribution of suitable nesting habitat and the known occurrences. Pre-activity surveys will be conducted just prior to initiation of Covered Activities. Nesting cactus wrens will be avoided and unavoidable loss of cactus patches suitable for nesting will be documented.

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 2010d).
- 2008 Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Document SBKR trapping dataset 1999–2003 (URS 1999–2003).
- San Bernardino County Museum SBKR trapping dataset (Santa Ana Watershed Association and San Bernardino County Museum Databases 1999–2003).

Mapping Habitat Distribution

Several factors were considered in evaluating the proposed HCP Preserve Areas for SBKR within the Plan 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.

San Bernardino Kangaroo Rat Trapping Data

A number of presence/absence trapping surveys for SBKR have been conducted for various projects in the Plan Area, including in and adjacent to the Woolly-star Preserve Area, on lands adjacent to the existing aggregate mines, as well as preconstruction surveys for projects related to water transport (i.e., East Branch Extension II pipeline) and groundwater 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., BLM's ACEC and USACE's 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 HCP Preserve includes habitat preferred by SBKR, areas near the active channel with pioneer and intermediate RAFSS, and habitat that supports refugia populations of SBKR[18] (e.g., mature RAFSS on alluvial terraces above the main channel).

Ecological Processes

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

SBKR Habitat Suitability Model

An SBKR 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 habitat suitability. Other areas were identified as having no potential habitat suitability:

- Areas of high 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 habitat suitability was modeled where either more suitable vegetation types overlapped less suitable geology or where less suitable vegetation types overlapped more suitable geology.

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

- Low 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 suitable habitat.

SBKR Habitat Assessment

A systematic survey of suitable SBKR habitat in the Plan Area was conducted by the USFWS and RBF Corporation. Survey points were selected using stratified random sampling across the Plan Area. Sampling was stratified by proposed land use type, including existing conservation areas (e.g., the WSPA and BLM's ACEC), areas proposed for conservation through the HCP, and areas where Covered Activities were proposed such as aggregate mining and groundwater recharge basins. Various indicators of habitat quality were recorded. These included substrate (i.e. the percent above ground cover of cobble and rocks versus sand and gravel), vegetation type, presence of non-native vegetation, vegetative cover, and cryptogamic soil crusts. These data were subsequently used to assist in ranking habitat quality within the Plan Area.

Each distinct polygon in the Plan 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% or less, and areas with significant coverage of large rocks were uncommon, being primarily in the east end of the Plan Area in the active channel of the Santa Ana River. The presence of very heavy shrub cover, greater than 70%, 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% or less,[19] the polygon was considered to be of high quality; if the estimated percent cover of annual grasses was 31 to 50%, the polygon was considered to be of medium quality; if the estimated cover of annual grasses was between 51 and 70% the polygon was of low quality; and if the percent cover of annual grasses was greater than 70%, the polygon was considered trace.

[19] 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%. This HCP used 30% 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% were still of high quality.

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), this HCP considered all types of habitat within the Plan Area to be occupied. However, it was assumed that differences in habitat quality would affect the relative abundance of SBKR at different sites such that that there would generally be higher densities of animals in areas assessed as high quality than in areas assessed as medium or low quality.

Applications for Estimating Take and Developing the Conservation Strategy

The identification of HCP Preserve Areas (District Conserved and District Managed Lands) focused on the areas of high to medium habitat suitability as a first priority. Future SBKR surveys will be conducted throughout the HCP Preserve to inform future management and monitoring for this species. Potential take of the species from Covered Activities is calculated based on the distribution of all modeled habitat suitability categories (high, medium, low, trace, and ecological process areas) and the known occurrences. Pre-activity surveys will document actual take that is unavoidable just prior to initiation of the Covered Activity.

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Chapter 4
Potential for Take and Estimated Impacts

4.1 Approach

Implementation of Covered Activities may result in some incidental take or loss of Covered Species. This chapter examines the potential for the Covered Activities to result in such take or loss 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 4-1 through 4-6 show 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 the tables included in the sections that follow. The implementation of the HCP has been divided into two phases (pre-BLM land exchange and post-BLM land exchange) spanning the 30-year permit term (see Section 6.2.1, *Stay Ahead Phasing, and Tracking Impacts and Mitigation*). All Covered Activities are anticipated to occur within Phase 1, with the exception of aggregate mining activities on land previously held by BLM, which will occur in Phase 2 according to the mining phasing schedule listed in Table 2-2.

4.1.1 Permanent and Temporary Impacts

Permanent impacts are impacts that occur when existing habitat is permanently replaced by the construction or implementation of a Covered Activity. All permanent impacts were calculated based on the overlay process described above. Temporary impacts occur when habitat is removed but then allowed to regrow and recover some habitat value for Covered Species. Temporary impacts may be one time impacts, such as impacts associated with a construction staging area, or may be recurring impacts as are associated with vegetation management for facility maintenance (e.g., access road or basin maintenance).

Temporary impacts were estimated based on a proportional amount of habitat expected to be impacted on an annual basis and then extrapolated across the 30-year permit term. For example, for a Covered Activity such as maintenance of a groundwater recharge basin, it is anticipated that up to 1% of the basin will need to have vegetation removed for maintenance per year (on average), or up to 5% within a 5-year period. If the basin was 100 acres in total size then up to 5 acres would be temporarily removed over each 5-year period, or up to 30 acres over the 30-year permit term. The 30 acres of the total 100 acres (30%) is extrapolated as a proportional temporary impact across the land cover types mapped within the 100-acre polygon. Therefore, if for example, non-native grassland occupied 4 acres of the 100-acre polygon, then 30% of those 4 acres (or 1.2 acres) are estimated to have temporary impacts at some time over the 30-year permit term (Table 4-1).

Table 4-1. Hypothetical Example of Estimation of Temporary Impacts

O&M Period	Years 1–5	Years 6–10	Years 11–15	Years 16–20	Years 21–25	Years 26–30	Total Temporary Impact (acres)
Developed/Disturbed (5 acres)	0.25	0.25	0.25	0.25	0.25	0.25	1.5
Active Basin (90 acres)	4.5	4.5	4.5	4.5	4.5	4.5	27
Non-Native Grassland (4 acres)	0.2	0.2	0.2	0.2	0.2	0.2	1.2
Aquatic Vegetation (1 acre)	0.05	0.05	0.05	0.05	0.05	0.05	0.3
Total (100 acres)	*5*	*5*	*5*	*5*	*5*	*5*	*30*

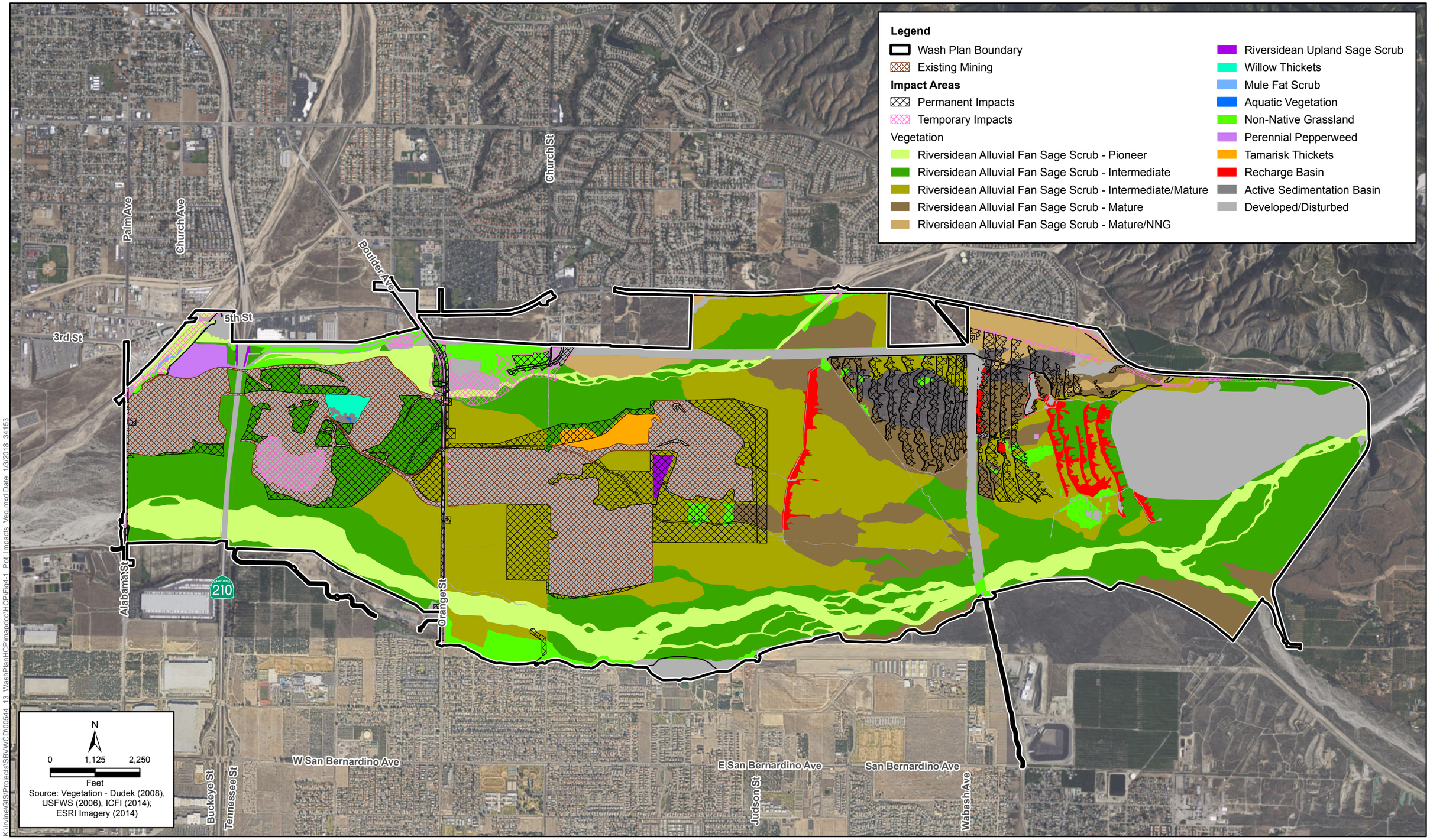
4.2 Permanent and Temporary Impacts on Vegetation Communities

Permanent and temporary impacts of Covered Activities on each vegetation community are summarized in Table 4-2. The amount of each vegetation community expected to be conserved under the HCP (or that will be in other forms of conservation) has also been provided for comparison.

The permanent impacts of each Covered Activity on the vegetation communities are summarized in Table 4-3, and temporary impacts are summarized in Table 4-4. Figure 4-1 depicts the Covered Activities' footprint on vegetation communities.

The plant communities of most importance to, and/or found in association with, the Covered Species are the various seral stages of RAFSS and RSS. Within these categories intermediate RAFSS and RSS are the most frequently utilized by SBKR and gnatcatcher, and where nesting gnatcatcher are most likely to nest. RAFSS and RSS with cactus patches and/or yucca (potential nest sites) are most utilized by cactus wren. Woolly-star and slender-horned spineflower can be expected to be found in open areas between shrubs within the associated RAFSS and RSS habitats. Woolly-star is more likely to be associated with earlier seral stages of RAFSS because it establishes in areas opened up by fluvial process. Spineflower is more likely to be found in older flood terrace areas where active flood scouring rarely occurs but where there is sheet flow of water in major storm events. In the Plan Area it is most often found in association with California junipers.

The majority of impacted acres (401.5 acres) is associated with new or resumed aggregate 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.



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Figure 4-1
Potential Impacts on Vegetation Communities
Wash Plan HCP

Table 4-2. Effects on and Conservation of Vegetation Communities (acres)

Vegetation	Impacts		HCP Preserve				Future SBCFCD Mitigation Area	Neutral Lands
	Permanent Impact	Temporary Impact	District Conserved Lands	SBCFCD Conserved Lands	District Managed Lands	*HCP Preserve Total*		
Sage Scrub								
RAFSS – Pioneer	1.4	36.5	119.9	87.0	35.9	*242.7*	56.5	90.9
RAFSS – Intermediate	158.8	17.9	230.6	74.9	236.8	*542.3*	79.3	163.8
RAFSS – Intermediate/Mature	258.9	10.5	160.0	7.9	316.5	*484.4*	11.7	118.4
RAFSS – Mature	116.6	7.8	166.3	9.0	57.3	*232.6*	0.0	93.1
RAFSS – Mature/Non-Native Grassland	9.8	7.5	27.8		0.0	*27.8*		69.3
RSS	7.8	0.0						1.6
Sage Scrub Subtotal	*553.3*	*80.3*	*704.6*	*178.7*	*646.4*	*1,529.8*	*147.5*	*537.1*
Riparian/Aquatic Vegetation								
Willow Thickets	0.2							11.1
Mule Fat Scrub		2.7						1.4
Aquatic Vegetation								0.2
Riparian/Aquatic Subtotal	*0.2*	*2.7*						*12.7*
Non-Native Vegetation								
Non-Native Grassland	24.1	16.7	7.0	2.1	19.3	*28.4*	1.4	101.5
Perennial Pepper Weed	0.1	0.0						21.0
Tamarisk Thickets	7.6							22.4
Non-Native Subtotal	*31.8*	*16.7*	*7.0*	*2.1*	*19.3*	*28.4*	*1.4*	*144.9*
Existing Features								
Recharge Basin	1.2	15.0	10.8		8.8	*19.6*		48.1
Active Sedimentation Basin	0.0							2.9
Developed/Disturbed	29.2	102.0	55.2	4.9	21.6	*81.7*	2.0	523.2
Existing Feature Subtotal	*30.4*	*117.0*	*66.0*	*4.9*	*30.4*	*101.3*	*2.0*	*574.2*
Total Acreage	**615.7**	**216.6**	**777.6**	**185.7**	**696.1**	***1,659.5***	**150.9**	**1,269.0**

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Table 4-3. Permanent Impacts of Individual Covered Activities on Vegetation Communities

	Sage Scrub							Riparian/Aquatic Vegetation				Non-Native Vegetation				Existing Features				
Covered Activity ID	**RAFSS – Pioneer**	**RAFSS – Intermediate**	**RAFSS – Intermediate/ Mature**	**RAFSS – Mature**	**RAFSS – Mature/NNG**	**RSS**	***Sage Scrub Subtotal***	**Willow Thickets**	**Mule Fat Scrub**	**Aquatic Vegetation**	***Riparian/Aquatic Subtotal***	**Non-Native Grassland**	**Perennial Pepper Weed**	**Tamarisk Thickets**	***Non-Native Subtotal***	**Recharge Basin**	**Active Sedimentation Basin**	**Developed/ Disturbed**	***Existing Feature Subtotal***	**Total**
CD.01							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.02							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.03							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.04							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.05							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.06							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.07			2.4	8.8	0.6		*11.8*				*0.0*	0.1			*0.1*			0.1	*0.1*	**12.0**
CD.09							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.10							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.11							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.12							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CRM.01		152.8	211.5	9.6		7.7	*381.6*	0.2			*0.2*	8.3		7.6	*15.9*			3.1	*3.1*	**400.7**
CRM.02	0.3						*0.3*				*0.0*		0.1		*0.1*			0.4	*0.4*	**0.8**
CRM.03							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
EVWD.03							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
EVWD.04			0.2	1.1	0.2		*1.5*				*0.0*				*0.0*				*0.0*	**1.5**
EVWD.07							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
EVWD.08							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
FC.01							*0.0*		0.0		*0.0*				*0.0*				*0.0*	**0.0**
FC.02							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
FC.03							*0.0*		0.0		*0.0*				*0.0*				*0.0*	**0.0**
FC.04							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
FC.09	0.3	2.4			0.1		*2.8*				*0.0*	8.1			*8.1*			4.5	*4.5*	**15.3**
High.01							*0.0*				*0.0*				*0.0*			0.9	*0.9*	**0.9**
High.02	0.2	1.1	0.6				*1.9*				*0.0*	0.7			*0.7*			1.1	*1.1*	**3.8**
High.03	0.1	2.0	0.3	2.7	3.4		*8.5*				*0.0*	0.3			*0.3*			26.3	*26.3*	**35.2**
High.10							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.11							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.12							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.13							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.15							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**

	Sage Scrub							Riparian/Aquatic Vegetation				Non-Native Vegetation				Existing Features				
Covered Activity ID	**RAFSS – Pioneer**	**RAFSS – Intermediate**	**RAFSS – Intermediate/ Mature**	**RAFSS – Mature**	**RAFSS – Mature/NNG**	**RSS**	***Sage Scrub Subtotal***	**Willow Thickets**	**Mule Fat Scrub**	**Aquatic Vegetation**	***Riparian/Aquatic Subtotal***	**Non-Native Grassland**	**Perennial Pepper Weed**	**Tamarisk Thickets**	***Non-Native Subtotal***	**Recharge Basin**	**Active Sedimentation Basin**	**Developed/ Disturbed**	***Existing Feature Subtotal***	**Total**
High.16							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.19							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.20							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.21							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.22							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.23	0.2		1.4				*1.6*				*0.0*	1.7			*1.7*			0.4	*0.4*	**3.7**
Redl.02	0.1		1.0				*1.1*				*0.0*	0.9			*0.9*				*0.0*	**2.0**
Redl.03				0.1			*0.1*				*0.0*	0.1			*0.1*			0.1	*0.1*	**0.2**
Redl.04							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.05							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.06							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.07							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.08							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.09		0.6		0.9			*1.5*				*0.0*	0.2			*0.2*			1.3	*1.3*	**3.0**
Redl.09.2							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.10							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.11							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.13			1.4				*1.4*				*0.0*				*0.0*				*0.0*	**1.4**
Redl.14	0.2	1.1					*1.3*				*0.0*				*0.0*			6.6	*6.6*	**7.9**
Redl.15	0.2		2.6				*2.8*				*0.0*	0.6			*0.6*			6.4	*6.4*	**9.8**
Redl.16							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.17							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.19							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.01			37.0	96.1	8.9		*142.0*				*0.0*	3.4			*3.4*	1.2		2.7	*4.0*	**149.5**
VD.02							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.03							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.04			0.0				*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.05			0.0				*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.06							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.07			0.1		0.1		*0.1*				*0.0*				*0.0*			0.1	*0.1*	**0.2**
VD.09		0.8	0.7				*1.5*				*0.0*				*0.0*			1.4	*1.4*	**2.9**
VD.10							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Total	**1.6**	**160.8**	**259.2**	**119.3**	**13.2**	**7.8**	***561.8***	**0.2**	**0.0**		***0.2***	**24.4**	**0.1**	**7.6**	***32.1***	**1.2**	**0.0**	**55.5**	***56.7***	**650.9**

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

	Sage Scrub							Riparian/Aquatic Vegetation				Non-Native Vegetation				Existing Features				
Covered Activity ID	RAFSS – Pioneer	RAFSS – Intermediate	RAFSS – Intermediate/ Mature	RAFSS – Mature	RAFSS – Mature/NNG	RSS	*Sage Scrub Subtotal*	Willow Thickets	Mule Fat Scrub	Aquatic Vegetation	*Riparian/Aquatic Subtotal*	Non-Native Grassland (NNG)	Perennial Pepper Weed	Tamarisk Thickets	*Non-Native Subtotal*	Recharge Basin	Active Sedimentation Basin	Developed/ Disturbed	*Existing Feature Subtotal*	Total
CD.01		1.0	2.5	0.7			*4.2*				*0.0*	0.3			*0.3*	14.9		11.3	*26.3*	**30.8**
CD.02		0.5	3.6	1.0			*5.1*				*0.0*	0.2			*0.2*			1.5	*1.6*	**6.9**
CD.03			0.1	0.1	0.1		*0.3*				*0.0*				*0.0*			0.1	*0.1*	**0.4**
CD.04							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.05							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.06							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.07							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.09							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.10							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.11							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CD.12							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CRM.01							*0.0*				**0.0**				*0.0*				*0.0*	**0.0**
CRM.02							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
CRM.03							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
EVWD.03				0.1	0.1		*0.2*				*0.0*				*0.0*			2.1	*2.1*	**2.3**
EVWD.04							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
EVWD.07			0.1	0.2			*0.3*				*0.0*				*0.0*			1.0	*1.0*	**1.4**
EVWD.08				0.0			*0.0*				*0.0*				*0.0*			0.1	*0.1*	**0.1**
FC.01	23.5	0.3		0.1			*23.9*		2.6		**2.6**	1.4			*1.5*			4.7	*4.7*	**32.8**
FC.02	0.5	0.9		0.2			*1.7*				*0.0*	0.9			*0.9*			5.6	*5.6*	**8.1**
FC.03	3.4	3.1		3.0			*9.5*				**0.0**	1.0			*1.0*			1.6	*1.6*	**12.1**
FC.04							*0.0*				*0.0*	0.2			*0.2*			40.0	*40.0*	**40.3**
FC.09	8.6	7.3			0.2		*16.1*				*0.0*	11.7			*11.7*			16.1	*16.1*	**43.9**
High.01							*0.0*				*0.0*				*0.0*			2.0	*2.0*	**2.0**
High.02							*0.1*				*0.0*				*0.0*			4.3	*4.3*	**4.4**
High.03							*0.0*				*0.0*				*0.0*			0.0	*0.0*	**0.0**
High.10			0.7				*0.7*				*0.0*				*0.0*			1.1	*1.1*	**1.8**
High.11	0.1						*0.1*				*0.0*				*0.0*				*0.0*	**0.1**
High.12							*0.0*				*0.0*				*0.0*			0.2	*0.2*	**0.2**
High.13							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.15							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.16							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.19							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.20							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**

	Sage Scrub							Riparian/Aquatic Vegetation				Non-Native Vegetation				Existing Features				
Covered Activity ID	**RAFSS – Pioneer**	**RAFSS – Intermediate**	**RAFSS – Intermediate/ Mature**	**RAFSS – Mature**	**RAFSS – Mature/NNG**	**RSS**	***Sage Scrub Subtotal***	**Willow Thickets**	**Mule Fat Scrub**	**Aquatic Vegetation**	***Riparian/Aquatic Subtotal***	**Non-Native Grassland (NNG)**	**Perennial Pepper Weed**	**Tamarisk Thickets**	***Non-Native Subtotal***	**Recharge Basin**	**Active Sedimentation Basin**	**Developed/ Disturbed**	***Existing Feature Subtotal***	**Total**
High.21							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.22							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
High.23							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.02							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.03							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.04							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.05							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.06							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.07							*0.0*				*0.0*				*0.0*			0.2	*0.2*	**0.2**
Redl.08							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.09							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.09.2							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.10	0.1						*0.1*				*0.0*				*0.0*			0.1	*0.1*	**0.1**
Redl.11	0.1		0.1				*0.2*				*0.0*				*0.0*			0.1	*0.1*	**0.3**
Redl.13			0.1				*0.1*				*0.0*				*0.0*				*0.0*	**0.1**
Redl.14							*0.0*				*0.0*				*0.0*			4.5	*4.5*	**4.5**
Redl.15							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.16							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.17							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Redl.19							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.01							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.02					0.2		*0.2*				*0.0*	0.2			*0.2*			2.7	*2.7*	**3.1**
VD.03				0.2	1.3		*1.6*				*0.0*				*0.0*			0.4	*0.4*	**2.0**
VD.04	0.1		0.8				*1.0*				*0.0*	0.7			*0.7*			0.4	*0.4*	**2.0**
VD.05		4.2	2.1	2.1	5.4		*13.8*				*0.0*				*0.0*			0.5	*0.5*	**14.3**
VD.06	0.1	0.4					*0.5*				*0.0*				*0.0*			0.5	*0.5*	**1.1**
VD.07							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
VD.09		0.1	0.4				*0.5*				*0.0*				*0.0*			0.7	*0.7*	**1.2**
VD.10							*0.0*				*0.0*				*0.0*				*0.0*	**0.0**
Total	**36.5**	**17.9**	**10.5**	**7.8**	**7.5**	**0.0**	***80.3***	**0.0**	**2.7**	**0.0**	**2.7**	**16.7**	**0.0**	**0.0**	***16.7***	**15.0**	**0.0**	**102.0**	***117.0***	**216.6**

4.3 Permanent and Temporary Impacts on Covered Species

Permanent and temporary impacts on Covered Species were calculated in the same way as calculated for impacts on vegetation communities. Table 4-5 summarizes the overall permanent and temporary impacts expected from all the Covered Activities on Covered Species habitat. The amount of each species' habitat expected to be conserved under the HCP (or that will be in other forms of conservation) has also been provided for comparison. Table 4-6 summarizes the permanent impacts by individual Covered Activity to the habitat for each Covered Species that is affected, and Table 4-7 summarizes temporary impacts by Covered Activity.

Table 4-5. Effects on and Conservation of Covered Species

	Impacts		HCP Preserve					
Species	**Permanent**	**Temporary**	**District Conserved Lands**	**SBCFCD Conserved Lands**	**District Managed Lands**	***HCP Preserve Total***	**Future SBCFCD Mitigation Area**	**Neutral Lands**
Slender-horned Spineflower								
Extant Patches	1	0	3		17	*20*	1	
Historic Occurrences	12	0	8		28	*36*		
Slender-horned Spineflower Subtotal	*13*	*0*	*11*		*45*	*56*	*1*	
Santa Ana River Woolly-star								
Known Occupied Grid Areas	34.3	3.7	94.5	5.4	104.5	*204.3*	4.4	7.6
Cactus Wren (acres)								
Cactus Patches (Primary Nesting Habitat)	13.4	0.2	14.1	0.0	18.4	*32.5*		4.6
Coastal California Gnatcatcher (acres)								
High Quality (potential nesting and wintering habitat)	0.4	1.4	35.3	12.3	22.8	*70.5*		12.6
Medium Quality (potential wintering habitat)	9.2	5.4	30.7	34.7	124.8	*190.2*	36.9	66.0
Low Quality (potential foraging and dispersal habitat)	414.6	25.7	531.0	72.3	428.2	*1,031.5*	89.0	366.2
Coastal California Gnatcatcher Subtotal	*424.2*	*32.5*	*597.0*	*119.3*	*575.9*	*1,292.2*	*125.9*	*444.8*
San Bernardino Kangaroo Rat (acres)								
High Suitability	22.4	1.9	117.8	3.6	170.4	*291.8*	0.7	5.1
Medium Suitability	67.7	1.4	85.5	36.6	105.6	*227.6*	11.5	7.8
Low Suitability	120.1	4.8	132.4	59.4	126.1	*317.9*	76.0	23.9
Very Low Suitability	359.1	55.6	299.0	22.4	237.7	*559.2*	40.8	467.5
Ecological Process Area	1.6	45.4	121.3	61.8	42.9	*226.0*	21.1	46.6
San Bernardino Kangaroo Rat Subtotal	*570.9*	*109.1*	*756.0*	*183.8*	*682.7*	*1,622.5*	*150.0*	*551.0*

Table 4-6 Effects on and Conservation of Vegetation Communities (acres)

Vegetation	Impacts		HCP Preserve					
	Permanent	Temporary	District Conserved Lands	SBCFCD Conserved Lands	District Managed Lands	*HCP Preserve Total*	Future SBCFCD Mitigation Area	Neutral Lands
Sage Scrub								
RAFSS –Pioneer	1.4	36.5	119.9	87.0	35.9	*242.7*	56.5	90.9
RAFSS –Intermediate	158.8	17.9	230.6	74.9	236.8	*542.3*	79.3	163.8
RAFSS – Intermediate/Mature	258.9	10.5	160.0	7.9	316.5	*484.4*	11.7	118.4
RAFSS –Mature	116.6	7.8	166.3	9.0	57.3	*232.6*	0.0	93.1
RAFSS –Mature/NNG	9.8	7.5	27.8		0.0	*27.8*		69.3
RSS	7.8	0.0						1.6
Sage Scrub Subtotal	*553.3*	*80.3*	*704.6*	*178.7*	*646.4*	*1,529.8*	*147.5*	*537.1*
Riparian/Aquatic Vegetation								
Willow Thickets	0.2							11.1
Mule Fat Scrub		2.7						1.4
Aquatic Vegetation								0.2
Riparian/Aquatic Subtotal	*0.2*	*2.7*						*12.7*
Non-Native Vegetation								
Non-Native Grassland (NNG)	24.1	16.7	7.0	2.1	19.3	*28.4*	1.4	101.5
Perennial Pepper Weed	0.1	0.0						21.0
Tamarisk Thickets	7.6							22.4
Non-Native Subtotal	*31.8*	*16.7*	*7.0*	*2.1*	*19.3*	*28.4*	*1.4*	*144.9*
Existing Features								
Recharge Basin	1.2	15.0	10.8		8.8	*19.6*		48.1
Active Sedimentation Basin	0.0							2.9
Developed/Disturbed	29.2	102.0	55.2	4.9	21.6	*81.7*	2.0	523.2
Existing Feature Subtotal	*30.4*	*117.0*	*66.0*	*4.9*	*30.4*	*101.3*	*2.0*	*574.2*
Total Acreage	**615.7**	**216.6**	**777.6**	**185.7**	**696.1**	***1,659.5***	**150.9**	**1,269.0**

4.3.1 Plants

Slender-horned Spineflower Impacts

The distribution of spineflower in the Plan Area is quantified in two ways: (1) by determining all of the known occurrence locations and categorizing them as historic (pre-2005) or current (2005 to

present); and (2) by estimating the total acreage and number of extant spineflower patches based on survey data.[20] Tables 4-7 and 4-8 estimate the permanent and temporary impacts on spineflower overall and from Covered Activities individually.

To provide for spineflower conservation, the majority of spineflower occurrences (both historic and extant) were avoided and will be part of the HCP Preserve. Adjacent habitat was also preserved. Protecting the habitat surrounding the spineflower sites provides opportunities for potential future restoration sites, and will ensure the preservation of ecological processes (i.e., sheet flow of water during storm events), which may be important to maintaining spineflower habitat (Figure 4-2). Covered activities are only expected to affect one extant patch of spineflower. One location, the contingency parcel, will become isolated from the other locations where it will be left as an "island" of habitat surrounded by existing and future aggregate mining operations.[21]

Avoidance and minimization measures will be implemented prior to undertaking each Covered Activity to reduce the overall magnitude of loss of individuals as much as is feasible (see Section 5.5, *Impact Avoidance and Minimization Measures*). Critical habitat has not been designated for spineflower.

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 areas (25 by 25 meters) documented as occupied by woolly-star. Tables 4-7 and 4-8 quantify the permanent and temporary impacts on woolly-star overall and from Covered Activities individually. As shown in Figure 4-3, 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 sufficient habitat connectivity between occupied areas.

Avoidance and minimization measures will be implemented prior to undertaking each Covered Activity to reduce the overall quantity of loss of individuals as much as is feasible (see Section 5.5). Critical habitat for woolly-star has not been designated.

4.3.2 Wildlife

Because of the difficulty in detecting mortality (take) of individual animals, the area of affected or lost habitat is often used to estimate take of individuals when it is possible to infer from habitat loss the approximate number of corresponding individuals or pairs. Acreage has been used in the HCP to estimate the take of individual SBKR, which has been mapped to delineate areas of higher and lower habitat quality. Acreage of breeding habitat has been used to estimate take of gnatcatcher, while cactus patches (preferred breeding habitat) has been used to estimate take of cactus wren. Breeding habitat is the limiting factor for both bird species as nearly all of the natural habitat in the plan area is viable foraging habitat. Therefore, quantification of impacts on and conservation of breeding habitat is the most appropriate way to estimate impacts to these two species.

[20] The size of extant patches in the year surveyed can be determined for some patches because they were mapped by SAIC (SAIC 2010). Where patches were not mapped or otherwise described sufficiently to estimate their size, the average patch size in the SAIC report was used.

[21] The contingency parcel, while initially conserved, could be mined in the future contingent upon the successful establishment of spineflower elsewhere in the HCP Preserve.

Cactus Wren Impacts

The distribution of 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 feet). Tables 4-7 and 4-8 quantify the permanent and temporary impacts on cactus wren nesting habitat overall and from Covered Activities individually. Expansion of the aggregate mining areas will impact three areas that have supported nesting cactus wrens and will remove some foraging habitat (Figure 4-4). However, the majority of suitable nesting habitat and known nest sites are 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 basins.

The majority of the highest quality cactus wren habitat is either in existing conserved areas (i.e., the WSPA) or will be part of the HCP Preserve, and habitat within the HCP Preserve will be managed for the benefit of cactus wren. As a result, impacts on individual cactus wrens and their habitat from Covered Activities are not expected to be significant and should not be detrimental to the overall cactus wren population in the area.

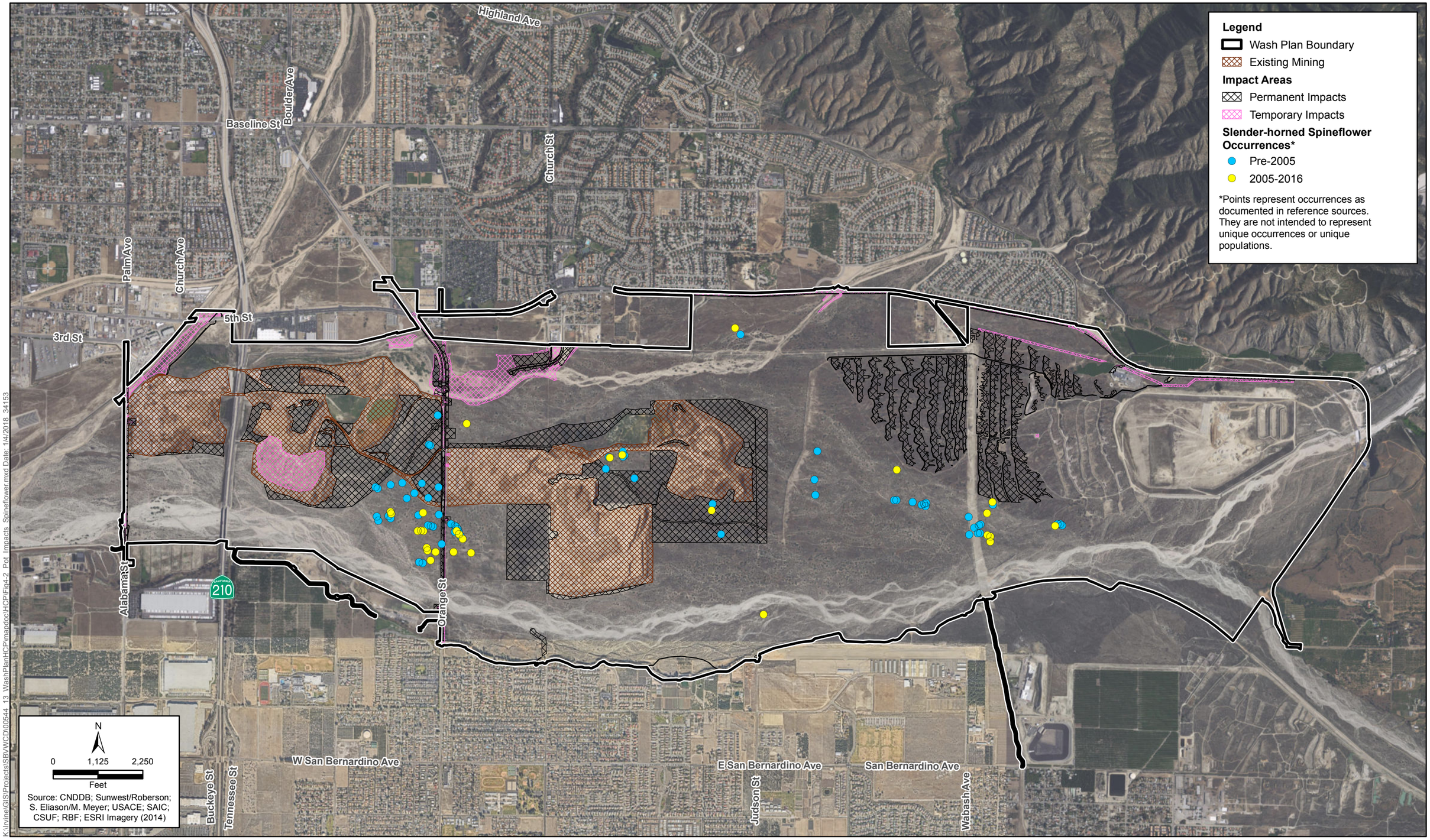
Avoidance and minimization measures will be implemented prior to undertaking each Covered Activity to avoid effects to nesting cactus wrens and minimize the loss of cactus patches (nesting habitat) as much as is feasible (see Section 5.5, *Impact Avoidance and Minimization Measures*). There is no critical habitat designated for cactus wren because it is not federally listed.

Coastal California Gnatcatcher Impacts

The distribution of gnatcatcher habitat in the Plan Area is quantified in terms of nesting habitat based on the mapped vegetation communities. Tables 4-7 and 4-8 quantify the permanent and temporary impacts on gnatcatcher overall and from Covered Activities individually (Figure 4-5). There are no known nesting records in the Plan Area; however, gnatcatchers are known to nest 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).

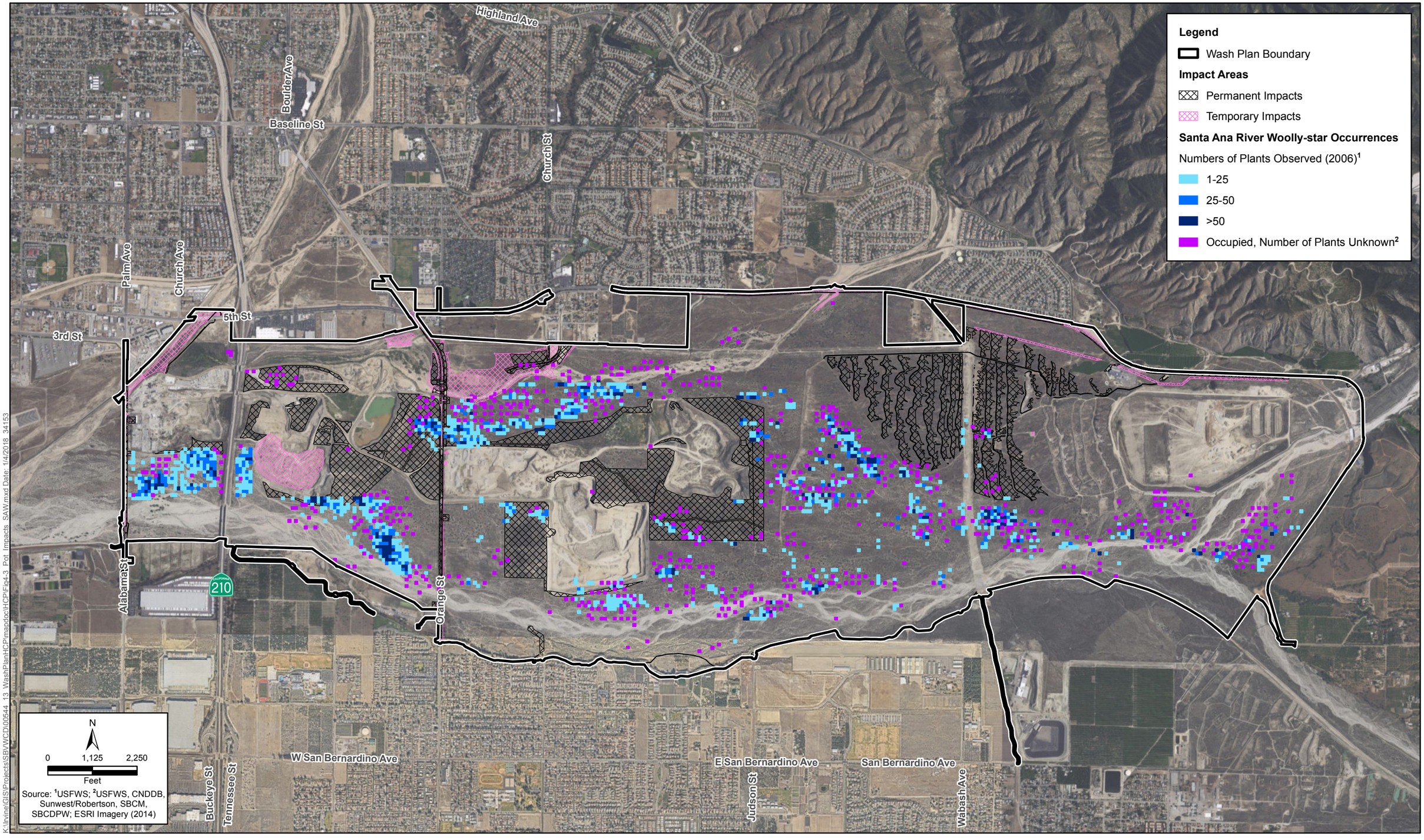
The Plan Area and adjacent lands to the south contain some of the only known extant occurrences of gnatcatcher in San Bernardino County; therefore, conservation of gnatcatcher in the Plan Area is important to the maintenance of inland populations of the species. Gnatcatcher habitat within the Plan Area was assessed to determine which areas provided the best habitat for nesting and wintering birds. The majority of the highest quality habitat is either in existing conserved areas, (i.e., the WSPA) or will be part of the HCP Preserve, and habitat within the HCP Preserve will be managed for the benefit of gnatcatcher. As a result, impacts on individual gnatcatchers and their habitat from Covered Activities are not expected to be significant and should not be detrimental to the overall gnatcatcher population in the area.

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 5.5, *Impact Avoidance and Minimization Measures*). There is no critical habitat for gnatcatcher in or adjacent to the Plan Area.



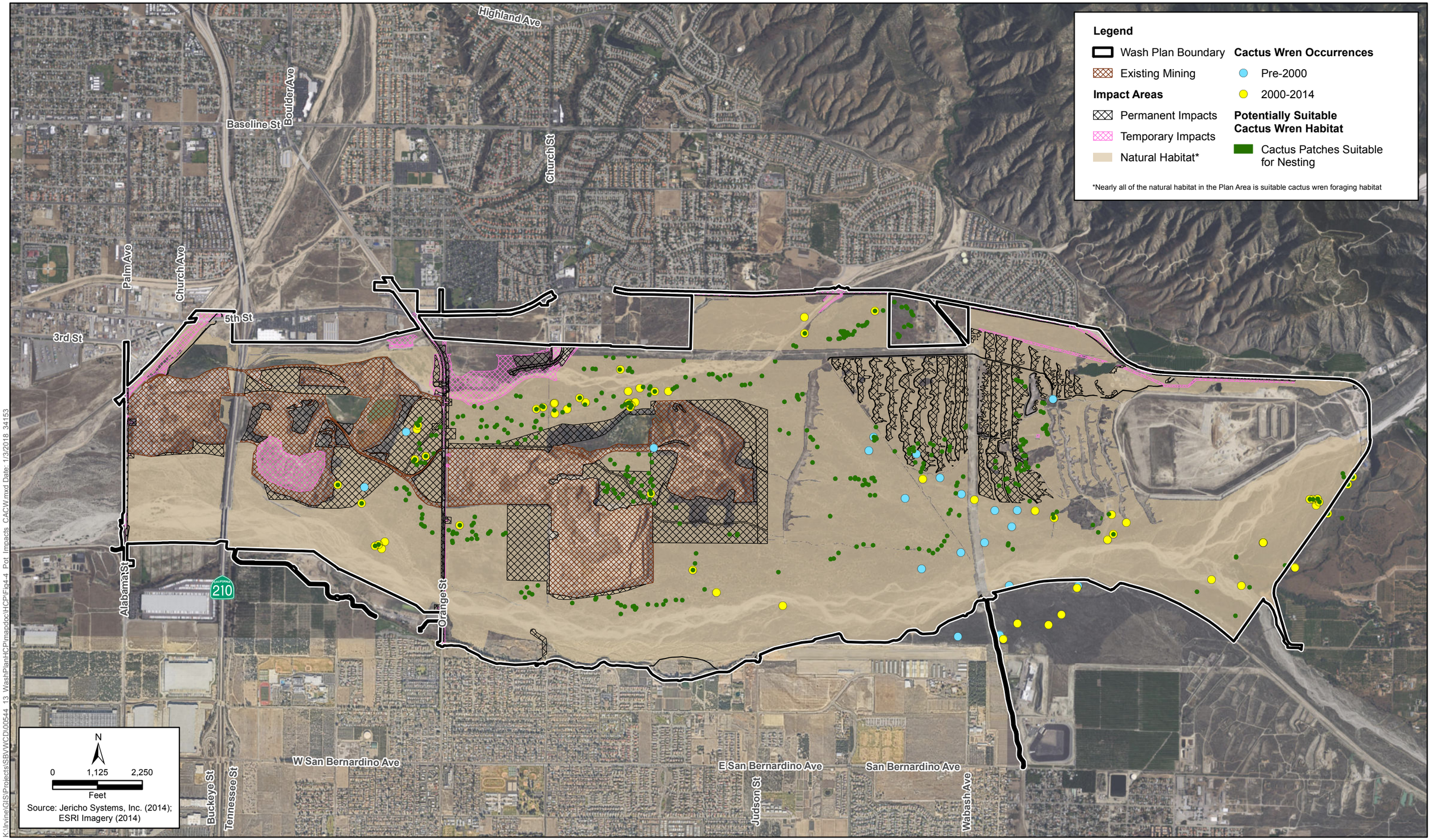
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Figure 4-2
Potential Impacts on
Slender-horned Spineflower
Wash Plan HCP



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Figure 4-3
Potential Impacts on
Santa Ana River Woolly-star
Wash Plan HCP



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Figure 4-4
Potential Impacts on Cactus Wren
Wash Plan HCP

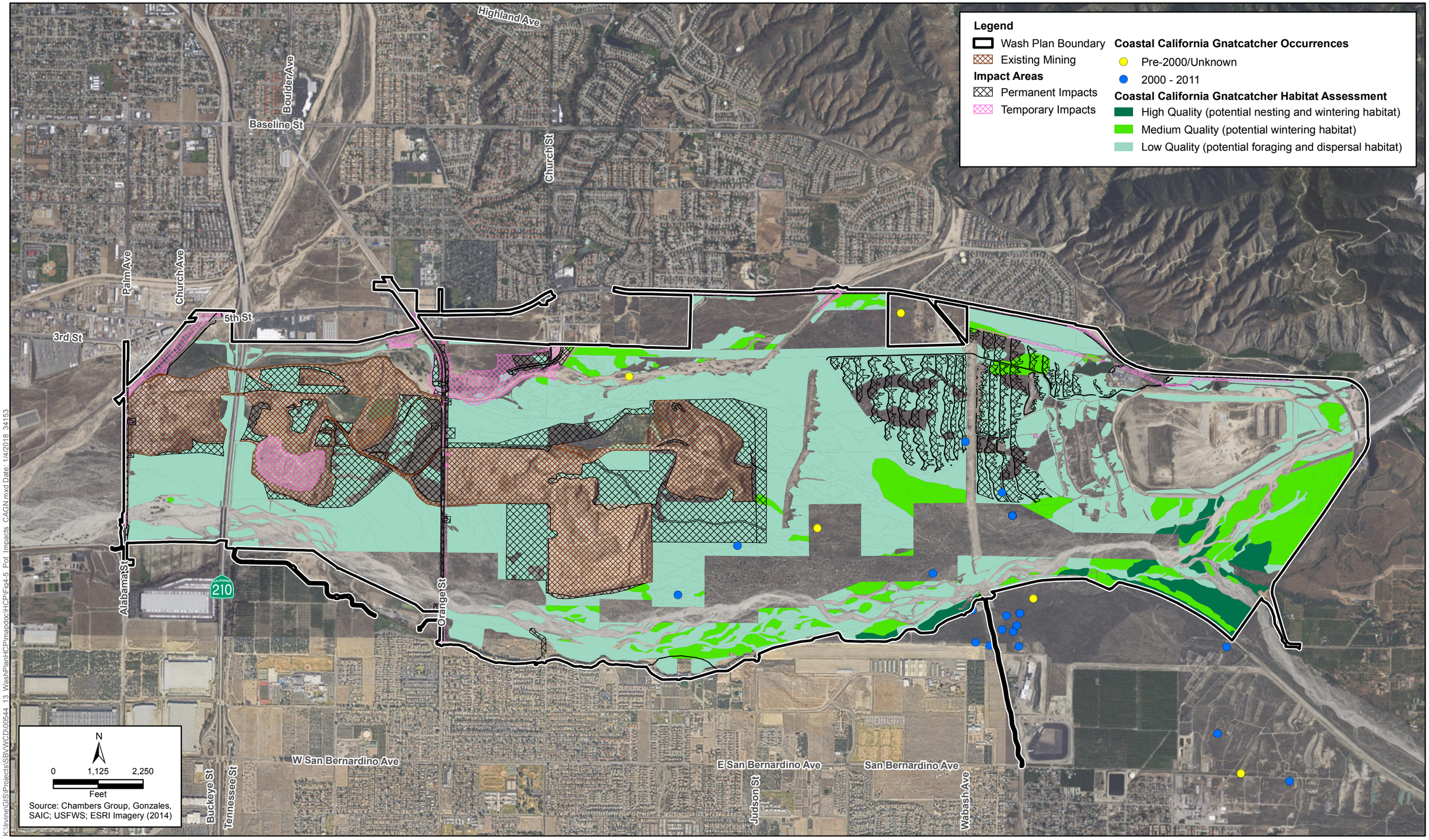


Figure 4-5
Potential Impacts on
Coastal California Gnatcatcher
Wash Plan HCP

San Bernardino Kangaroo Rat Impacts

The distribution of SBKR in the Plan Area is quantified by field mapping and systematic habitat assessment surveys (as described in Section 3.4.1, *Mapping Species Distribution in the Plan Area*). Habitat suitability was mapped into high, medium, low, and trace suitability categories. The areas supporting ecological processes that maintain SBKR suitability (hydrogeomorphic scour and deposition) were also mapped, and impacts on these areas are quantified. Tables 4-7 and 4-8 quantify the permanent and temporary impacts on SBKR overall and from Covered Activities individually. As is evident in the balance of impact in each habitat suitability type, the Covered Activities (primarily aggregate 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 4-6).

There is also the potential for take of SBKR resulting from operations and maintenance in areas of active aggregate mining. To estimate the potential take, USFWS and the Conservation District estimated 5.5 acres of aggregate mining, with 1.1 acres (20%) having the possibility of transient occupancy by SBKR in a given year, or 33 acres cumulatively during the life of the 30-year permit. USFWS estimates that the impact on 33 acres with transient occupancy could result in take of up to 17 SBKR individuals during the permit term.

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 habitat 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 Impact Avoidance and Minimization Measures in Section 5.5.

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 induce additional spread of non-native plant species. Therefore, monitoring and avoidance and minimization measures will be implemented along with an adaptive management strategy addressing non-native grass management.

With the exception of the Seven Oaks Dam borrow pit area, the entire Plan Area is included within USFWS-designated critical habitat for SBKR. The USFWS will analyze effects on critical habitat from the Covered Activities in their internal Section 7 consultation as part of the process for issuing the ITP. The conservation strategy for SBKR and additional protection and management of SBKR habitat is expected to offset any adverse effects on SBKR critical habitat.

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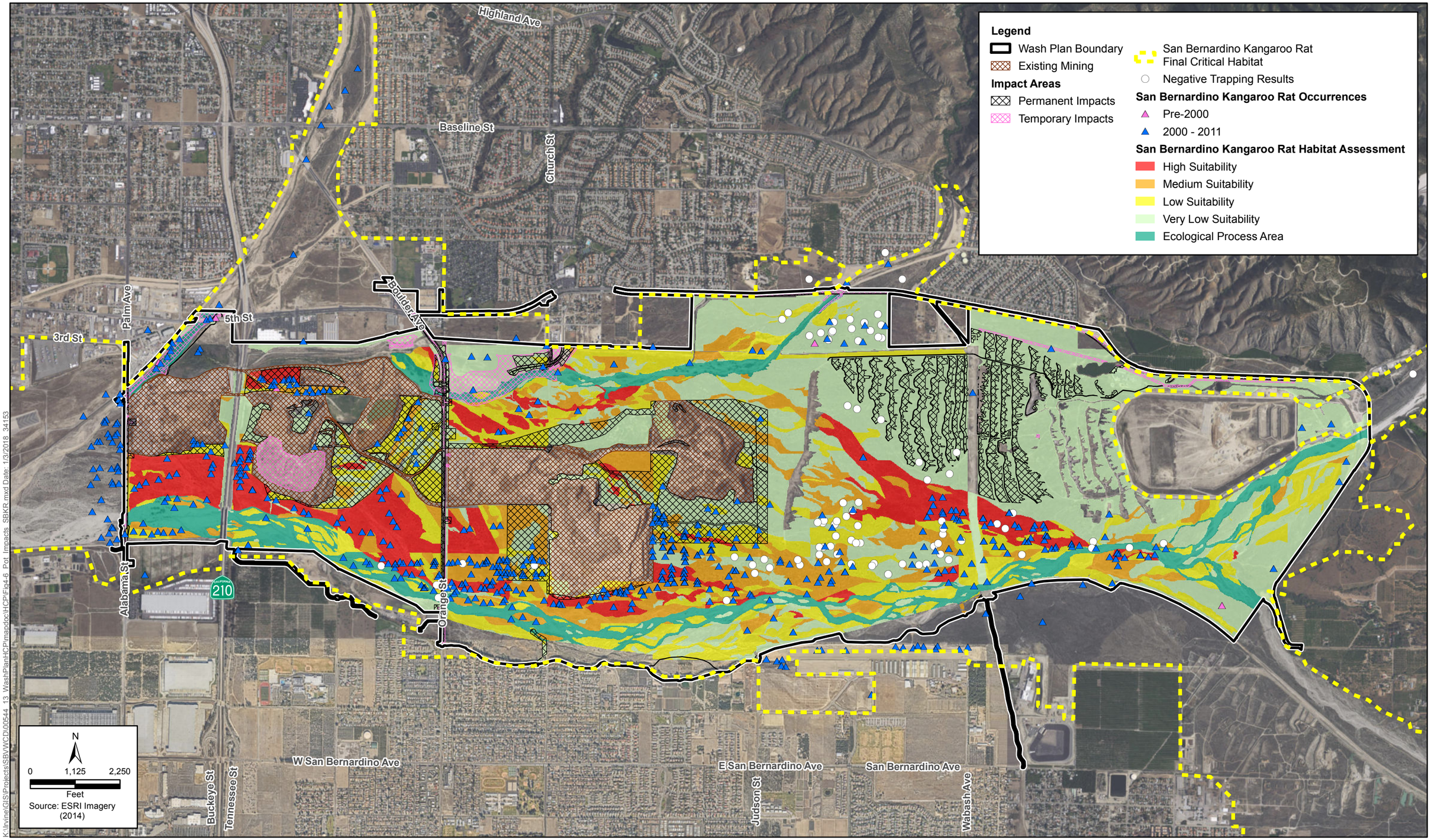


Figure 4-6
Potential Impacts on
San Bernardino Kangaroo Rat
Wash Plan HCP

Table 4-7. Potential Permanent Impacts of Individual Covered Activities on Covered Species[22]

	Slender Horned Spineflower			Santa Ana River Woolly-star	Coastal California Gnatcatcher Habitat Assessment				Coastal Cactus Wren Habitat Suitable for Nesting	SBKR					
Covered Activity ID	Extant Patches	Historic Occurrences	Spineflower Total	Occupied Grid Areas	High Quality (potential nesting and wintering habitat)	Medium Quality (potential wintering habitat)	Low Quality (potential foraging and dispersal habitat)	Gnatcatcher Total	Nesting	High Suitability	Medium Suitability	Low Suitability	Very Low Suitability	Ecological Process Area	SBKR Total
CD.01				**0.0**		0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0		**0.0**
CD.02				**0.0**		0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0		**0.0**
CD.03				**0.0**		0.0	0.0	**0.0**					0.0		**0.0**
CD.04				**0.0**		0.0	0.0	**0.0**				0.0	0.0		**0.0**
CD.05				**0.0**			0.0	**0.0**					0.0		**0.0**
CD.06				**0.0**		0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
CD.07				**0.1**		0.5	8.9	**9.4**	0.2				12.0		**12.0**
CD.09				**0.0**	0.0	0.0	0.0	**0.0**	0.0		0.0	0.0	0.0	0.0	**0.0**
CD.10				**0.0**	0.0	0.0	0.0	**0.0**		0.0	0.0	0.0	0.0	0.0	**0.0**
CD.11				**0.0**			0.0	**0.0**	0.0	0.0	0.0				**0.0**
CD.12				**0.0**			0.0	**0.0**	0.0	0.0	0.0	0.0	0.0		**0.0**
CRM.01	1	11	**12**	**29.7**		1.3	288.6	**289.9**	8.8	21.6	66.0	114.4	178.8		**380.8**
CRM.02				**0.0**			0.0	**0.0**						0.0	**0.0**
CRM.03				**0.0**			0.0	**0.0**		0.0	0.0	0.0	0.0	0.0	**0.0**
EVWD.03				**0.0**		0.0	0.0	**0.0**					0.0		**0.0**
EVWD.04				**0.0**			1.0	**1.0**					1.5		**1.5**
EVWD.07				**0.0**			0.0	**0.0**	0.0				0.0		**0.0**
EVWD.08				**0.0**											
FC.01				**0.0**									0.0	0.0	**0.0**
FC.02				**0.0**	0.0	0.0	0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
FC.03				**0.0**	0.0	0.0	0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
FC.04				**0.0**		0.0		**0.0**			0.0	0.0	0.0	0.0	**0.0**
FC.09				**0.4**		0.4	3.7	**4.1**	0.0	0.2	0.4	2.7	7.4	0.6	**11.2**
High.01				**0.0**										0.0	**0.0**
High.02				**0.2**					0.0		0.0		2.6	0.1	**2.6**
High.03				**0.0**									6.7	0.0	**6.8**
High.10				**0.0**			0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
High.11				**0.0**										0.0	**0.0**
High.12				**0.0**			0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
High.13				**0.0**											
High.15				**0.0**		0.0	0.0	**0.0**				0.0	0.0		**0.0**
High.16				**0.0**		0.0	0.0	**0.0**				0.0	0.0	0.0	**0.0**
High.19				**0.0**			0.0	**0.0**	0.0			0.0	0.0		**0.0**

[22] Values shown as 0.0 are less than 0.04 acres.

	Slender Horned Spineflower			Santa Ana River Woolly-star	Coastal California Gnatcatcher Habitat Assessment				Coastal Cactus Wren Habitat Suitable for Nesting	SBKR					
Covered Activity ID	**Extant Patches**	**Historic Occurrences**	**Spineflower Total**	**Occupied Grid Areas**	**High Quality (potential nesting and wintering habitat)**	**Medium Quality (potential wintering habitat)**	**Low Quality (potential foraging and dispersal habitat)**	**Gnatcatcher Total**	**Nesting**	**High Suitability**	**Medium Suitability**	**Low Suitability**	**Very Low Suitability**	**Ecological Process Area**	**SBKR Total**
High.20				**0.0**										0.0	**0.0**
High.21				**0.0**		0.0	0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
High.22				**0.0**			0.0	**0.0**					0.0		**0.0**
High.23				**0.0**			0.0	**0.0**			0.1	0.0	3.5		**3.6**
Redl.02				**0.0**			0.5	**0.5**			0.2	0.4	0.7	0.6	**1.9**
Redl.03				**0.0**									0.1		**0.1**
Redl.04				**0.0**			0.0	**0.0**					0.0	0.0	**0.0**
Redl.05				**0.0**	0.0		0.0	**0.0**			0.0	0.0		0.0	**0.0**
Redl.06				**0.0**			0.0	**0.0**					0.0		**0.0**
Redl.07				**0.0**									0.0		**0.0**
Redl.08				**0.0**											
Redl.09				**0.0**	0.4	0.3	0.8	**1.5**			0.5	0.3	0.7		**1.5**
Redl.09.2				**0.0**			0.0	**0.0**					0.0	0.0	**0.0**
Redl.10				**0.0**											
Redl.11				**0.0**											
Redl.13				**1.1**			1.1	**1.1**				0.6	0.9		**1.4**
Redl.14				**0.2**			0.3	**0.3**			0.4	0.5		0.2	**1.1**
Redl.15		1	**1**	**0.2**			0.1	**0.1**				0.6	1.8	0.1	**2.5**
Redl.16				**0.0**											
Redl.17				**0.0**											
Redl.19				**0.0**											
VD.01				**1.9**		6.7	108.9	**115.6**	4.4				148.4		**148.4**
VD.02				**0.0**		0.0	0.0	**0.0**					0.0	0.0	**0.0**
VD.03				**0.0**		0.0	0.0	**0.0**					0.0		**0.0**
VD.04				**0.0**			0.0	**0.0**				0.0	0.0	0.0	**0.0**
VD.05				**0.0**		0.0	0.0	**0.0**					0.0		**0.0**
VD.06				**0.0**		0.0	0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
VD.07				**0.0**			0.0	**0.0**					0.1		**0.1**
VD.09				**0.6**			0.7	**0.7**	0.0	0.6	0.2	0.6	0.7		**2.0**
VD.10	1	12	**13**	**0.0**	0.0	0.0	0.0	**0.0**						0.0	**0.0**
Total	**1**	**12**	**13**	**34.3**	**0.4**	**9.2**	**414.6**	**424.2**	**13.4**	**22.4**	**67.7**	**120.1**	**365.8**	**1.6**	**577.7**

Table 4-8. Potential Temporary Impacts of Individual Covered Activities on Covered Species[23]

	Slender Horned Spineflower			Santa Ana River Woolly-star	Coastal California gnatcatcher Habitat Assessment				Coastal Cactus Wren Habitat Suitable for Nesting	SBKR Habitat Assessment					
Unique ID	**Extant Patches**	**Historic Occurrences**	**Spineflower Total**	**Occupied Grid Areas**	**High Quality (potential nesting and wintering habitat)**	**Medium Quality (potential wintering habitat)**	**Low Quality (potential foraging and dispersal habitat)**	**Gnatcatcher Total**	**Nesting**	**High Suitability**	**Medium Suitability**	**Low Suitability**	**Very Low Suitability**	**Ecological Process Area**	**SBKR Total**
CD.01	0	0	**0**	**1.1**		0.1	4.5	**4.7**	0.1	0.4	0.1	0.3	3.9		**4.7**
CD.02	0	0	**0**	**0.5**		0.2	4.3	**4.5**	0.1	1.2	0.2	0.7	3.2		**5.4**
CD.03	0	0	**0**	**0.0**		0.0	0.3	**0.3**					0.3		**0.3**
CD.04	0	0	**0**	**0.0**		0.0	0.0	**0.0**				0.0	0.0		**0.0**
CD.05	0	0	**0**	**0.0**			0.0	**0.0**					0.0		**0.0**
CD.06	0	0	**0**	**0.0**		0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
CD.07	0	0	**0**	**0.0**		0.0	0.0	**0.0**	0.0				0.0		**0.0**
CD.09	0	0	**0**	**0.0**	0.0	0.0	0.0	**0.0**	0.0		0.0	0.0	0.0	0.0	**0.0**
CD.10	0	0	**0**	**0.0**	0.0	0.0	0.0	**0.0**		0.0	0.0	0.0	0.0	0.0	**0.0**
CD.11	0	0	**0**	**0.0**			0.0	**0.0**	0.0	0.0	0.0				**0.0**
CD.12	0	0	**0**	**0.0**			0.0	**0.0**	0.0	0.0	0.0	0.0	0.0		**0.0**
CRM.01	0	0	**0**	**0.0**		0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0		**0.0**
CRM.02	0	0	**0**	**0.0**			0.0	**0.0**						0.0	**0.0**
CRM.03	0	0	**0**	**0.0**			0.0	**0.0**		0.0	0.0	0.0	0.0	0.0	**0.0**
EVWD.03	0	0	**0**	**0.0**		0.0	0.0	**0.0**					0.1		**0.1**
EVWD.04	0	0	**0**	**0.0**			0.0	**0.0**					0.0		**0.0**
EVWD.07	0	0	**0**	**0.0**			0.2	**0.2**	0.0				0.4		**0.4**
EVWD.08	0	0	**0**	**0.0**											
FC.01	0	0	**0**	**0.1**									0.4	27.4	**27.8**
FC.02	0	0	**0**	**0.0**	0.0	0.1	0.5	**0.7**			0.0	0.2	1.0	1.0	**2.2**
FC.03	0	0	**0**	**0.1**	1.3	1.2	1.9	**4.5**			0.0	0.7	4.2	2.8	**7.7**
FC.04	0	0	**0**	**0.1**		0.0		**0.0**			0.0	0.0	1.4	0.0	**1.4**
FC.09	0	0	**0**	**1.3**		0.6	3.5	**4.1**	0.0	0.2	0.9	2.6	22.3	13.9	**39.8**
High.01	0	0	**0**	**0.0**										0.0	**0.0**
High.02	0	0	**0**	**0.0**					0.0		0.0		0.1	0.0	**0.1**
High.03	0	0	**0**	**0.0**											**0.0**
High.10	0	0	**0**	**0.0**			0.3	**0.3**			0.1	0.1	0.1	0.0	**0.4**
High.11	0	0	**0**	**0.0**										0.1	**0.1**
High.12	0	0	**0**	**0.0**			0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
High.13	0	0	**0**	**0.0**											

[23] Values shown as 0.0 are less than 0.04 acres.

	Slender Horned Spineflower			Santa Ana River Woolly-star	Coastal California gnatcatcher Habitat Assessment				Coastal Cactus Wren Habitat Suitable for Nesting	SBKR Habitat Assessment					
Unique ID	**Extant Patches**	**Historic Occurrences**	**Spineflower Total**	**Occupied Grid Areas**	**High Quality (potential nesting and wintering habitat)**	**Medium Quality (potential wintering habitat)**	**Low Quality (potential foraging and dispersal habitat)**	**Gnatcatcher Total**	**Nesting**	**High Suitability**	**Medium Suitability**	**Low Suitability**	**Very Low Suitability**	**Ecological Process Area**	**SBKR Total**
High.15	0	0	**0**	**0.0**		0.0	0.0	**0.0**				0.0	0.0		**0.0**
High.16	0	0	**0**	**0.0**		0.0	0.0	**0.0**				0.0	0.0	0.0	**0.0**
High.19	0	0	**0**	**0.0**			0.0	**0.0**	0.0			0.0	0.0		**0.0**
High.20	0	0	**0**	**0.0**										0.0	**0.0**
High.21	0	0	**0**	**0.0**		0.0	0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
High.22	0	0	**0**	**0.0**			0.0	**0.0**					0.0		**0.0**
High.23	0	0	**0**	**0.0**			0.0	**0.0**			0.0	0.0	0.0		**0.0**
Redl.02	0	0	**0**	**0.0**			0.0	**0.0**			0.0	0.0	0.0	0.0	**0.0**
Redl.03	0	0	**0**	**0.0**									0.0		**0.0**
Redl.04	0	0	**0**	**0.0**			0.0	**0.0**					0.0	0.0	**0.0**
Redl.05	0	0	**0**	**0.0**	0.0		0.0	**0.0**			0.0	0.0		0.0	**0.0**
Redl.06	0	0	**0**	**0.0**			0.0	**0.0**					0.0		**0.0**
Redl.07	0	0	**0**	**0.0**									0.1		**0.1**
Redl.08	0	0	**0**	**0.0**											
Redl.09	0	0	**0**	**0.0**	0.0	0.0	0.0	**0.0**			0.0	0.0	0.0		**0.0**
Redl.09.2	0	0	**0**	**0.0**			0.0	**0.0**					0.0	0.0	**0.0**
Redl.10	0	0	**0**	**0.0**											
Redl.11	0	0	**0**	**0.0**											
Redl.13	0	0	**0**	**0.0**			0.0	**0.0**				0.0	0.0		**0.0**
Redl.14	0	0	**0**	**0.3**			0.0	**0.0**			0.0	0.0		0.0	**0.0**
Redl.15	0	0	**0**	**0.0**			0.0	**0.0**				0.0	0.0	0.0	**0.0**
Redl.16	0	0	**0**	**0.0**											
Redl.17	0	0	**0**	**0.0**											
Redl.19	0	0	**0**	**0.0**											
VD.01	0	0	**0**	**0.0**		0.0	0.0	**0.0**	0.0				0.0		**0.0**
VD.02	0	0	**0**	**0.0**		0.0	0.2	**0.2**					1.1	0.1	**1.2**
VD.03	0	0	**0**	**0.0**		0.3	1.0	**1.3**					1.6		**1.6**
VD.04	0	0	**0**	**0.0**			0.2	**0.2**				0.1	0.7	0.1	**0.9**
VD.05	0	0	**0**	**0.0**		2.4	8.4	**10.8**					13.3		**13.3**
VD.06	0	0	**0**	**0.0**		0.4	0.3	**0.6**			0.0	0.1	0.7	0.1	**0.9**
VD.07	0	0	**0**	**0.0**			0.0	**0.0**					0.0		**0.0**
VD.09	0	0	**0**	**0.0**			0.0	**0.0**	0.0	0.0	0.1	0.0	0.7		**0.8**
VD.10	0	0	**0**	**0.0**	0.0	0.0	0.0	**0.0**						0.0	**0.0**
Total	**0**	**0**	**0**	**3.7**	**1.4**	**5.4**	**25.7**	**32.5**	**0.2**	**1.8**	**1.4**	**4.8**	**55.6**	**45.4**	**109.1**

Chapter 5
Conservation Program

This chapter presents the conservation program that the Conservation District, the Participating Entities, and Flood Control will implement for SBKR, gnatcatcher, Santa Ana River woolly-star, slender-horned spineflower, and cactus wren in the Plan Area to avoid, minimize, monitor, manage, and mitigate the effects of incidental take (for wildlife) or adverse impacts (for plants) and contribute to their survival and recovery. The biological goals and objectives of the 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

The biological goals are the broad, guiding principle for implementing the HCP conservation strategy. Biological objectives have been developed to describe the means by which the goal 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 functionality and quality of habitat. HCP Preserve–based goals and objectives are expressed in terms specific to the entire HCP Preserve. Covered Species–based goals and objectives are expressed in terms specific to individuals or populations of that species. Management actions have been developed to achieve each biological objective. Some species-specific objectives support management or monitoring and avoidance and minimization goals.

5.1.1 Biological Goals of the Wash Plan HCP

The goals of the HCP are as follows:

- Maintain or restore self-sustaining populations of the species covered by the Wash Plan.
- Sustain the ecological processes necessary to maintain the functionality of the natural communities and habitats that the Covered Species depend upon.
- Maintain connectivity among subpopulations of Covered Species in the Plan Area to minimize fragmentation of their habitat.
- Minimize negative impacts on Covered Species and their habitats from off-highway vehicle (OHV) use, illegal dumping, edge effects, exotic species and other disturbances.
- 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.

5.1.2 Biological Objectives of the Wash Plan HCP

Species Specific Objectives

Slender-horned Spineflower Species Objectives

SHSF Objective 1: Permanently conserve and manage spineflower localities known to be occupied within the District Conserved and District Managed Lands of the HCP Preserve.

SHSF Action 1A: Permanently conserve 33 extant patches of spineflower within District Conserved and District Managed Lands in the HCP Preserve.

SHSF Action 1B: Permanently conserve 26 historic spineflower locations within the District Conserved and District Managed Lands in the HCP Preserve.

SHSF Objective 2: Permanently conserve and manage spineflower habitat to preserve ecological processes that maintain spineflower habitat and to accommodate future changes in spineflower distribution in response to environmental conditions or management actions undertaken for the benefit of spineflower or other Covered Species preserve ecological processes.

SHSF Action 2: Permanently conserve and manage 100 acres of spineflower habitat adjacent to extant and historic spineflower occurrences and/or other habitat determined through modeling and subsequent onsite evaluation to be suitable. Suitable habitat will be determined using known characteristics of spineflower habitat; for example, areas associated with RAFSS on benches and terraces away from active flood channels in areas receiving little surface disturbance from flooding, but subject to sheet or overland flows, association with junipers, and cryptogrammic soils (in the HCP Preserve), and those determined in the course of adaptive management.

SHSF Objective 3: Develop a robust science-based Spineflower Restoration 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 HCP Preserve.

SHSF Action 3: The Conservation District will develop an initial experimental Spineflower Restoration Plan that will be reviewed and approved by the HCP Preserve Management Committee within 2 years of issuance of the ITP. It will serve as the basis for developing a more long-term plan and strategy.

The study design will be developed based on the recommendations prepared by USFWS for the HCP in 2007, with refinements made based on consultations with CDFW and other experts on spineflower.

The Spineflower Working Group (described in Section 5.2.2, *Approach to Habitat Management*), will be consulted in the development of the initial restoration plan and subsequently, as needed, to review and provide input on restoration plan revisions. The results of applied experimental methods will be evaluated annually and the restoration methods modified accordingly based on monitoring results. The initial methods included in the restoration plan will be tested to determine their efficacy beginning in the third year after ITP issuance. Successful methods will be included in the annual work plan for the HCP Preserve. The initial restoration program will include the following.

- Harvest of spineflower seeds for an extended period, on the order of several years, to capture full genetic diversity of the seed bank from a given location (seed bulking) prioritizing areas that may be impacted by Covered Activities.
- Evaluation of soil composition and chemistry, terrain, vegetation, and other environmental conditions at sites where spineflower is extant to aid in determining potential establishment sites.
- Identification and tracking of key environmental factors in the micro-environment of extant patches to provide data that could identify the more suitable environmental conditions for germination and persistence. Use applicable current technology such as HOBO™ data loggers (field data loggers that measure and record temperature, humidity, light, energy, and a variety of other parameters), soil and moisture probes, and possibly webcams to track key environmental factors.
- In cooperation with BLM and the Wildlife Agencies, identify sites on District Managed and District Conserved Lands for spineflower relocation, establishment, and enhancement.

The restoration program will be a long-term study to determine if relocation and enhancement are a viable approach that could be accepted by USFWS and CDFW as feasible conservation and mitigation measures for impacts on spineflower. Development of this program is part of the conservation strategy for spineflower during the first phase of implementation. The outcome of the long-term study and the associated success criteria will determine whether the spineflower avoidance area (contingency parcel) can be mined in the future.

SHSF Objective 4: Establish and maintain a minimum of six new patches of spineflower in the HCP Preserve covering at least 35 square meters each in 5 years of any 8-year period. Patch size definitions and quantification methods will follow SAIC (2010). Aggregate mining of the contingency parcel may proceed after this objective has been met twice; that is, 5 years out of 8 for two 8-year cycles, without inclusion of sub-patches or outliers.

SHSF Action 4: Utilize the restoration methods identified in the Spineflower Restoration Program and implement SHSF Objective 5, below, to establish new spineflower patches.

SHSF Objective 5: Enhance and maintain all known patches of spineflower in the District Conserved and District Managed Lands. Patch sizes (after SAIC 2010), as measured annually, are to be stable or increasing across any 8-year period.

SHSF Action 5: Utilize the restoration methods identified in the Spineflower Restoration Program (SHSF Objective 3) and implement SHSF Objective 6, below, to enhance extant spineflower patches.

SHSF Objective 6: Reduce invasive plant cover in suitable spineflower habitat.

SHSF Action 6A: Invasive plant cover (non-native grasses and other invasive plants) will be reduced to and maintained at ≤3% in the area within 15 meters of spineflower patches. This standard will be achieved within 3 years of any spineflower occurrence coming into conservation or management by the HCP and will be maintained thereafter.

SHSF Action 6B: Outside of the treatment areas within 15 meters of spineflower patches, invasive plant cover will be reduced to and maintained at ≤15% cover in conserved spineflower

habitat.[24] Invasive plant control will be carried out in concentric rings beginning next to the spineflower patches and then moving out from them.

SHSF Objective 7: Detect spineflower populations in areas planned for permanent impacts and salvage and store seeds and potentially underlying soil for use in habitat enhancement and restoration within the HCP Preserve.

SHSF Action 7: Pre-Covered Activity surveys for spineflower will be conducted by a qualified botanist in areas where permanent impacts will occur using the CDFW rare plant survey protocol. If spineflower are not detected, no additional surveys are required after the first survey. However, if spineflower plants are detected, seed will be collected and stored for future use in restoration and enhancement projects. Seed collection will occur for at least four seasons prior to ground disturbance. Seed collection and storage will be by an entity that has a Memorandum of Understanding with the USFWS to process and handle the seeds of endangered plant taxa. The HCP Preserve staff or an entity contracted by a Permittee may collect spineflower seed on behalf of the entity holding the Memorandum of Understanding if they first obtain clearance from the Wildlife Agencies, and they receive supervised instruction in the collection and handling of spineflower seed. Soil will also be collected if research indicates it would be of value to restoration efforts.

SHSF Objective 8: Protect spineflower populations in the vicinity from being impacted by Covered Activities.

SHSF Action 8: When Covered Activities will take place within 50 meters of known occurrences of spineflower, a temporary fence will be erected to protect them. A qualified botanist and/or biological monitor will monitor construction activities, maintain the markers limiting construction, and maintain the fence protecting the spineflower, to prevent accidental disturbance.

SHSF Objective 9: Better determine the location and extent of spineflower suitable habitat in the HCP Preserve.

SHSF Action 9: Model spineflower suitable habitat using variables such as slope, aspect, soil type and shrub cover. Refine the model as new information becomes available.

SHSF Objective 10: Determine the current extent and location of spineflower occurrences in the HCP Preserve and monitor population trends over time.

SHSF Action 10A: Establish monitoring plots and conduct 3 years of baseline surveys for spineflower in suitable habitat.

SHSF Action 10B: Map the size and extent of each extant occurrence during the baseline survey and estimate the number individuals from sample quadrats.

SHSF Action 10C: After baseline surveys are completed, survey for spineflower in permanent and random sampling plots every year as described in the management and monitoring plan.[25]

SHSF Action 10D: Compare sample plots in management treatment areas to those in untreated areas to assess the results of management actions.

[24] The extent of suitable spineflower habitat will be determined through habitat modeling.

[25] If spineflower Objectives 3 and 4 are met, the survey interval for spineflower can be changed to 2 years.

Santa Ana River Woolly-star Species Objectives

SARWS Objective 1: Permanently conserve known occupied woolly-star habitat.

SARWS Action 1A: Permanently conserve and manage 204.3 acres of habitat containing woolly-star in the HCP Preserve.

SARWS Action 1B: Permanently conserve at least 50 additional acres of suitable habitat adjacent to occupied habitat to preserve ecological processes that maintain woolly-star habitat and to accommodate future changes in woolly-star distribution in response to environmental conditions or management's actions undertaken for the benefit of woolly-star or other Covered Species.

SARWS Objective 2: Maintain the quality of woolly-star occupied areas and expand the current woolly-star distribution in the HCP Preserve including 99.9 acres on District Conserved Lands (include 5.4 acres of SBCFCD Conserved Lands) and 104.5 acres on District Managed Lands.

SARWS Action 2: Control non-native annual grasses and other invasive plants to ≤20% average cover for the benefit of woolly-star on suitable unoccupied habitat throughout the HCP Preserve.

SARWS Objective 3: Increase the average density of woolly-star in occupied patches in the HCP Preserve as measured over any 8-year period, which is the approximate rain cycle.

SARWS Action 3: Control non-native annual grasses and other invasive plants in, adjacent to woolly-star patches, and broadcast woolly-star seed harvested from woolly-star plants in areas where permanent impacts will occur.

SARWS Objective 4: Detect woolly-star populations in areas where Covered Activities will result in permanent impacts, and salvage and store its seed for use in habitat enhancement and restoration within the HCP Preserve.

SARWS Action 4: Pre-Covered Activity surveys will be conducted by a qualified botanist in areas where permanent impacts will occur using the CDFW rare plant survey protocol. If woolly-star plants are detected, seed will be collected the season prior to ground disturbance and stored for future use in restoration and enhancement projects.[26]

SARWS Objective 5: Enhance the distribution of woolly-star by planting collected seeds in selected areas of suitable habitat.

SARWS Action 5: The Preserve Manager in consultation with the Preserve Management Committee will select one or more sites within suitable woolly-star habitat that have achieved invasive plant control objectives, for planting salvaged woolly-star seeds when they become available. Planting will be scheduled and implemented as part of the annual work plan and will follow currently accepted planting methods and timing.

SARWS Objective 6: Protect woolly-star patches near Covered Activity disturbance areas from being impacted.

[26]Seed collection and storage will be by an entity that has a Memorandum of Understanding with the USFWS to process and handle the seeds of endangered plant taxa. The HCP Preserve staff or an entity contracted by a Permittee may collect woolly-star seed on behalf of the entity holding the Memorandum of Understanding if they first obtain clearance from the Wildlife Agencies, and they receive supervised instruction in the collection and handling of woolly-star seed.

SARWS Action 6: When Covered Activities take place within 50 meters of known occurrences of woolly-star, a temporary fence will be erected to protect them. A qualified botanist and/or biological monitor will monitor construction activities, maintain the markers limiting construction, and maintain the fence protecting the woolly-star, to prevent accidental disturbance.

SARWS Objective 7: Determine the current extent and location of woolly-star in the HCP Preserve, monitor population trends over time, and assess the effectiveness of management actions.

SARWS Action 7A: Establish monitoring plots and conduct 3 years of baseline surveys for woolly-star in the HCP Preserve.

SARWS Action 7B: After baseline surveys are completed, survey for woolly-star in permanent and random sampling plots every 5 years as described in the management and monitoring plan.

SARWS Action 7C: Compare sample plots in management treatment areas to those in untreated areas to assess the results of management actions.

Cactus Wren Species Objectives

CAWR Objective 1: Permanently conserve and manage cactus wren nesting habitat in the HCP Preserve.[27]

CAWR Action 1A: Permanently conserve and manage 14.1 cactus patches and surrounding habitat to support cactus wren nesting on District Conserved Lands.

CAWR Action 1B: Permanently provide for the additional management of 18.4 cactus patches and surrounding habitat to support cactus wren nesting on District Managed Lands.

CAWR Objective 2: Establish and manage eight new cactus patches suitable for nesting cactus wren in the HCP Preserve. Patches will be a minimum size of 200 square feet. They will be buffered by a minimum of 5-7.5 acres to prevent overlap of nest territories. To facilitate movement of cactus wrens, when possible, new cactus patches will be established between areas in the HCP Preserve where cactus wrens are currently known to nest.

CAWR Action 2: Collect cactus pads and/or cholla stems from existing cactus, preferentially from areas that will be permanently impacted and plant them at selected locations. Control non-native annual grasses and other invasive plants within the patches during their establishment. Replant as needed to achieve management objectives.

CAWR Objective 3: Recover cactus patches damaged or destroyed by wildfire.

CAWR Action 3: Post-wildfire, inspect the burned area for damaged or destroyed cactus patches. Within 6 months of the wildfire, harvest cactus pads/cholla stems from intact stands of cactus in the Plan Area and use them to restore burned and damaged cactus patches. Follow-up with non-native grass control as needed to keep cactus growth from being inhibited by them.

CAWR Objective 4: Maintain the quality of habitat to sustain the current breeding population of cactus wren within the HCP Preserve.

[27] It is recognized that cactus wren will use vegetation other than cactus (e.g., yucca) for nesting; however, cactus patches are a good indicator of important nesting areas. If other areas are found to be important to nesting during implementation of the HCP, management strategies will be adjusted to manage for their protection.

CAWR Action 4: Annually control non-native grasses and other invasive plants within 20 meters of cactus patches of sufficient size to support cactus wren to ≤20% cover.

CAWR Objective 5: Prevent nesting cactus wren from being impacted by Covered Activities.

CAWR Action 5: In cactus wren habitat, between February 15 and August 30 prior to conducting Covered Activities resulting in significant vegetation disturbance, a qualified biologist will conduct pre-activity nest surveys. The area to be disturbed and a 500-foot buffer will be surveyed for 5 consecutive days to determine if cactus wrens are nesting in or near the construction or operations and maintenance area. If cactus wrens are present, a 300-foot buffer will be established between the Covered Activity and the nest area until nesting is complete.

CAWR Objective 6: Determine the current extent and location of cactus wren occurrences in the HCP Preserve and monitor population trends over time.

CAWR Action 6A: Establish monitoring plots and conduct 3 years of baseline surveys for cactus wren in the HCP Preserve.

CAWR Action 6B: After baseline surveys are completed, survey for cactus wren in permanent and random sampling plots every 2 years as described in the management and monitoring plan.

CAWR Action 6C: Compare sample plots in management treatment areas to those in untreated areas to assess the results of management actions.

Coastal California Gnatcatcher Species Objectives

CAGN Objective 1: Permanently conserve and manage high, medium, and low quality gnatcatcher habitat within the Plan Area.

CAGN Action: 1A: Permanently conserve and manage 47.6 acres of high quality habitat on District Conserved Lands (including 12.3 acres on SBCFCD Conserved Lands). Permanently conserve and manage an additional 65.4 acres of medium quality habitat on District Conserved Lands (including 34.7 acres on SBCFCD Conserved Lands). Provide for the additional management of 22.8 acres high quality and 124.8 acres of medium quality habitat to support breeding and wintering gnatcatchers on District Managed Lands.

CAGN Action 1B: Permanently conserve and manage 603.3 acres of low quality habitat on District Conserved Lands (including 72.3 acres on SBCFCD Conserved Lands). Provide for the additional management of 428.2 acres low quality to provide for gnatcatcher connectivity and dispersal. Note: Additional high or medium quality habitat in surplus above the required acreages in CAGN Action 1A may be counted towards meeting these acreage requirements.

CAGN Objective 2: Control non-native annual grasses and other invasive plant species for the benefit of gnatcatcher.

CAGN Action 2: In habitat identified as suitable breeding and/or winter territory control invasive plant species to ≤20% cover.

CAGN Objective 3: Maintain the quality of habitat to encourage occasional use of the suitable habitat (e.g., at least once in any 8-year period, which is the approximate rain cycle).

CAGN Objective 4: Maintain nesting pairs of gnatcatcher in the Plan Area or, if they are not present, the structural components of gnatcatcher habitat required for nesting.

CAGN Action 4: Based on the results of baseline surveys for gnatcatcher, manage occupied or otherwise suitable habitat to maintain at least two nesting pairs of gnatcatchers, or maintain the structural components of gnatcatcher habitat required for nesting (as defined in the AMMP).

CAGN Objective 5: Prevent nesting gnatcatcher from being impacted by Covered Activities.

CAGN Action 5: In gnatcatcher habitat, between February 15 and August 30 prior to conducting Covered Activities resulting in significant vegetation disturbance, a qualified biologist will conduct pre-activity nest surveys. The area to be disturbed and a 500-foot buffer will be surveyed for 5 consecutive days to determine if gnatcatchers are nesting in or near the construction or operations and maintenance area. If gnatcatchers are nesting, a 300-foot buffer will be established between the Covered Activity and the nest area. No Covered activities will take place within the buffer area until nesting is complete.

CAGN: Objective 6: Determine the status and distribution of gnatcatcher in the HCP Preserve, monitor long-term trends, and assess the effectiveness of management actions.

CAGN Action 6A: Establish survey plots and initiate 3 years of baseline surveys for gnatcatcher in the HCP Preserve within 1 year of permit issuance.

CAGN Action 6B: After baseline surveys are completed, survey for gnatcatcher in permanent and random sampling plots within the HCP Preserve every 3 years as described in the monitoring plan.

CAGN Action 6C: Compare sample plots in management treatment areas to those in untreated areas to assess the results of management actions.

San Bernardino Kangaroo Rat Species Objectives

SBKR Objective 1: Permanently conserve and manage SBKR habitat (including all SBKR habitat suitability types) within the Plan Area.

SBKR Action 1: Permanently conserve and manage 121.4 acres of high suitability habitat on District Conserved Lands (including 3.6 acres on SBCFCD Conserved Lands). Permanently conserve and manage an additional 122.1 acres of medium suitability habitat on District Conserved Lands (including 36.6 acres on SBCFCD Conserved Lands). Permanently conserve and manage an additional 191.8 acres of low suitability habitat on District Conserved Lands (including 59.4 acres on SBCFCD Conserved Lands). Permanently conserve and manage an additional 321.4 acres of very low suitability habitat on District Conserved Lands (including 22.4 acres on SBCFCD Conserved Lands). Permanently conserve and manage an additional 193.1 acres of ecological process area habitat on District Conserved Lands (including 61.8 acres on SBCFCD Conserved Lands).

Provide for the additional management of 170.4 acres high suitability habitat, 105.6 acres of medium suitability habitat, 126.1 acres of low suitability habitat, 237.7 acres of very low suitability habitat, and 42.9 acres of ecological process area habitat to support SBKR on District Managed Lands.

Note: Additional high or medium suitability habitat in surplus above the required acreages may be used to meet the low or very low suitability acreage requirements.

SBKR Objective 2: Maintain and increase the quality of SBKR habitat in the HCP Preserve.

SBKR Action 2: In low, medium, and high suitability habitat areas, control non-native grasses and other invasive plants to ≤20% cover average over any 3-year period.

SBKR Objective 3: Maintain a stable or increasing population of SBKR in the HCP Preserve.

SBKR Action 3: Maintain or increase the SBKR population in 70% of the high, medium, and low SBKR types of habitat as measured over any 8-year period (approximate rain cycle).

SBKR Objective 4: Maintain and increase connectivity between SBKR populations in the HCP Preserve.

SBKR Action 4A: Create a crossing for SBKR over the D-Dike in the 1938 and 1969 Santa Ana River breakout area between Plunge Creek and the Santa Ana River.

SBKR Action 4B: Prioritize non-native grass control and thin shrubs as needed to enhance connectivity for SBKR between Plunge Creek and the Santa Ana River.

SBKR Objective 5: Prevent SBKR habitat and individuals within the HCP Preserve from being impacted by Covered Activities.

SBKR Action 5: In low, medium, and high suitability SBKR habitat, qualified biologists and/or biological monitors will monitor new construction and operations and maintenance resulting in ground disturbance to ensure that the Covered Activities are confined to the allotted footprint.

SBKR Objective 6: Minimize loss of individual SBKR resulting from permanent habitat impacts.

SBKR Action 6: In areas where ground disturbance will occur in medium or high suitability habitat, SBKR will be captured and relocated out of harm's way. For sites less than 3 acres or that are narrow and linear (e.g., a pipeline), captured animals will be immediately released in the nearest safe location outside the construction area. For sites larger than 3 acres, a suitable translocation site will be identified in advance of construction, and temporary burrows will be created for the translocated animals. With the exception of short-term construction activities such as road grading, where animals can be trapped and temporarily held until the work is completed, barrier fencing will be placed and maintained around construction areas until the Covered Activity is complete.

SBKR Objective 7: Determine the status and distribution of San Bernardino kangaroo rat in the HCP Preserve, monitor long-term trends, and assess the effectiveness of management actions.

SBKR Action 7A: Initiate 3 years of baseline surveys for SBKR in the HCP Preserve within 1 year of permit issuance.[28]

SBKR Action 7B: After baseline surveys are completed, survey for SBKR in permanent and random sampling plots within the HCP Preserve every 3 years as described in the monitoring plan.

SBKR Action 7C: Compare sample plots in management treatment areas to those in untreated areas to assess the results of management actions.

[28] If the annual rainfall in one or more of the baseline survey years is ≤25% of average, another year of baseline trapping will be added for each year below the benchmark.

HCP Preserve-Wide Objectives

Preserve Objective 1: Provide for the permanent conservation and management of approximately 963.3 acres of District Conserved Lands (including 185.7 acres on SBCFCD Conserved Lands), and provide for the additional management of 696.1 acres of District Managed Lands.

Preserve Action 1: Place conservation easements over and manage District Conserved Lands and begin enhanced management of District Managed Lands per the schedule outlined in the Wash Plan HCP.

Preserve Objective 2: Limit use of the HCP Preserve to authorized persons and uses. Barriers will be placed to prevent unauthorized access and activities. Boundary signs will inform the public about the HCP Preserve and any use restrictions.

Preserve Action 2A: Barriers and boundary signs informing the public about the HCP Preserve and any use restrictions will be placed within 6 months of land being added to the HCP Preserve. Boundary signs will be inspected at least every 3 months and repaired or replaced within 2 weeks of inspection if they have been damaged or removed.

Preserve Action 2B: The Permittees or their designee will patrol the HCP Preserve at least 4 days a week including alternating weekend days, to identify and report illegal activities and identify illegal access points. Unauthorized access, illegal dumping, and other unauthorized activities will also be addressed through City or County law enforcement and through a reimbursement agreement with BLM for the patrol services of law enforcement rangers. The Permittees will share the cost of these services proportionally between them.

Preserve Action 2C: Coordinate with local entities (including the Cities of Highland and Redlands, County of San Bernardino, and BLM) to limit potential impacts from unauthorized access and illegal activities.

Preserve Action 2D: Remove trash and clean up illegal dumpsites. Initial cleanup will be completed within 6 months of a new area being added to the HCP Preserve. Subsequently, new sites will be cleaned up within 3 months of their discovery. The Permittees will initiate the cleanup process as soon as hazardous materials are discovered.

Preserve Action 2E: Establish communication with local government and social services to monitor and address repeated trespass.

Preserve Objective 3: Develop a plan for the management of the HCP Preserve.

Preserve Action 3: Develop a draft of a comprehensive HCP Preserve Management Plan within 2 years of permit issuance and finalize it within 3 years. If the two permits are not issued at the same time, the second party receiving a permit will develop a draft plan for their lands to be amended into the original HCP Preserve Management Plan. The development of the amendment will be undertaken in cooperation with the Preserve Management Committee and the Preserve Manager and subject to the review and approval of the Preserve Management Committee.

Preserve Objective 4: Maintain and enhance the quality of the native plant communities in the HCP Preserve.

Preserve Action 4A: Reduce to and/or maintain invasive annual grass and invasive annual plants cover at ≤20% in the District Conserved and the District Managed Lands according to the

HCP phasing and in the order of priority defined in the HCP Preserve Management Plan. For District Conserved Lands, the reduction will be initiated within 3 years and achieved within 7 years of the land being added to the HCP Preserve. For District Managed Lands, the reduction will be initiated within 3 years and achieved within 7 years of completion of the BLM land exchange.

Preserve Action 4B: Control invasive perennial plants in the District Conserved and the District Managed Lands according to the HCP phasing and in the order of priority defined in the HCP Preserve Management Plan. For District Conserved Lands, the reduction will be initiated within 3 years. Individual timelines and priorities will be set for each species following initiation of control activities with the goal of containment within 2 years after the initiation of control and complete eradication by the end of the permit.

Preserve Objective 5: Conduct weed control on Conservation District owned Neutral Lands and other lands, with permission, to prevent the spread of invasive species into the HCP Preserve.[29]

Preserve Action 5: Control infestations of weeds outside the HCP Preserve boundaries that potentially threaten the integrity of the HCP Preserve. Prioritize species by their invasiveness. Annually treat at least three known infestations totaling a minimum of 5 acres, if invasive plant species are present and accessible.

Preserve Objective 6: Maintain variable shrub patch density in chaparral and RAFFS vegetation communities.

Preserve Action 6: Each year shrub patches with 60 to 80% shrub cover (or more) will be identified and mechanically thinned to 30% cover.[30] In some situations, as appropriate, shrub cover can be reduced to less than 30%. This activity will be carried out in in District Conserved and District Managed Lands in the order of conservation priority and according to the phasing defined in the HCP Preserve Management Plan. Thinning will not be conducted in areas determined to be important to gnatcatcher nesting or wintering.

Preserve Objective 7: Detect and control invasive pathogens.

Preserve Action 7A: The Preserve Manager and other resource management staff will monitor the HCP Preserve for signs of pathogens and attempt to identify them and the extent of the threat they pose to Covered Species or their habitats. If a pathogen is determined to be detrimental to Covered Species, their food sources, or their habitat, a plan of action will be prepared by the Preserve Manager and presented to the Preserve Management Committee for their review and approval.

Preserve Action 7B: Harmful pathogens will be controlled by the Preserve Manager or their designee(s) per the adopted action plan.

Preserve Objective 8: Detect and control invasive animals.

[29] Control of invasive exotic plants (other than annual grasses) is part of the Conservation District's facilities operation and maintenance program. It is and will continue to be funded from sources other than the Wash Plan HCP funds.

[30] The Preserve Manager with the concurrence of the Preserve Management Committee may make a determination that thinning is not necessary for one or more years based on the current conditions of HCP Preserve vegetation, or they may suspend thinning if it is determined to have limited efficacy in meeting conservation goals and objectives.

Preserve Action 8A: The Preserve Manager and other resource management staff will monitor the HCP Preserve for signs of invasive animals and determine if they pose a threat to Covered Species or their habitat. If an invasive animal is determined to be detrimental to Covered Species or their habitat, a plan of action will be prepared by the Preserve Manager and presented to the Preserve Management Committee for their review and approval.

Preserve Action 8B: Invasive animals will be captured and removed from the HCP Preserve and the Plan Area as necessary to prevent harm to Covered Species, their food sources, or their habitat following the adopted action plan.

Preserve Objective 9: Maintain and restore fluvial processes.

Preserve Action 9A: Where feasible, remove or modify levees to restore flow to historic stream channels. Complete a feasibility study within 5 years to determine the feasibility of removing the Greenspot levee or creating at least a 200-foot notch in it. If the project is feasible, obtain the necessary permits and implement the project within 7 years of permit issuance.

Preserve Action 9B: Remove sediment berms/piles that line and constrain watercourse channels.

Preserve Action 9C: 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).

Preserve Objective 10: Monitor vegetation to determine the effectiveness of management and to determine its response to changes in environmental conditions.

Preserve Action 10A: Establish and monitor vegetation sampling plots, including relevés that coincide with Covered Species survey plots. Conduct a minimum of 3 years of baseline surveys followed by monitoring over time following the Covered Species survey interval.

Preserve Action 10B: Utilizing Covered Species survey plots monitor the effectiveness of management treatments for purposes of adaptive management.

Preserve Action 10C: Monitor the post fire recovery of vegetation to determine if restoration measures are needed to assist in its recovery. Initiate re-vegetation efforts if the percent cover of seedlings and root crown sprouts of native shrubs is estimated at less than 40% 3 years post fire.

Preserve Action 10D: Monitor the distribution and density of non-native annual grasses and other weeds prioritized for control by the Preserve Manager including those identified in the HCP Preserve Management Plan. Use results of weed monitoring to prioritize management actions in the annual work plan, and ad hoc for highly invasive weeds that are detected and need expedited treatment.

5.2 Approach to Habitat Conservation and Management

The following describes in detail the habitat conservation that will occur and the approach that will be taken to manage and monitor Covered Species within the HCP Preserve. The HCP Preserve will be implemented in two phases

5.2.1 Approach to Habitat Conservation

The Conservation District, Flood Control, and the Participating Entities will provide for the permanent conservation of approximately 963.3 acres within the HCP Preserve (all District Conserved Lands on Figure 5-1). This area will be managed and monitored along with the 696.1 acres of District Managed Lands. The District Conserved and District Managed Lands result in a total area of 1,659.5 acres of habitat in the Plan Area that will be conserved and managed (Table 5-1). The HCP Preserve (all District Conserved Lands and District Managed Lands) are generally contiguous with the existing conservation areas within the Plan Area (i.e., BLM's ACEC and USACE's Woolly-star Preserve Area [WSPA]). The HCP Preserve also maintains a north-south habitat linkage across the Plan Area and to natural open space outside the Plan Area to the east and west (see Figure 5-1).

Phasing of Conservation

The Wash Plan HCP Preserve will be implemented in two phases as described in Section 1.2.6, *Phasing of the HCP*. The phases in which District Conserved Lands and District Managed Lands are brought into the HCP Preserve are shown in Figure 5-1. The HCP Preserve will include 777.6 acres of District Conserved Lands (Table 5-1). The majority of District Conserved Lands, 482.8 acres, will be dedicated for conservation during Phase 1 of the HCP. An additional 185.7 acres of SBCFCD Conserved Lands are also expected to be dedicated in Phase 1 with the completion of the Flood Control ITP and IA. The Conservation District will also begin habitat management activities on approximately 502.5 acres of District Managed Lands in Phase 1.

Phase 2 of the HCP implementation will begin with the completion of the BLM land exchange (see *BLM Land Exchange* in Section 3.2.2, *Ownership and Easements*) and will result in an additional 294.8 acres of District Conserved Lands and 193.6 acres of District Managed Lands and will be actively managed with the initiation of Phase 2 of the HCP.[31]

The vegetation communities that will be designated District Conserved Lands and District Managed Lands are shown (collectively as HCP Preserve) in Figure 5-2. These areas will be managed and monitored as they are brought into the HCP Preserve in Phase 1 or Phase 2 (see Figure 5-3). Table 5-1 summarizes the conservation for the vegetation communities.

Table 5-2 summarizes the conservation for each Covered Species during Phase 1 and Phase 2 of the HCP implementation. The figures showing the HCP Preserve designation and Phasing are included under the discussion of conservation for each species, below.

[31]Management in priority areas of District Managed Lands (i.e., spineflower areas) and the breakout area will begin in Phase 1 as part of the Jump Start.

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

Vegetation	District Conserved Lands	SBCFCD Conserved Lands	District Managed Lands	HCP Preserve Total	Future SBCFCD Mitigation Area	Neutral Lands
RAFSS – Pioneer	119.9	87.0	35.9	242.7	56.5	90.9
RAFSS – Intermediate	230.6	74.9	236.8	542.3	79.3	163.8
RAFSS – Intermediate/Mature	160.0	7.9	316.5	484.4	11.7	118.4
RAFSS – Mature	166.3	9.0	57.3	232.6	0.0	93.1
RAFSS – Mature/NNG	27.8		0.0	27.8		69.3
RSS						1.6
Sage Scrub Subtotal	*704.6*	*178.7*	*646.4*	*1,529.8*	*147.5*	*537.1*
Willow Thickets						11.1
Mule Fat Scrub						1.4
Aquatic Vegetation						0.2
Riparian/Aquatic Subtotal						*12.7*
Non-Native Grassland	7.0	2.1	19.3	28.4	1.4	101.5
Perennial Pepper Weed						21.0
Tamarisk Thickets						22.4
Non-Native Subtotal	*7.0*	*2.1*	*19.3*	*28.4*	*1.4*	*144.9*
Recharge Basin	10.8		8.8	19.6		48.1
Active Sedimentation Basin						2.9
Developed/Disturbed	55.2	4.9	21.6	81.7	2.0	523.2
Existing Feature Subtotal	*66.0*	*4.9*	*30.4*	*101.3*	*2.0*	*574.2*
Total	**777.6**	**185.7**	**696.1**	**1,659.5**	**150.9**	**1,269.0**

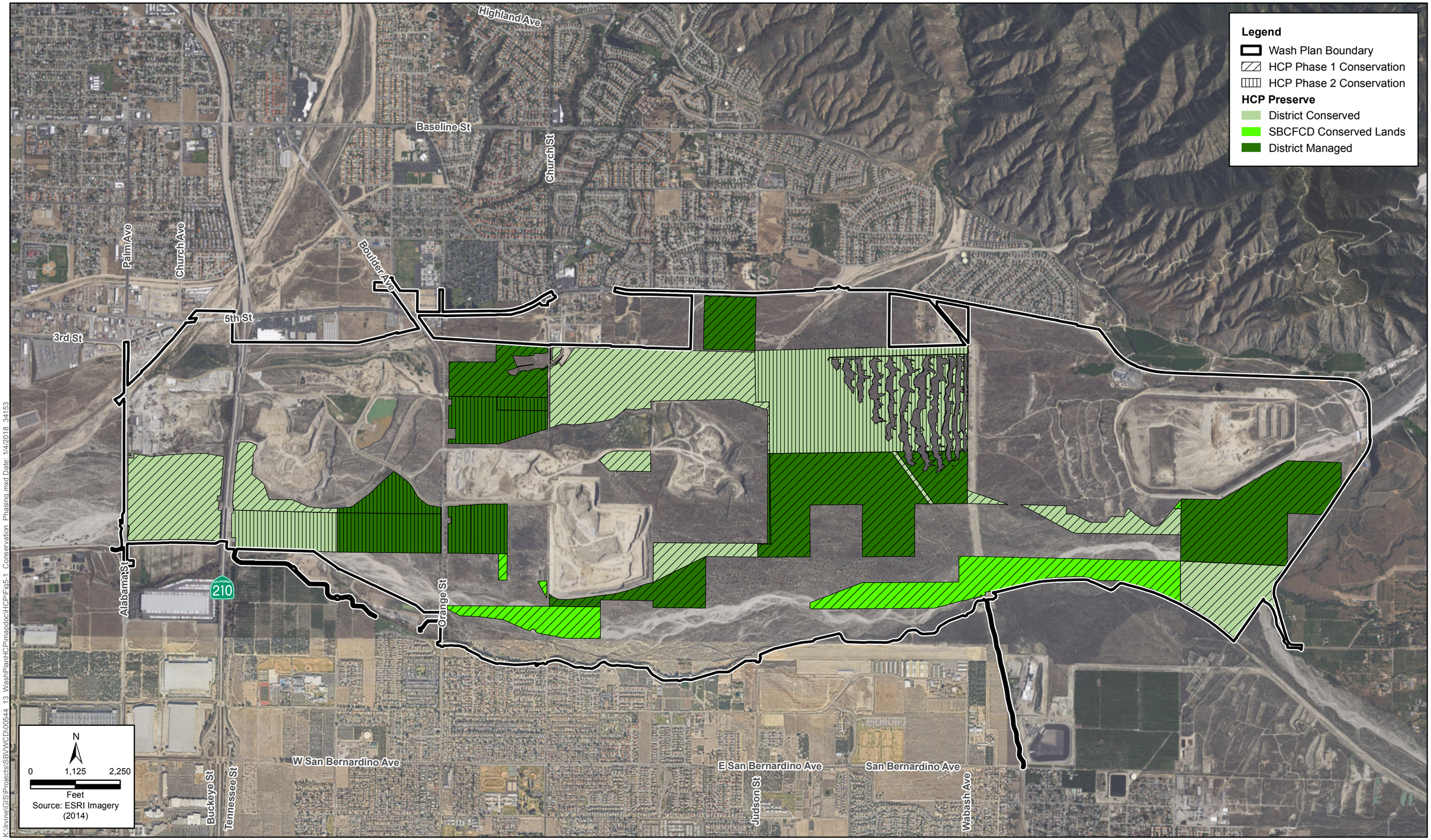
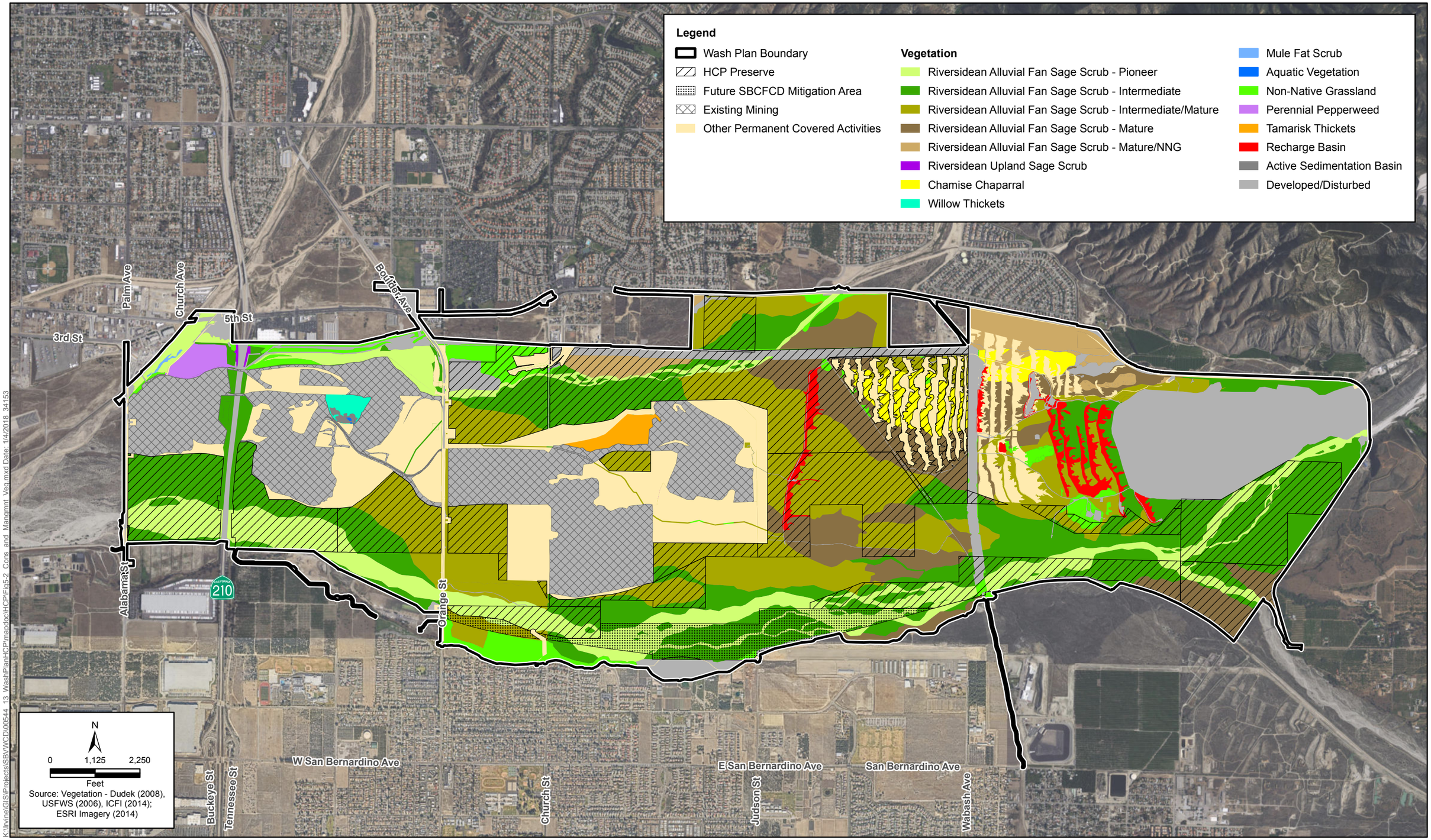


Figure 5-1
Conservation Phasing
Wash Plan HCP



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Figure 5-2
Conservation and Management for Vegetation Communities
Wash Plan HCP

Legend

- Wash Plan Boundary
- HCP Phase 1 Conservation
- HCP Phase 2 Conservation

Vegetation

- Riversidean Alluvial Fan Sage Scrub - Pioneer
- Riversidean Alluvial Fan Sage Scrub - Intermediate
- Riversidean Alluvial Fan Sage Scrub - Intermediate/Mature
- Riversidean Alluvial Fan Sage Scrub - Mature
- Riversidean Alluvial Fan Sage Scrub - Mature/NNG
- Riversidean Upland Sage Scrub
- Chamise Chaparral
- Willow Thickets
- Mule Fat Scrub
- Aquatic Vegetation
- Non-Native Grassland
- Perennial Pepperweed
- Tamarisk Thickets
- Recharge Basin
- Active Sedimentation Basin
- Developed/Disturbed

Palm Ave
Church Ave
Boulder Ave
5th St
3rd St
Alabama St
210
Orange St
W San Bernardino Ave
Buckeye St
Tennessee St
Church St
E San Bernardino Ave
Judson St
San Bernardino Ave
Wabash Ave

N

0 1,125 2,250

Feet

Source: Vegetation - Dudek (2008), USFWS (2006), ICFI (2014); ESRI Imagery (2014)

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Figure 5-3
Conservation Phasing for Vegetation Communities
Wash Plan HCP

Table 5-2. Species Habitats Conserved and Managed in Phase 1 and Phase 2 of the Wash Plan HCP

	Phase 1				Phase 2					
Species Habitat	**District Conserved Lands**	**SBCFCD Conserved Lands**	**District Managed Lands**	**Phase 1 Total**	**District Conserved Lands**	**District Managed Lands**	**Phase 2 Total**	**HCP Preserve Total (Phase 1 and 2)**	**Future SBCFCD Mitigation Area**	**Neutral Lands**
Slender-horned Spineflower										
Extant Patches	3.0	- -	2.0	***5.0***		15.0	***15.0***	**20.0**	1.0	- -
Historic Occurrences	7.0	- -	7.0	***14.0***	1.0	21.0	***22.0***	**36.0**	- -	- -
Slender-horned Spineflower Subtotal	*10.0*	- -	*9.0*	*19.0*	*1.0*	*36.0*	*37.0*	56.0	*1.0*	- -
Santa Ana River Woolly-star										
Known Occupied Grid Areas	78.6	5.4	57.2	***141.2***	16.1	47.0	***63.1***	**204.3**	4.4	7.6
Cactus Wren										
Cactus Patches (Primary Nesting Habitat)	10.2	0.0	7.9	***18.1***	3.9	10.5	***14.4***	**32.5**	- -	4.6
Coastal California gnatcatcher										
High Quality (potential nesting and wintering habitat)	35.4	12.3	22.8	***70.5***	- -	- -	- -	**70.5**		12.6
Medium Quality (potential wintering habitat)	30.7	34.7	124.5	***189.9***	- -	0.3	***0.3***	**190.2**	36.9	66.0
Low Quality (potential foraging and dispersal habitat)	304.2	72.3	240.3	***616.8***	226.8	187.9	***414.7***	**1,031.5**	89.0	366.2
Coastal California gnatcatcher Subtotal	*370.3*	*119.3*	*387.6*	*877.2*	*226.8*	*188.2*	*415.0*	1,292.2	*125.9*	*444.8*
San Bernardino Kangaroo Rat										
High Suitability	102.9	3.6	63.5	***170.0***	14.9	106.9	***121.8***	**291.8**	0.7	5.1
Medium Suitability	70.3	36.6	77.5	***184.4***	15.1	28.1	***43.2***	**227.6**	11.5	7.8
Low Suitability	88.7	59.4	80.4	***228.5***	43.7	45.7	***89.4***	**317.9**	76.0	23.9
Very Low Suitability	130.7	22.4	228.4	***381.5***	168.4	9.3	***177.7***	**559.2**	40.8	467.5
Ecological Process Area	84.2	61.8	40.2	***186.2***	37.1	2.7	***39.8***	**226.0**	21.1	46.6
San Bernardino Kangaroo Rat Subtotal	*476.8*	*183.8*	*490.0*	*1,150.6*	*279.2*	*192.7*	*471.9*	1,622.5	*150.0*	*551.0*

Slender-horned Spineflower Habitat Conservation

The HCP will conserve and actively manage 5 extant patches and 14 historic patches of spineflower during Phase 1 of the HCP. In Phase 2 of the HCP an additional 15 extant and 22 historic patches of spineflower will be conserved and actively managed. See Table 5-2 and Figures 5-4 and 5-5.

Significant portions of the Plan Area have been surveyed for spineflower in the past; however there are still survey gaps, particularly in the northern part of the HCP Preserve, including portions of the Plunge Creek area. Avoidance and minimization measures (see Section 5.5, *Impact Avoidance and Minimization Measures*) will be implemented to minimize the extent that spineflower habitat would be adversely affected by Covered Activities (including habitat management and monitoring actions). Management and monitoring actions (Sections 5.2.2, *Approach to Habitat Management*, and 5.2.3, *Approach to Monitoring*, respectively) will be implemented in an adaptive management context (Section 5.3, *Adaptive Management and Monitoring Program*) to ensure that the biological goals and objectives are met in the areas where this species is conserved.

Santa Ana River Woolly-star Habitat Conservation

The HCP will conserve and manage approximately 141.2 known occupied grid areas (25 x 25 meters) during Phase 1 of the HCP. In Phase 2 of the HCP an additional 63.1 occupied grid areas will become actively managed. See Table 5-2 and Figures 5-6 and 5-7.

Habitat management may entail some loss of individuals and temporary habitat impacts on woolly-star. Avoidance and minimization measures (see Section 5.5, *Impact Avoidance and Minimization Measures*) will be implemented to minimize the extent that woolly-star habitat would be adversely affected by Covered Activities (including habitat management and monitoring actions). Management and monitoring actions (Sections 5.2.2, *Approach to Habitat Management,* and 5.2.3, *Approach to Monitoring*, respectively) will be implemented in an adaptive management context (Section 5.3, *Adaptive Management and Monitoring Program*) to ensure that the biological goals and objectives are met in the areas where this species is conserved.

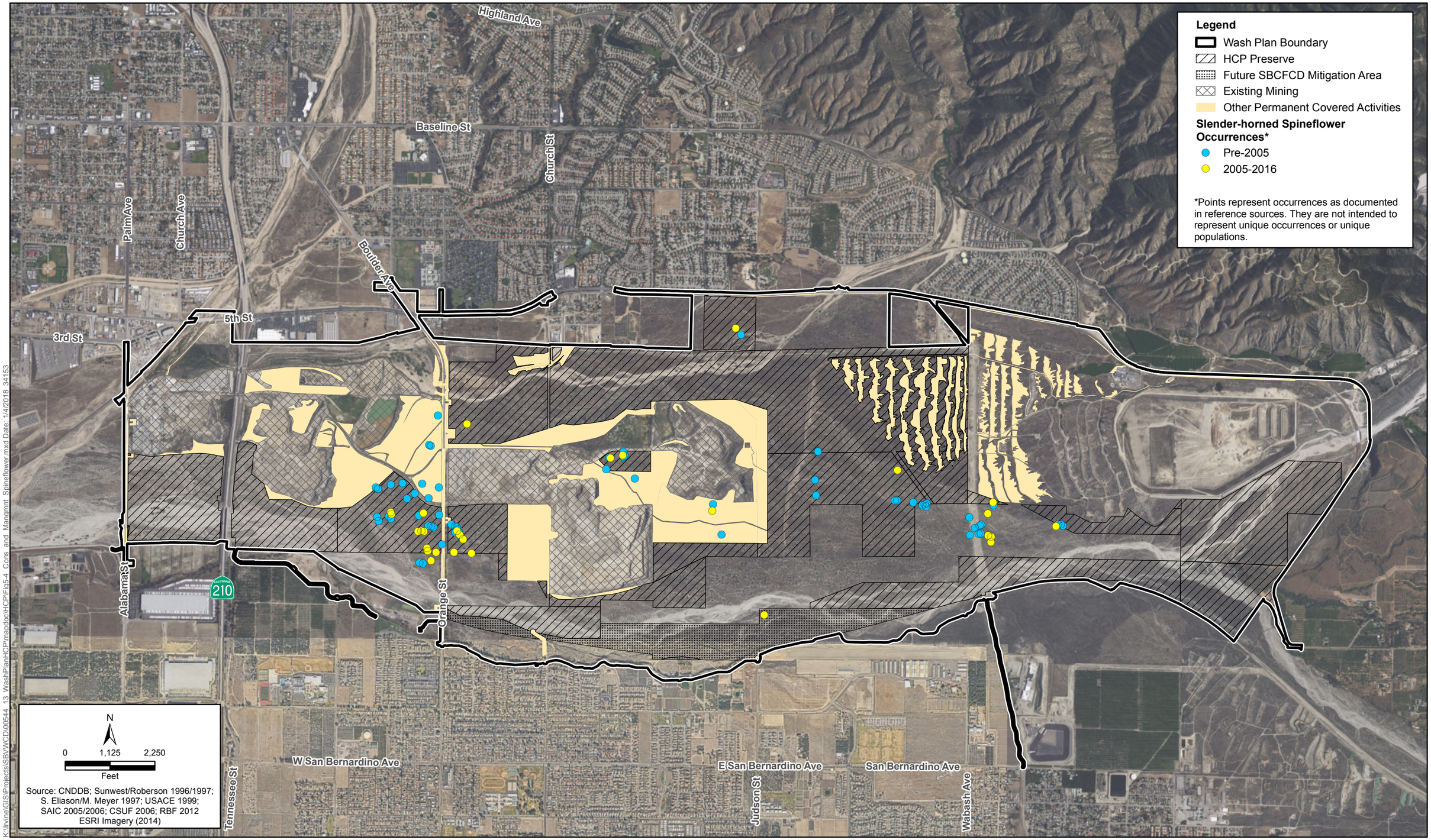
Cactus Wren Habitat Conservation

The HCP will conserve and manage approximately 18.1 cactus patch areas (primary nesting habitat) during Phase 1. This area will be managed and monitored along with the 14.4 cactus patch areas that will be protected during Phase 2. See Table 5-2 and Figures 5-8 and 5-9.

Avoidance and minimization measures (see Section 5.5, *Impact Avoidance and Minimization Measures*) will be implemented to minimize the extent that cactus wren habitat would be adversely affected by Covered Activities (including habitat management and monitoring actions). Management and monitoring actions (Sections 5.2.2, *Approach to Habitat Management,* and 5.2.3, *Approach to Monitoring*, respectively) will be implemented in an adaptive management context (Section 5.3, *Adaptive Management and Monitoring Program*) to ensure that the biological goals and objectives are met in the areas where this species is conserved.

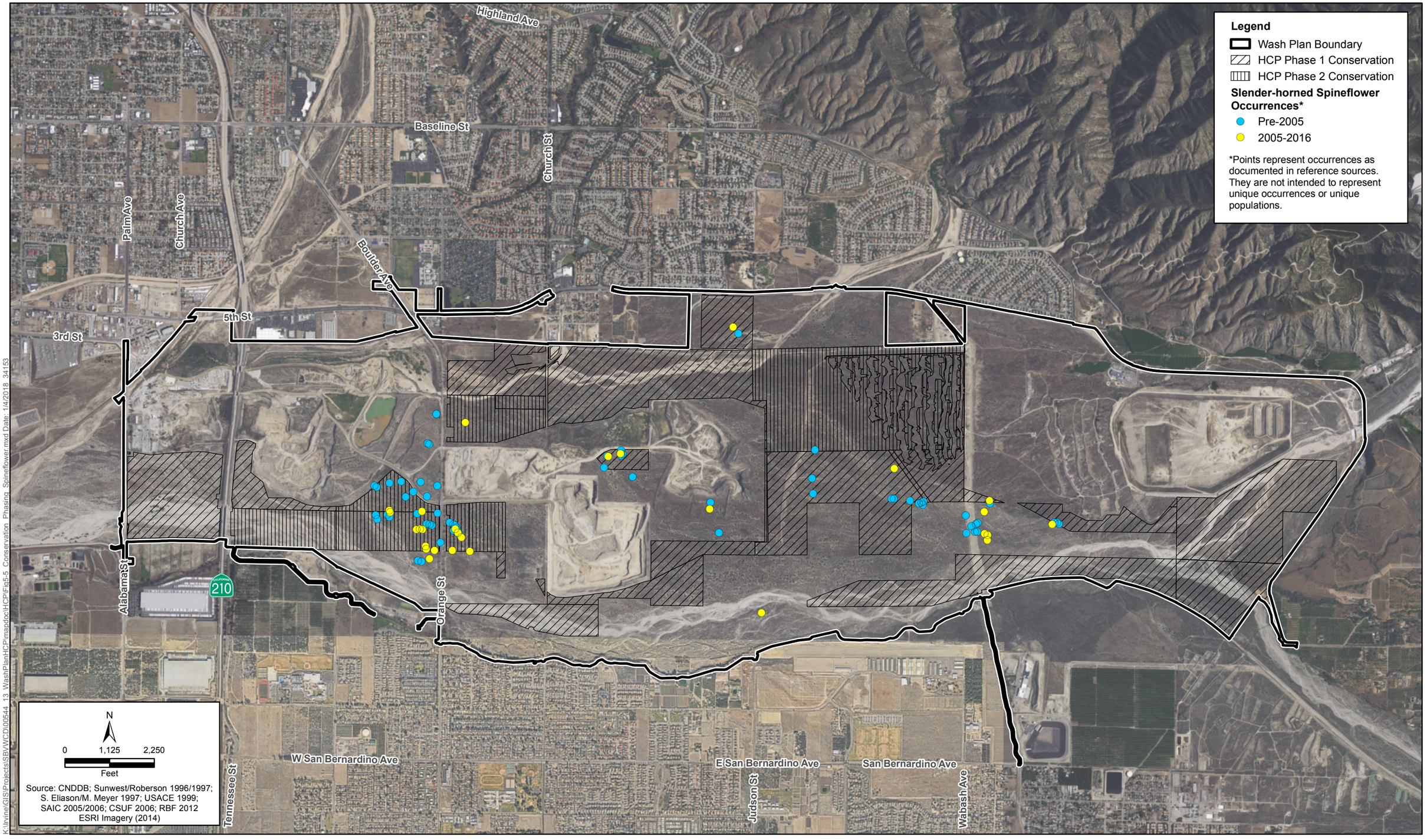
Coastal California Gnatcatcher Habitat Conservation

In Phase 1 of the HCP approximately 70.5 acres of high quality nesting and wintering habitat, 189.9 acres of medium quality potential wintering habitat, and 616.8 acres of potential foraging and



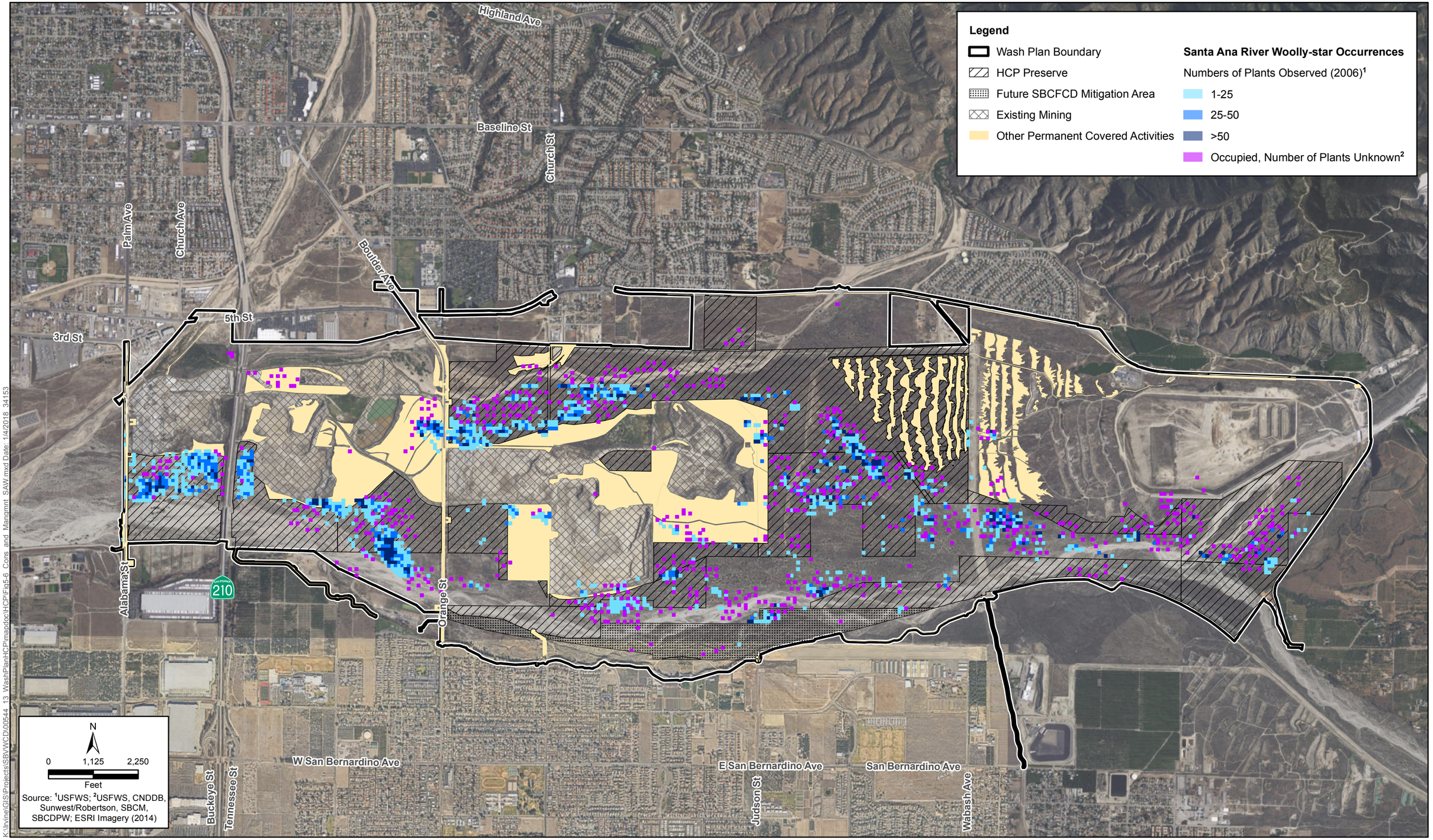
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Figure 5-4
Conservation and Management for Slender-horned Spineflower
Wash Plan HCP



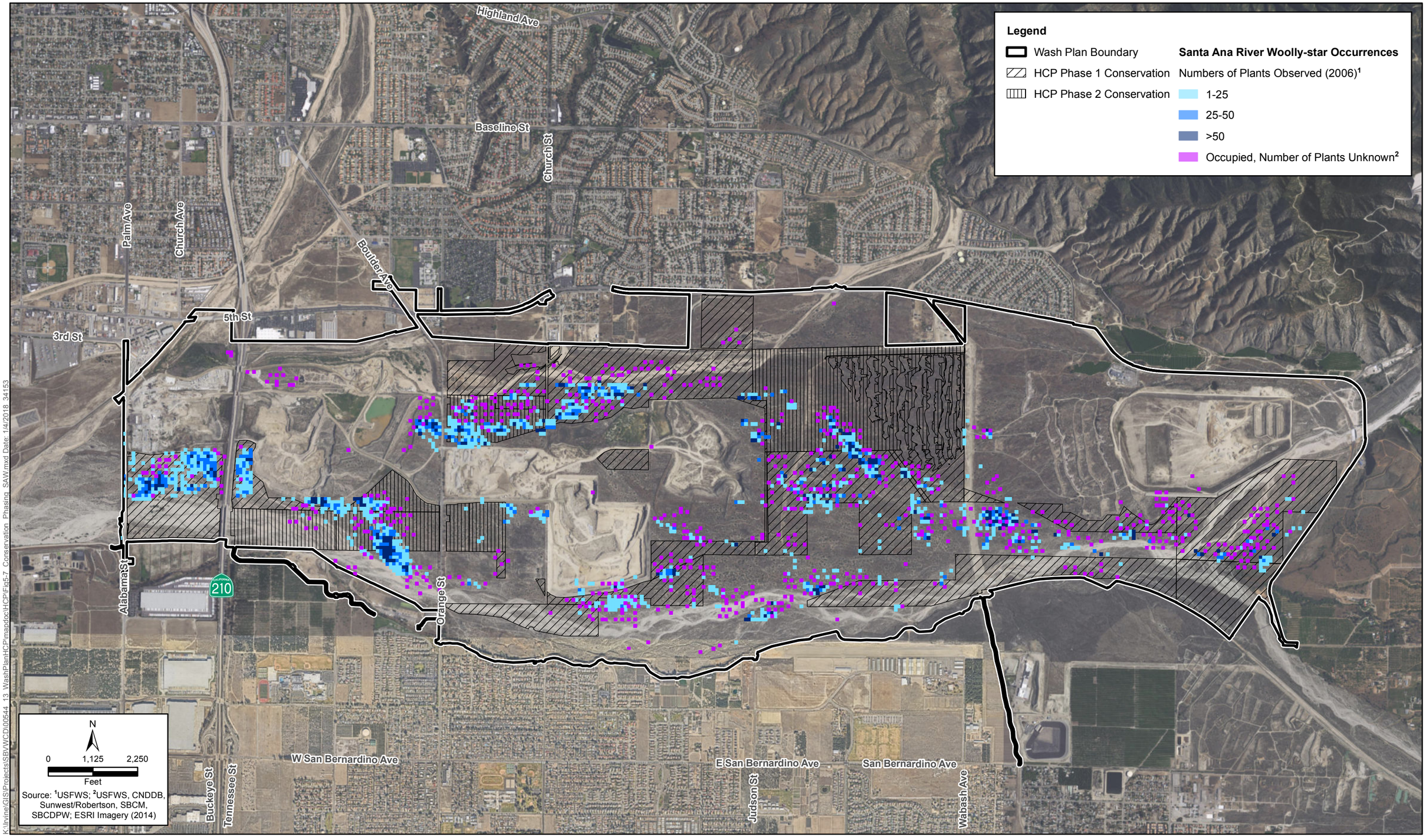
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Figure 5-5
Conservation Phasing for Slender-horned Spineflower
Wash Plan HCP



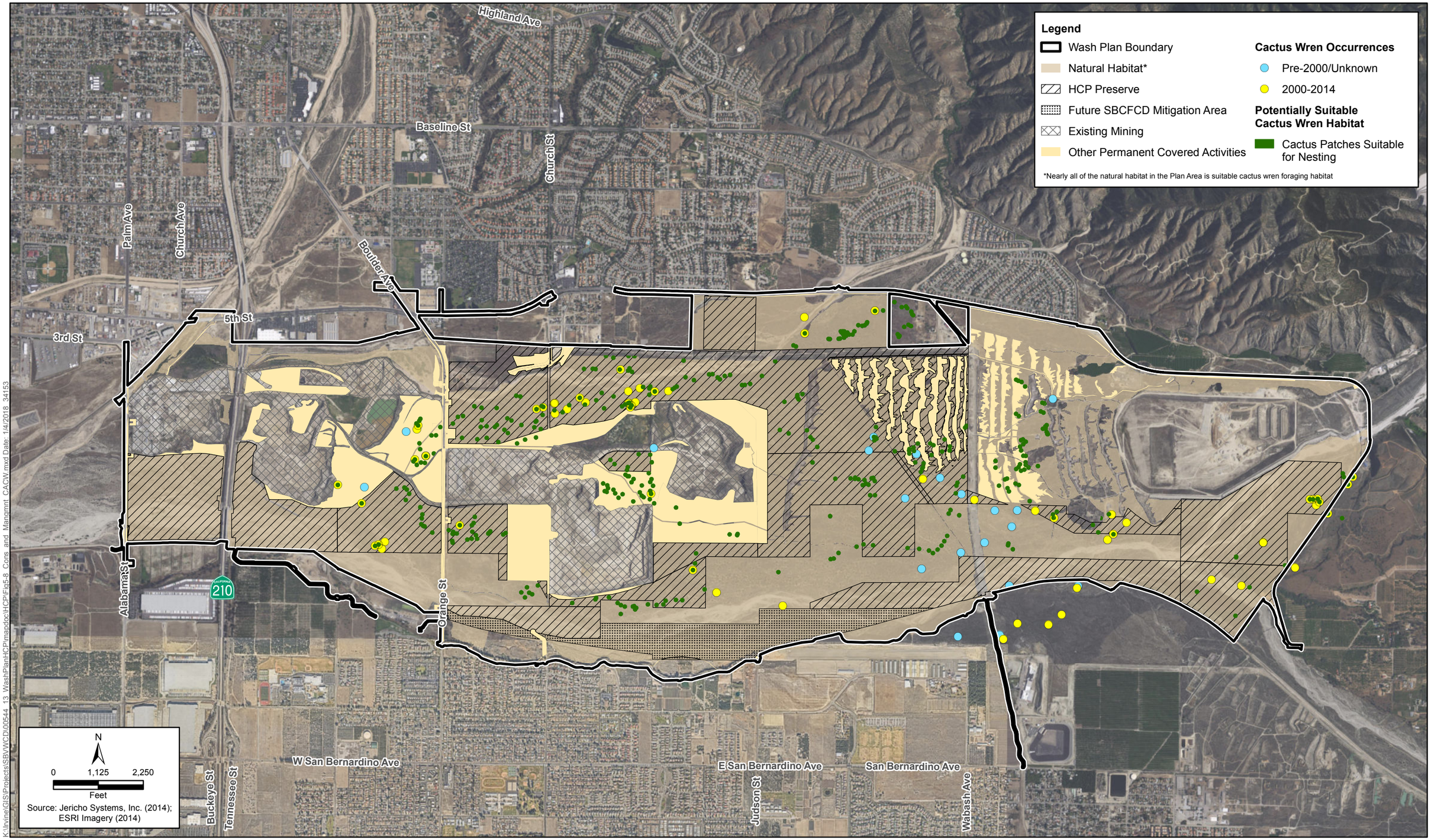
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Figure 5-6
Conservation and Management for
Santa Ana River Woolly-star Occurrences
Wash Plan HCP



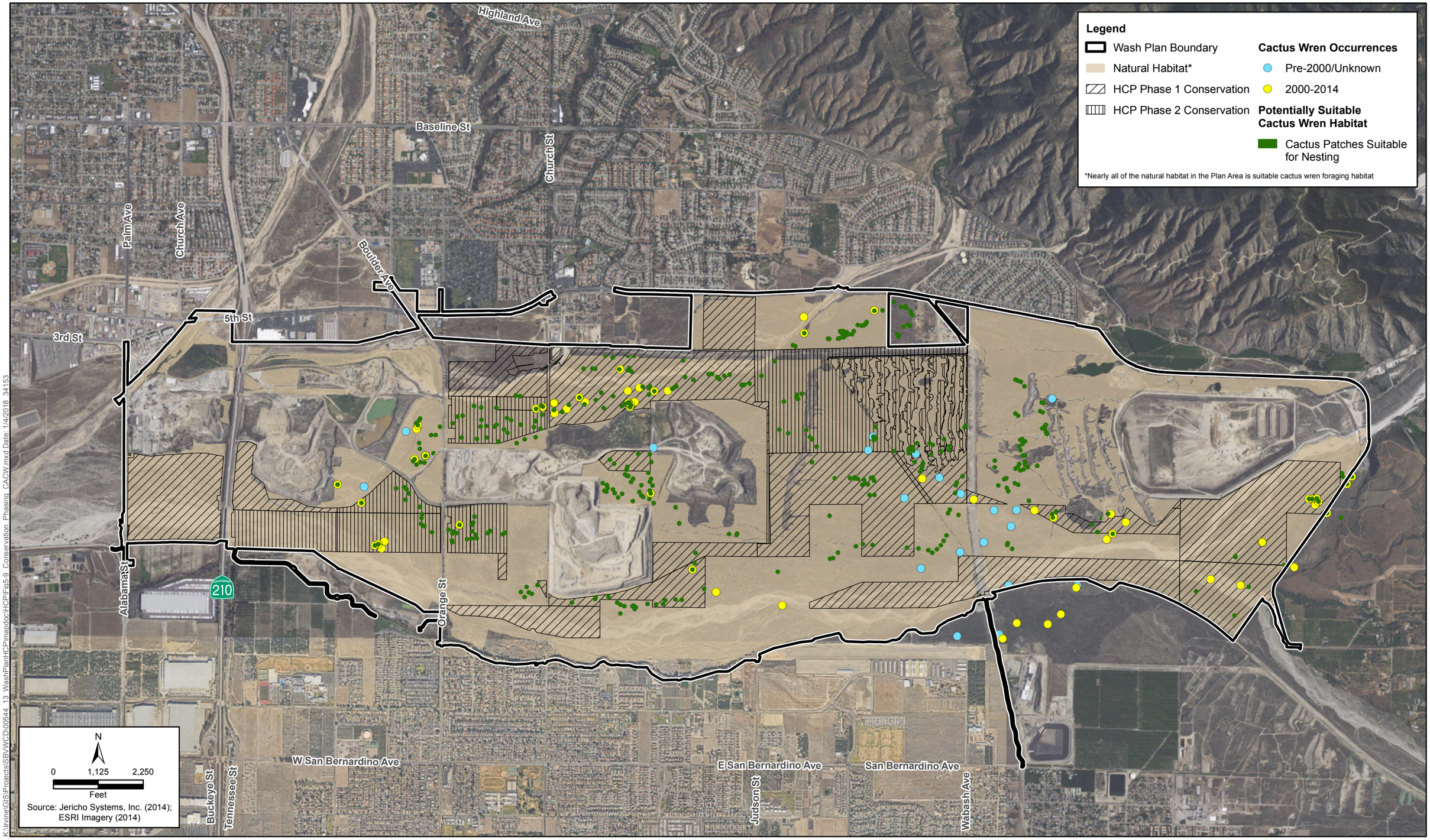
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Figure 5-7
Conservation Phasing for
Santa Ana River Woolly-star Occurrences
Wash Plan HCP



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Figure 5-8
Conservation and Management for Cactus Wren
Wash Plan HCP



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Figure 5-10
Conservation Phasing for Cactus Wren
Wash Plan HCP

dispersal habitat will be conserved and managed. An additional approximately 0.3 acre of medium quality potential wintering habitat, and 414.7 acres of potential foraging and dispersal habitat, will be conserved and managed during Phase 2. See Table 5-2 and Figures 5-10 and 5-11.

Avoidance and minimization measures (see Section 5.5, *Impact Avoidance and Minimization Measures*) will be implemented to minimize the extent that gnatcatcher habitat would be adversely affected by Covered Activities (including habitat management and monitoring actions). Management and monitoring actions (Sections 5.2.2, *Approach to Habitat Management,* and 5.2.3, *Approach to Monitoring*, respectively) will be implemented in an adaptive management context (Section 5.3, *Adaptive Management and Monitoring Program*) to ensure that the biological goals and objectives are met in the areas where this species is conserved.

San Bernardino Kangaroo Rat Habitat Conservation

During Phase 1, the HCP will conserve approximately 1,150.6 acres of habitat important for SBKR, and an additional 471.9 acres during Phase 2. Table 5-2 breaks down the acreage into areas of high, medium, and low habitat suitability as well as areas important for the ecological processes (hydrologic flood and scour processes that create and maintain suitable soil substrate for SBKR burrowing). See Table 5-2 and Figures 5-12 and 5-13.

Avoidance and minimization measures (see Section 5.5, *Impact Avoidance and Minimization Measures*) will be implemented to minimize the extent that SBKR habitat would be adversely affected by Covered Activities (including habitat management and monitoring actions). Management and monitoring actions (Sections 5.2.2, *Approach to Habitat Management,* and 5.2.3, *Approach to Monitoring*, respectively) will be implemented in an adaptive management context (Section 5.3, *Adaptive Management and Monitoring Program*) to ensure that the biological goals and objectives are met in the areas where this species is conserved.

5.2.2 Approach to Habitat Management

The HCP Preserve (District Conserved and District Managed Lands) will be managed for the conservation and protection of Covered Species.

The primary habitat management approach focused on the maintenance and enhancement of overall habitat quality for Covered Species through (1) the control of non-native annual grasses and other invasive non-native plants, and (2) the restoration and enhancement of spineflower and woolly-star populations[32].

To create a management treatment database for both the control of non-native annual grasses and other invasive plants, and for potential vegetation thinning, the management areas were further divided into distinct GIS polygons based on vegetative cover. Using these data, the habitat was evaluated to make an initial determination of the appropriate types of management prescriptions. All prescribed management actions will be implemented within an adaptive management context, and therefore will be modified as new information is gained to improve the effectiveness of the management actions in meeting the biological goals and objectives.

[32] During facility and habitat maintenance activities, any remnant water facilities, such as rock walls and gate structures will be protected in place.

The potential use of four different management treatments to control non-native annual grasses and other invasive non-native annual plants which could be used over a large area were evaluated:[33] (1) sheep grazing, (2) prescribed fire, (3) the use of herbicides, and (4) mechanical removal. The evaluation was conducted in the context of Covered Species locations, mapped vegetation, and vegetation visible in aerial photographs. Each of the treatment options was assigned one of three categories in each management polygon: (1) permissive (allowed), (2) provisional, and (3) prohibited.

Grazing was made provisional where woolly-star are present, meaning that the effects of grazing on woolly-star would need to be evaluated prior to allowing grazing over larger areas where woolly-star is present. It may prove necessary to exclude grazing from woolly-star areas through the use of portable fencing or other exclosures. Fire was also made provisional where woolly-star is present. The effects of fire on woolly-star will need to be evaluated before using fire as a treatment where it is present. Woolly-star may need to be isolated from the fires. In all cases where spineflower is present, a management designation of prohibited was given for grazing and fire. A monocot-specific herbicide may be used to control annual grasses within and adjacent to spineflower patches. Alternatively, hand clearance may be used in and directly adjacent to spineflower patches.

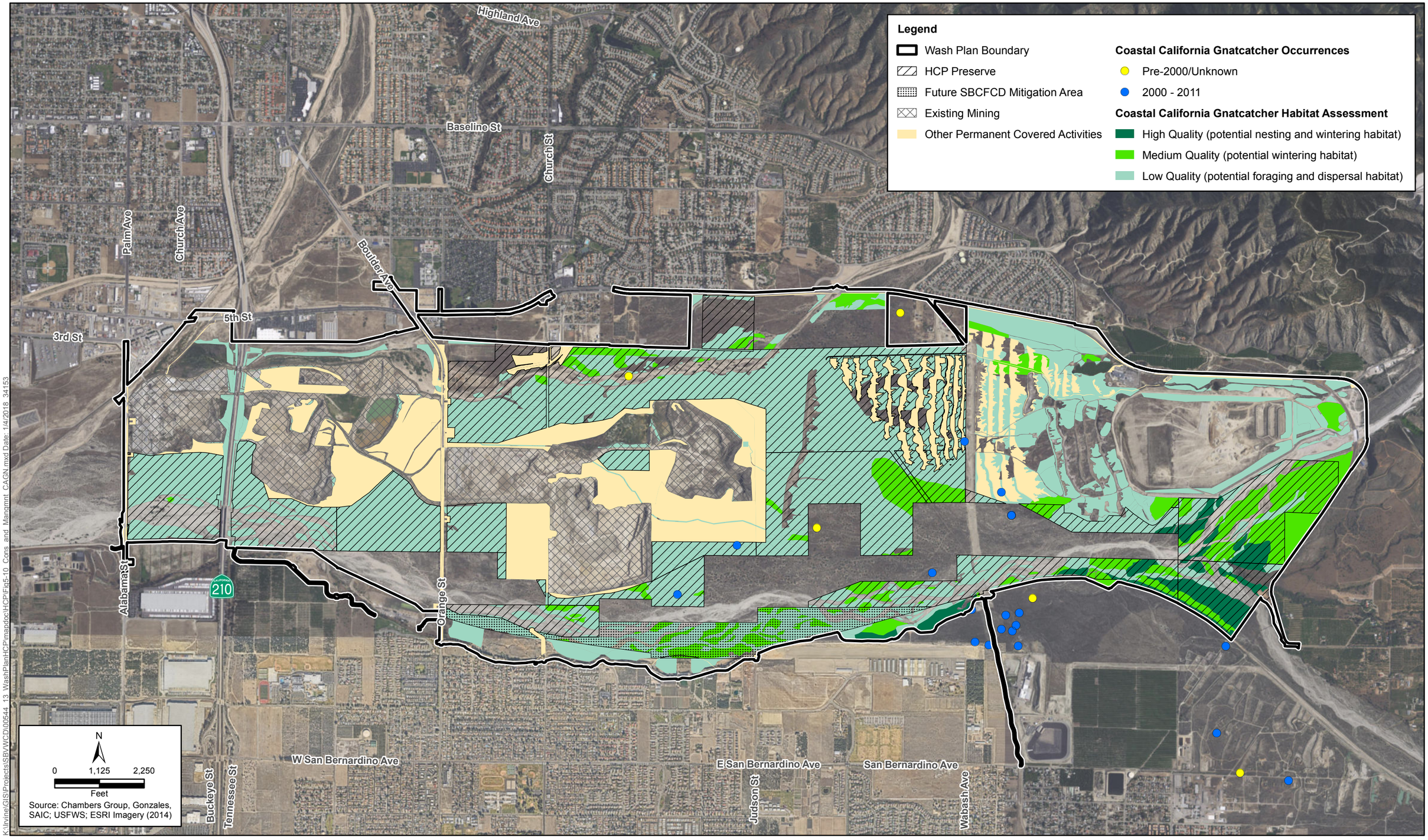
In areas where vegetation could support gnatcatcher nesting or foraging related to nesting, a management designation of prohibited was given for fire even if fire might be useful in controlling non-native grasses. Where stands of cactus were present that could support cactus wren nesting, fire was designated as provisional, contingent on the ability to protect the cactus stands from the harmful effects of fire through pre-fire preparation work (i.e., hand removal of annual grasses around the cactus patches prior to the prescribed burn).

In all cases, the use of herbicide was considered provisional where woolly-star and spineflower are present. In these cases, herbicide may be used but only with proper precautions to protect plants. Precautions may include hand trimming or other means around these areas.

Areas where thinning could be used to improve SBKR habitat were identified, either to restore areas where natural ecological processes have ceased due to the construction of levees and dams, or where better connectivity is desired (i.e., the linkage between the Santa Ana River and Plunge Creek in the 1938 and 1969 flood breakout area). Improving connectivity exclusively through non-native annual grass control will be evaluated before considering thinning. Vegetation thinning would be more conservative or not take place if gnatcatcher nesting habitat, or foraging habitat associated with nesting, were present.

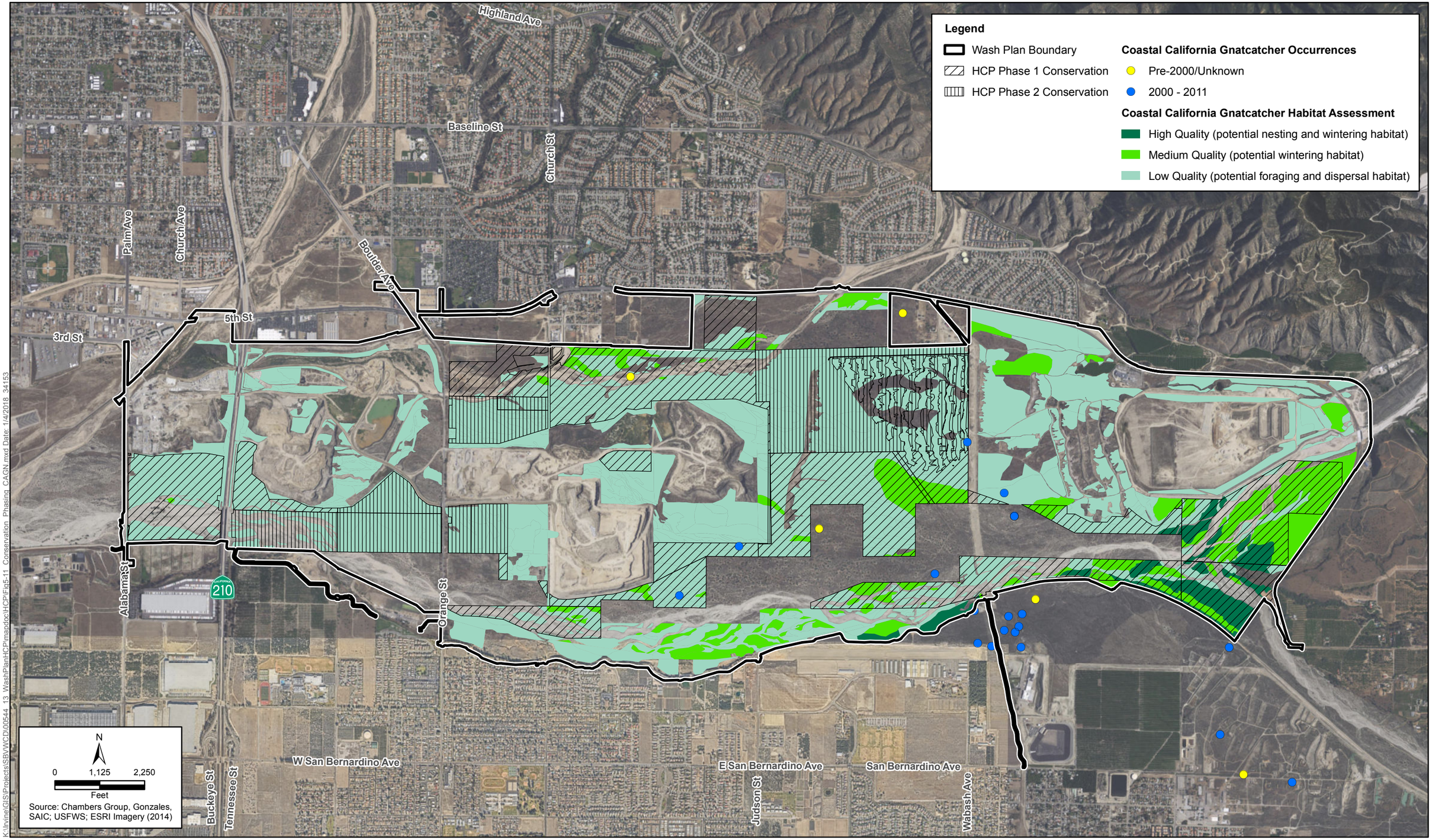
The Conservation District, Flood Control, and the Participating Entities will provide for the permanent management of Covered Species and habitats on all 1,659.5 acres of habitat within the HCP Preserve, including the enhanced management on 696.1 acres of BLM land (see District Managed Lands on Figure 5-1). 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. The conservation easement or other legal instrument will be reviewed and approved by the Wildlife Agencies.

[33] Mechanical removal using hand methods will be used on a more limited basis where appropriate. For example, work crews may use hand tools to prepare fire lines for prescribed burns, and hand tools may be used in selected areas, that is, around spineflower or cactus patches to control non-native annual grasses.



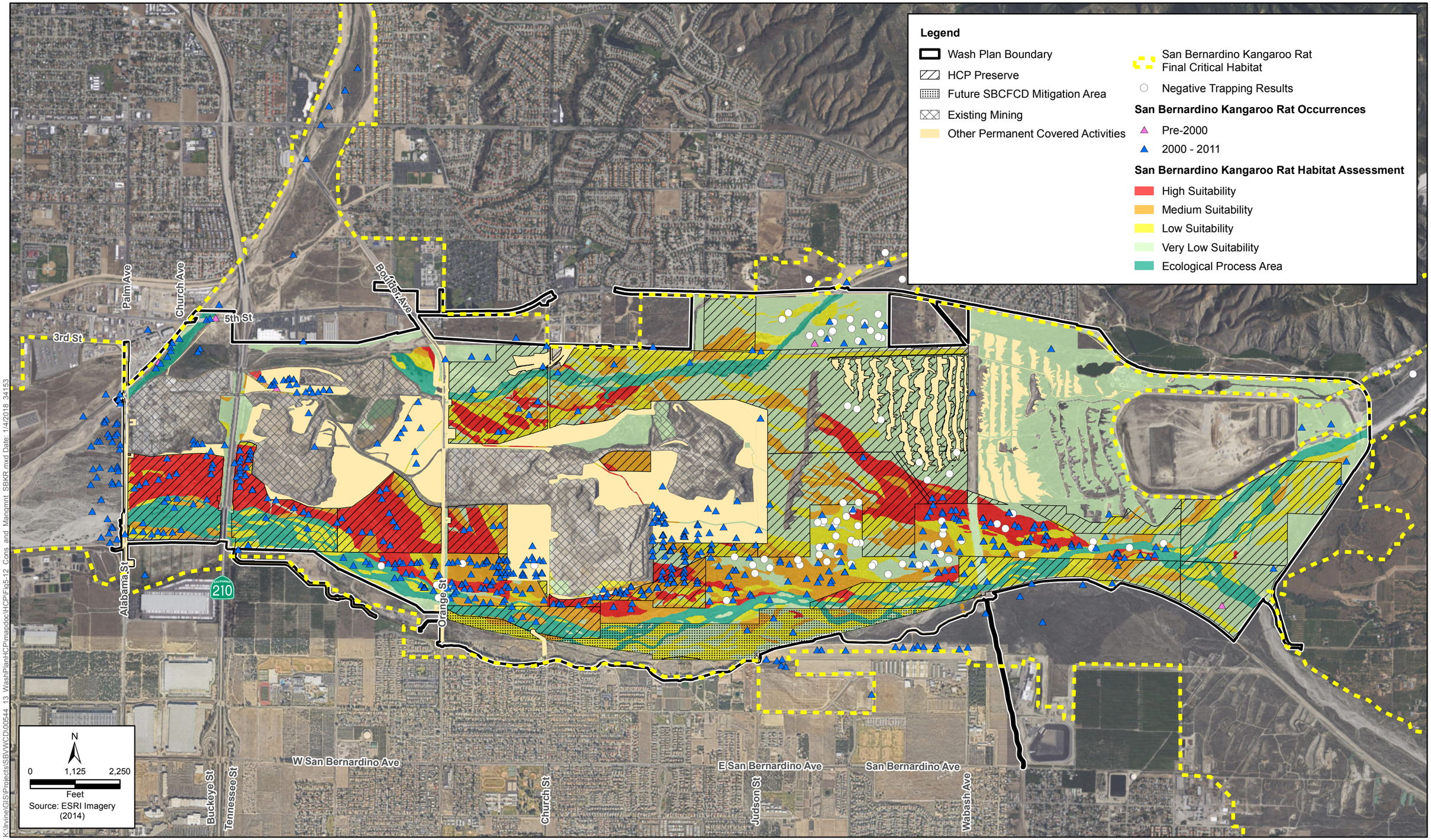
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Figure 5-10
Conservation and Management for Coastal California Gnatcatcher
Wash Plan HCP



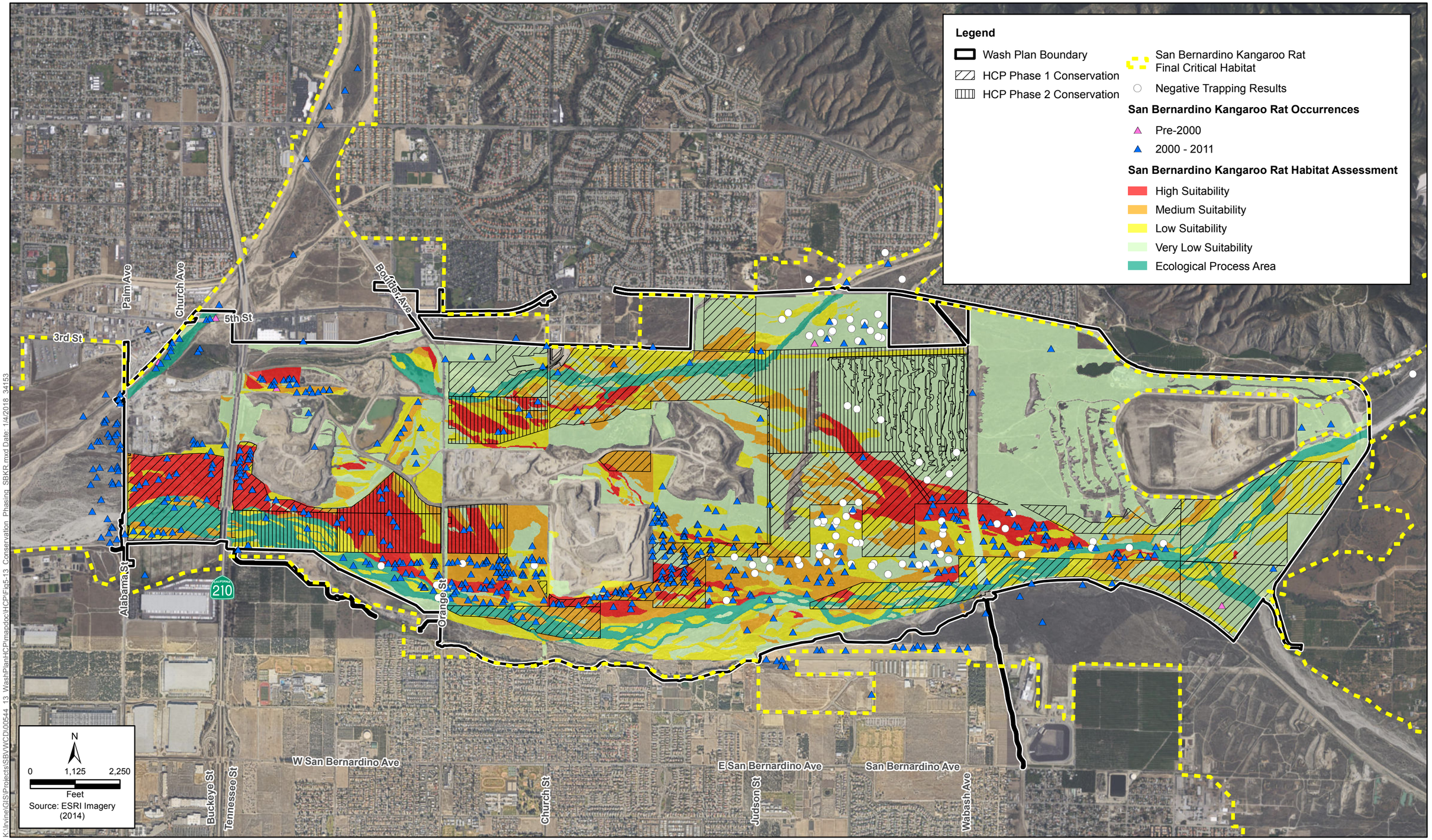
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Figure 5-11
Conservation Phasing for
Coastal California Gnatcatcher
Wash Plan HCP



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Figure 5-12
Conservation and Management for San Bernardino Kangaroo Rat
Wash Plan HCP



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Figure 5-13
Conservation Phasing for
San Bernardino Kangaroo Rat
Wash Plan HCP

Habitat Management Units

The HCP Preserve has been divided into six habitat management units: (1) upland mixed use (126 acres), (2) linkage between Santa Ana River and Plunge Creek (290 acres), (3) Santa Ana River Channel (667 acres), (4) confluence of Mill Creek and Santa Ana River (228 acres), (5) the spineflower contingency parcel within the active mining area (13 acres), and (6) Plunge Creek (335 acres). See Figure 5-14. The habitat within each of these areas is ecologically similar and supports similar plant communities, including in some cases invasive grasses and other non-native species.

Habitat Management Methods

An important part of the adaptive management of the HCP Preserve (District Conserved and District Managed Lands) 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 annual grasses and other invasive plants that reduce the habitat quality for SBKR and compete with the spineflower and woolly-star.

Management Tools

As referenced above, there are currently four basic habitat management tools that can be used to accomplish management objectives related to the control of non-native annual grasses and other non-native invasive plants and the thinning of shrubs, if needed: grazing, prescribed burning, herbicides, and mechanical removal. These tools may be applied alone or in combination, depending on the context of the particular area and the applicability of the selected treatment type(s). For example, spot or partial treatment of an area with herbicides or targeted grazing might be employed following the initial treatment of an area with fire.

Non-Native Invasive Plant Removal

The needed level of effort of annual grass and other invasive plant control was divided into three categories (Figure 5-15):

Spot Treatment: Areas primarily free of annual grasses and other invasive plants where limited herbicide application could achieve effective control and, in the case of some weeds, complete eradication.

Partial Treatment: Areas with moderate levels of annual grass infestations where herbicide application may be used over a broader area, possibly in combination with one or two additional treatment methods including thinning, hand removal, grazing, or prescribed burning.

Full Treatment: Areas with high infestations of annual grasses, 60–100%, or where herbicide application may be needed over the majority of the area, possibly in combination with two or three other treatment types. 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 are 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

Land Cover Type	Full	Partial	Spot	Total
RAFSS – Pioneer	0.4	8.1	234.2	242.7
RAFSS – Intermediate	34.8	294.4	213.1	542.3
RAFSS – Intermediate/Mature	87.0	393.2	4.2	484.4
RAFSS – Mature	14.5	213.1	5.1	232.6
RAFSS – Mature/Non-Native Grassland	0.0	25.4	2.4	27.8
Non-Native Grassland		22.9	5.5	28.4
Recharge Basin		19.3	0.3	19.6
Developed/Disturbed	0.1	66.7	14.9	81.7
Total	**136.9**	**1,043.0**	**479.6**	**1,659.5**

Neutral Lands will be monitored for highly invasive weeds, such as mustard and perennial pepperweed to ensure they are not a source for infestation of conserved and managed lands. A standard invasive weed watch list will be included in the Adaptive Management and Monitoring Program (Appendix B of the HCP), which will be developed by the Conservation District with input from USFWS and will be based on the California Invasive Plant Council inventory (see CalIPC inventory at http://www.cal-ipc.org/ip/inventory/). Management on neutral lands would occur when possible, and may include burning or grazing. The District regularly controls invasive woody species, not grass, on their facilities. These are regularly budget activities that occur based on District Resources. Vegetation management on District facilities will reserve a 0.3 acre area of tree tobacco (*Nicotiana glauca*) for traditional gathering by Native Americans,

Species-Based Management

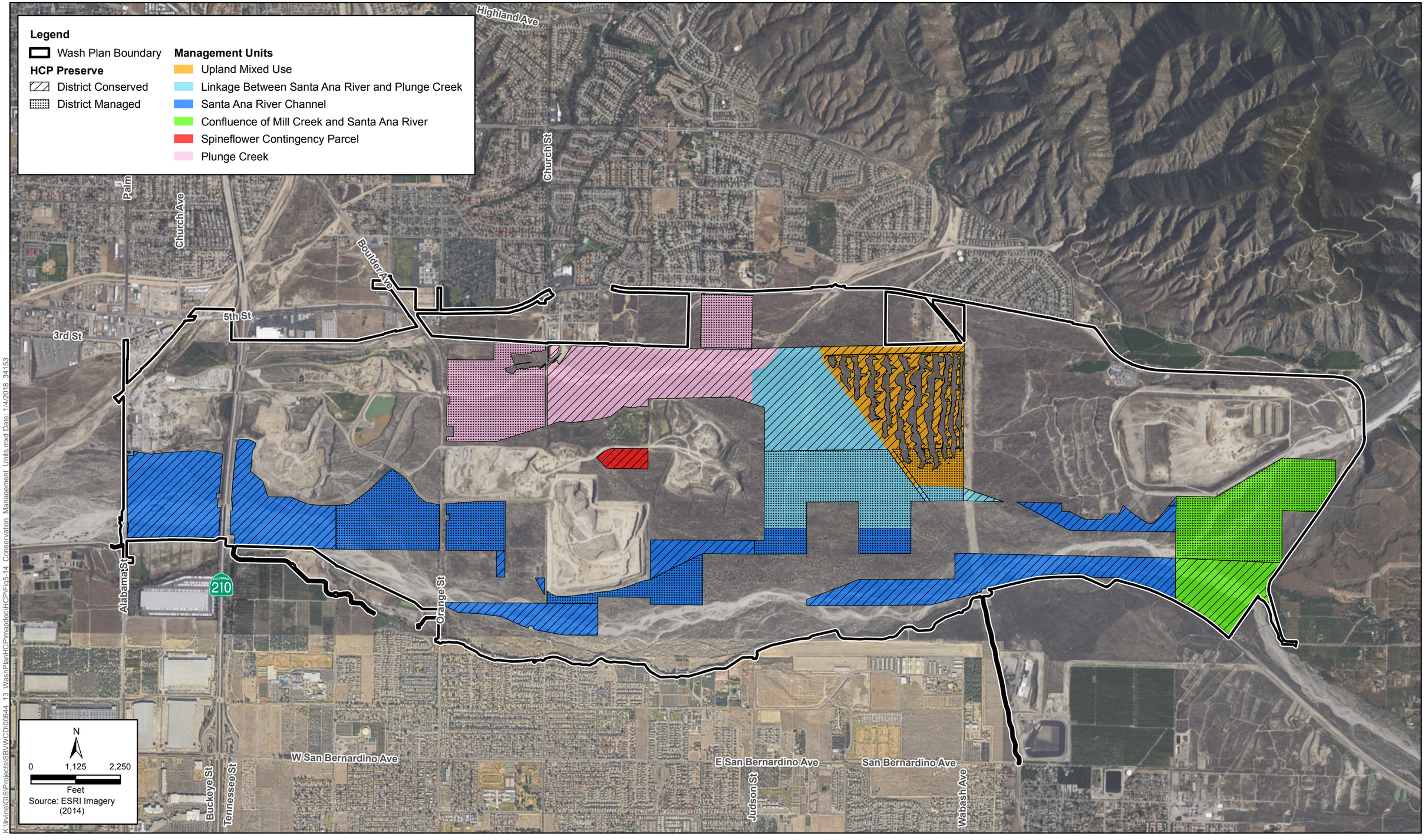
The Conservation District will protect, maintain, and enhance populations of Covered Species through species-based management as described below.

Slender-horned Spineflower Management

Areas within the HCP Preserve (District Conserved and District Managed Lands) will be managed and enhanced for the benefit of slender-horned spineflower, primarily through measures to control non-native invasive plants and to enhance the population size and distribution through the management of the seed bank and implementation of adaptive management focused on development of successful restoration techniques and propagation of the species.

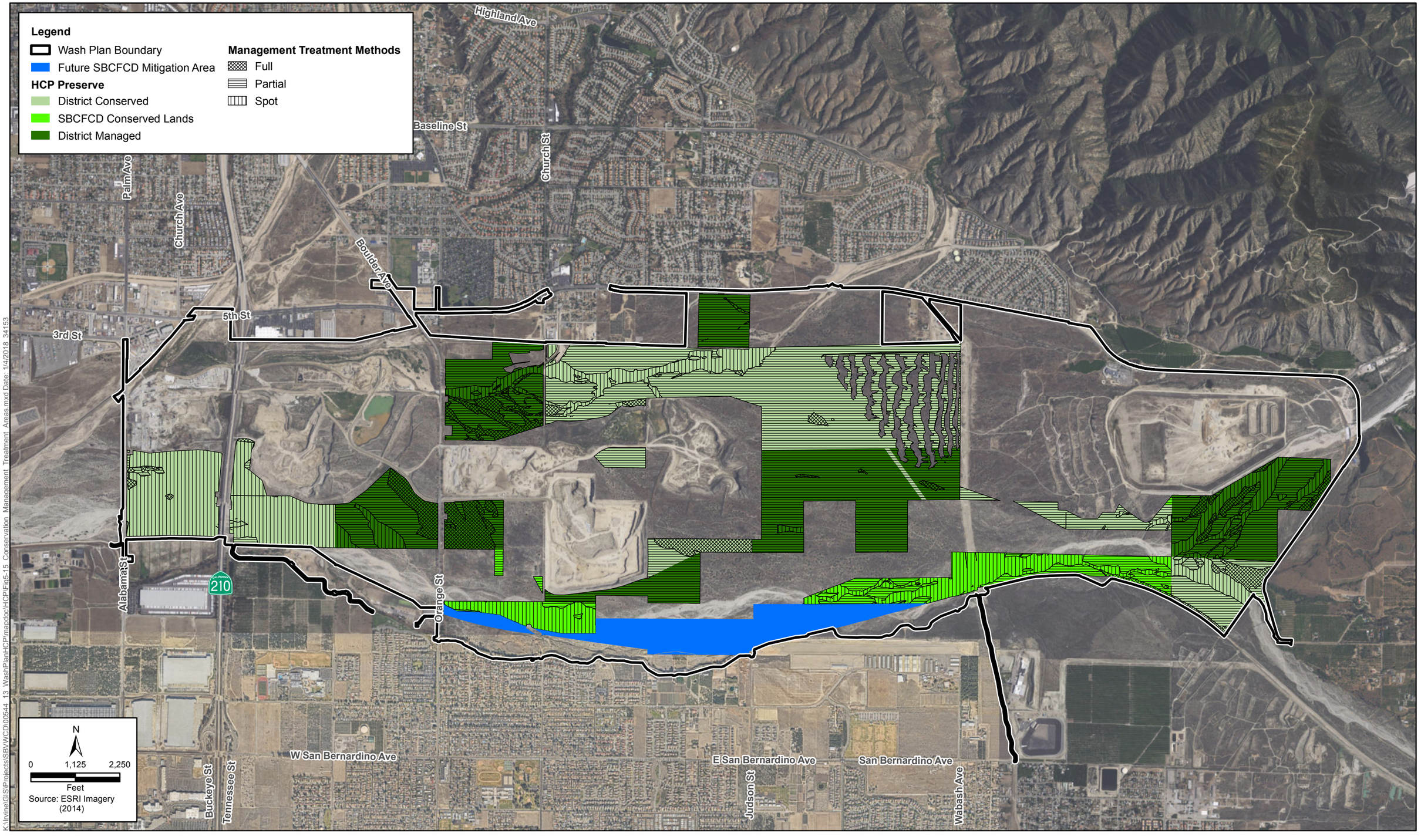
Of the species addressed in the HCP, spineflower is the least understood, both biologically and in terms of management and recovery. To best plan and implement an adaptive management strategy for the spineflower, the Task Force requested that staff select and assemble a Working Group of academics, regulatory 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 in the Plan Area and increasing the distribution of spineflower in treatment areas.

The Spineflower Working Group identified the management of non-native annual grass and other invasive plant species, sheet flow to refresh habitat, and the need to manage the seed bank or population of seeds present in the soil as important to the long-term persistence of the species in the



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Figure 5-14
Management Units in the HCP Preserve
Wash Plan HCP



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Figure 5-15
Conservation and Management Treatment Areas
Wash Plan HCP

HCP Preserve. Seeds present in the soil likely persist for years and only germinate under a 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 and will persist through periods of drought. The seed bank of invasive grasses is not as robust. Input from the Spineflower Working Group was added to the Adaptive Management and Monitoring Program (see Appendix B of this HCP). Additionally, the Spineflower Working Group agreed to review specific management plans as they are developed and it will periodically be reconvened by the Conservation District for this purpose.

The focus of the AMMP for spineflower is to maintain and enhance existing populations on District Managed Lands (and any found on District Conserved Lands) and initiate implementation of the relocation and enhancement program. Experimental actions such as artificial flooding, substrate management, and seed bulking will occur in consultation with the Preserve Management Committee and the Spineflower Working Group.

Santa Ana River Woolly-star Management

Areas within the HCP Preserve (District Conserved and District Managed Lands) will be managed and enhanced for the benefit of Santa Ana River woolly-star, primarily through measures to manage non-native grasses and forbs supplemented by collection and planting of woolly-star seeds in areas identified for enhancement and ongoing monitoring of woolly-star populations.

Management of woolly-star habitat will include the control measures for non-native annual grasses and other invasive plant species 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 and LiDAR 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 the Preserve Management Committee. 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.

Cactus Wren Management

Areas within the HCP Preserve (District Conserved and District Managed Lands) will be managed to benefit the cactus wren, primarily through measures to maintain the suitability of patches of cactus used as nesting habitat as well as the suitability of adjacent foraging habitat. Co-management of cactus wren habitat will also occur as part of non-native controls and related measures for SBKR and woolly-star.

Coastal California Gnatcatcher Management

The majority of the habitat in the Plan Area does not contain sufficient shrub cover and structure to support nesting and wintering gnatcatchers. However, there are areas that are suitable for nesting and/or wintering gnatcatcher, primarily in the southeast corner of the Plan Area. These areas are adjacent to habitat just outside the Plan Area that are known to support gnatcatcher. Suitable habitat areas within the HCP Preserve will be managed to benefit the gnatcatcher, primarily through measures to maintain the suitability of nesting habitat and adjacent wintering and foraging habitat. Co-management of g habitat will also occur as part of non-native controls and related measures for

SBKR and woolly-star. Management actions will consist primarily of maintaining healthy stands of sage scrub vegetation by controlling non-native annual grasses and other invasive species. Re-vegetation after wildfires will also occur if sage scrub stands are not regenerating on their own. If nesting gnatcatchers occur in the HCP Preserve, an adaptive management program to maintain and potentially expand nesting habitat will be developed and implemented. The habitat management program will be subject to review by the Preserve Management Committee. The program can be developed and implemented jointly with the same program to be developed for the cactus wren.

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.

Areas within the HCP Preserve (District Conserved and District 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 non-native grasses and forbs will be planned and conducted in steps. In the first year of HCP implementation, SBKR habitat on District Conserved and District 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 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 3 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 5 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 District Conserved and District 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 3 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 5 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 5-year evaluation.

Maintaining 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. To maintain and enhance connections between core habitat areas they will be managed to maintain relatively open conditions conducive to SBKR movement. To maintain or restore habitat linkages, management measures will be used to remove grasses and forbs and in some cases reduce shrub cover in linkages between SBKR core habitat areas (e.g., between the Santa Ana River and Plunge Creek). The width of the treated areas will be sufficiently large to maintain live-in habitat. The ultimate goal is to increase movement of SBKR between larger occupied areas where movement may currently be impeded by less suitable habitat. The area between Plunge Creek and the 1938 and 1969 Santa Ana River flood breakout area will be the first area treated to enhance and/or re-establish connectivity between Plunge Creek and the Santa Ana River. The methods and criteria for evaluating success will be developed by the Preserve Manager and be subject to review and acceptance by the Preserve Management Committee. The measures will be initiated no later than Year 3 of HCP implementation, and their effectiveness will be evaluated after the area has been managed and monitored for 5 years. If the evaluation demonstrates that the technique is effective, the measures will be applied to other sites as needed.

A large dike known as D-Dike and the groundwater recharge basins behind it bisect the connection between the Santa Ana River and Plunge Creek. The dike has steep embankments and water is intermittently impounded behind it. Together, the dike and the recharge basins can impede the movement of SBKR. To reduce this impediment one or more crossings in the form of earthen ramps will be established to facilitate movement of SBKR and other wildlife across the D-Dike and basins. Movement between populations of SBKR will help maintain genetic diversity, among other benefits. The crossings over D-dike will be placed where it crosses the washes created when a portion of the Santa Ana River broke out of its main channel and flowed northward to Plunge Creek during major floods in 1938 and 1969.

The crossing(s) will be constructed of local material with a suitable substrate for SBKR. The crossing(s) will be strategically located to connect areas where trapping results indicate presence of SBKR and/or where historical scouring has occurred (e.g., see potential crossing location shown in Figure 3-9). A native seed mix will be applied to achieve sparse vegetative cover. Non-native grasses will be controlled following seeding to ensure the establishment of native shrubs and forbs. Although there are several potential designs for crossing D-Dike, the simplest may be to create an earthen land bridge approximately 20 to 40 feet in width with a perpendicular culvert underneath to allow unrestricted flow of percolation water. The Conservation District will consult with a qualified SBKR biologist and the Preserve Management Committee to select a corridor design that is cost-effective and biologically functional. Final decisions regarding the dimensions and number of corridors across D-Dike will occur by Year 3 with installation by Year 5 of HCP implementation and will be based on the best available science.

HCP Preserve Management Committee

A Preserve Management Committee will be formed, and will include a representative of the Conservation District, Flood Control (in accordance with its ITP), and one representative each from the USFWS, CDFW, BLM, and Santa Ana River WSPA Management Committee. Up to two members at large, representing the Participating Entities, will be appointed to 2-year terms by the Conservation

District. Additional non-voting representatives may be appointed by the Conservation District as technical advisory members.

The Preserve Management Committee will provide advice and feedback to the Preserve Manager including review and preliminary approval of the annual management and monitoring budget. They will also provide advice and recommendations to the Conservation District on HCP activities, including recommendations for approval of the annual budget and report. Passage of agenda items will be by a simple majority. A quorum will consist of a simple majority of the members. At least one Wildlife Agency must be present for each vote. A minimum of two meetings will be held annually including one in-person meeting for the purpose of reviewing and approving the annual budget and report.

The Preserve Management Committee will focus on meeting the HCP resource management goals and objectives.

Specifically, the Preserve Management Committee's role will be as follows:

1. Guide the preparation of, and review and approve a detailed AMMP within 2 years of the ITP being issued.
2. Complete an initial review and approval of the annual work plan and recommended budget, and present it to the Conservation District Board of Directors for final review and approval.
3. Review and approve the annual report of management and monitoring activities and present it to the Conservation District Board of Directors for their consideration

Preserve Manager

The Conservation District will provide a Preserve Manager to be responsible for overseeing the management of the HCP Preserve.

The Preserve Manager's responsibilities are as follows:

1. Implement management and monitoring programs for the HCP Preserve.
2. Provide a draft of the Management and Monitoring Plan for the HCP Preserve to the Wildlife Agencies for approval in the first 2 years of Plan Implementation. The draft Management and Monitoring Plan will be provided to the Preserve Management Committee for review and comment prior to submission to the Wildlife Agencies.
3. Prepare recommended annual budget and work plan.
4. Prepare annual management and monitoring report.
5. Work with the Preserve Management Committee to identify and incorporate new, more effective management methods and technologies as they become available.
6. Adjust management actions/prescriptions as needed, based on the results of monitoring data.
7. Prioritize management actions based on current conditions including evaluating and addressing new threats to Covered Species and their habitats.
8. Review all Covered Activities prior to ground-breaking by the Permittee and the Participating Entities to ensure consistency with the HCP and authorized level of take.
9. Implement the adaptive management program.

5.2.3 Approach to Monitoring

The Conservation District, Flood Control, and Participating Entities will provide for the permanent monitoring of Covered Species and habitats on all 1,659.5 acres of habitat within the HCP Preserve (total acres in District Conserved and District Managed Lands).

Specific habitat-based and species-based monitoring actions are described in detail below.

Habitat-Based Monitoring

The Conservation District 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.

Vegetation Monitoring

Vegetation will systematically be monitored across the HCP Preserve to determine its baseline condition (including composition and percent cover) and changes to it over time. This information will be used to help ensure that the vegetative conditions favored by Covered Species (e.g., equal to or less than 20% cover of non-native annual grasses for SBKR) are achieved and maintained. Vegetation monitoring will include determining the ratio of non-native annual grasses and other invasive annual plants to native forbs, native shrub cover and composition, and presence/absence and estimated distribution and number of woolly-star and slender-horned spineflower if present. The monitoring plots will also be used to test the effectiveness of different management prescriptions.

Species-Based Monitoring

The Conservation District will monitor the status and trends of Covered Species throughout the HCP Preserve. The basic approach to monitoring of the Covered Species will be to conduct 3 years of baseline surveys followed by monitoring at intervals corresponding to the average life span of the species: that is, cactus wren every 2 years, gnatcatcher every 4 years, San Bernardino kangaroo rat every 3 years, and Santa Ana River woolly-star every 5 years. Slender-horned spineflower will be monitored annually and potentially, if the biological objectives for the species are met, every 2 years. Permanent sample plots will be established in occupied and unoccupied habitat, and, in addition, randomly selected plots will be sampled each survey cycle. In addition to monitoring for the Covered Species, vegetation monitoring will also occur in each plot using relevés.

Slender-horned Spineflower Monitoring

Due to the limited number and extent of spineflower occurrences within the Plan Area, and the lack of definitive information about effective restoration and enhancement methods, spineflower will be the most closely and frequently monitored Covered Species.

A baseline survey for spineflower will be conducted for 3 years to determine its current distribution and extent within the HCP Preserve. The survey area will include current and historic locations as well as areas thought to be suitable for spineflower. Following the baseline survey, annual monitoring will occur. Where found, the spineflower patch size and number of individuals will be estimated and tracked over time. In addition, the results of management actions to increase existing patch size or create new patches will be carefully monitored for purposes of adaptive management.

Santa Ana River Woolly-star Monitoring

Previously, a comprehensive survey of the Plan Area was conducted for woolly-star. A baseline survey for woolly-star will be conducted for 3 years to determine its current distribution and extent within the HCP Preserve. The survey area will include current and historic locations as well as areas thought to be suitable for woolly-star. Following the baseline survey, annual monitoring will occur. Where found, the number of woolly-star individuals will be estimated and tracked over time. In addition, the results of management actions to increase woolly-star numbers where it is present and to establish it in suitable habitat where it is currently not present, will be carefully monitored for purposes of adaptive management.

Cactus Wren Monitoring

Cactus wren will be monitored at existing locations where they nest and/or there is suitable habitat. A biological objective of the HCP is to increase nesting habitat for cactus wren by establishing new cactus patches. The new cactus patches will be included in monitoring efforts once they are established.

Coastal California Gnatcatcher Monitoring

Although there is only a limited area of habitat in the Plan Area, which is thought to be suitable for gnatcatcher nesting and/or wintering, it is adjacent to areas where gnatcatcher is thought to be resident and thus it may be important to the maintenance of the population in this area. Monitoring plots will be established wherever suitable nesting and wintering habitat is thought to exist. Additional plots may also be established in areas that may be important to gnatcatcher movement between areas of suitable habitat. If additional areas that provide habitat for gnatcatcher develop or are established, the areas will also be included in future surveys.

San Bernardino Kangaroo Rat Monitoring

Surveys for SBKR will occur across the HCP Preserve during the first 3 years of HCP implementation to determine baseline distribution and relative abundance. This will inform future monitoring needs and assist in the refinement and implementation of management objectives and actions. Subsequently, permanent and randomly chosen sample plots will be surveyed to monitor the status and distribution of SBKR over time and to evaluate the efficacy of management actions. Vegetation sampling will also take place within SBKR plots to determine correlates with SBKR presence.

SBKR Habitat Suitability Model and Habitat Assessment

The SBKR habitat suitability model will be compared with habitat suitability assessed in the field. The model will be used as a tool for tracking habitat condition in conjunction with monitoring results. Then the model parameters will be updated to better correspond with results from field data, and the model output will be refined 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 5 years.

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 B of this HCP, and will be developed by the Conservation District with input from USFWS. 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 HCP are achieved; and to ensure ongoing compliance with the HCP. 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 is presented below.

The AMMP is intended to be implemented on the District Conserved and District Managed Lands within the Plan Area, and does not prescribe 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 17.32 [b][1][iii] [C]). An adaptive management strategy is a recommended component of HCPs 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. Sections 5.1 and 5.2 of this HCP integrate 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 HCP's conservation actions will effectively implement the conservation actions described in Section 5.2, *Approach to Habitat Conservation and Management*. 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 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 actions 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, as detailed in the AMMP, will be administered by the Conservation District, who will coordinate and share the results of monitoring and targeted studies 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 an observed degradation of habitat quality or quantity for a Covered Species or important vegetation community.
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.
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 AMMP program are listed below.

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 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 the Conservation District, the Participating Entities, regulatory agencies, scientists and, as appropriate, the public.

5.4 Habitat Restoration and Habitat Maintenance

Habitat restoration and maintenance activities, as described in Section 2.2.8, *Habitat Enhancement and Monitoring*, include the removal or notching of the Santa Ana River levee near the eastern boundary (Greenspot Road) of the Plan Area that will restore regular flooding and scour and sediment deposition 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 and sediment deposition patterns on approximately 30 acres.

Habitat management and maintenance activities may also 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 will 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 Wildlife Agencies, Conservation District, Participating Entities, and SBCFCD, as well as among managers of other conserved lands in the area.

Habitat enhancement and restoration activities beyond those specified in Section 5.2, *Approach to Habitat Conservation and Management* may be implemented by other entities other than the HCP Permittees and the Participating Entities with the concurrence of the Wildlife Agencies. For example, MWD 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 Wildlife 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 Permittees and the Participating Entities under the HCP and would not relieve them of any responsibility to engage in mitigation for their specific projects.

5.5 Impact Avoidance and Minimization Measures

To avoid and minimize actual instances of take (for wildlife) and adverse impacts (for plants), and reduce other potential effects of unavoidable impacts, the following measures will apply to Covered Activities in the Plan Area (Table 5-4). Appendix C provides additional detail for some of the measures, (i.e., fencing, SBKR translocation, and surveys). [Appendix C is in the process of being finalized by the Conservation District and USFWS – Insert before final for Public Review]

Table 5-4. Avoidance and Minimization Measures

Slender-horned Spineflower
• Covered Activities that will result in permanent impacts where the location has not yet been determined (e.g., new wells) will avoid occupied spineflower habitat. An exception can be made upon approval of the Wildlife Agencies if the Permittee or Participating Entity can demonstrate that (1) no alternative sites were feasible, (2) the impact will not result in the loss or compromise of the entire spineflower patch, and (3) the loss of plants will be fully mitigated.
• Prior to ground disturbance from Covered Activities in suitable spineflower habitat,[34] surveys will be conducted if the area has not been surveyed within the last 5 years to determine if the plant is present. Surveys will be conducted in accordance with the CDFW protocols for surveying Special Status plant populations.
• If spineflower are detected during pre-project surveys, seeds will be collected for 4 years prior to ground disturbance. Seed collection and storage will be by an entity which has a Memorandum of Understanding with the USFWS to process and handle the seeds of endangered plant taxa.
• Surface soils will be removed and sequestered at the beginning of any ground disturbing construction or O&M activity where spineflower is present. If cryptogamic soil crust is also present, it will be harvested in blocks, preserved, and placed back on the site after construction. If the impacts are permanent, an alternate site in suitable habitat will be selected in consultation with a qualified botanist or restoration biologist. After the sequestered soil is returned to the site, it will be replanted with the previously collected spineflower seed over consecutive years following the ground disturbance. The timing and methods of planting will be determined by the Permittee in consultation with a restoration biologist and will incorporate adaptive management.
• The replanting site will be monitored and maintained (e.g., weed control) for 5 years or until the spineflower is considered to be re-established to target values established by the Preserve Management Committee. Maintenance weeding will continue after the restoration weeding as part of the annual maintenance program.
• No aggregate mining or other Covered Activities will be permitted in the spineflower contingency parcel (Section 11 between the existing quarries) until it has been determined the biological objective for establishing new, persistent spineflower patches (SHSF Objective 3) has been met. Upon meeting the performance standards in the objective, the Permittee will provide a report documenting success to the Wildlife Agencies for their review and approval. Upon approval of the report in writing, aggregate mining of the contingency parcel can commence.
• When Covered Activities will take place within 50 meters of known occurrences of spineflower, a temporary fence will be erected to protect them. A qualified botanist and/or biological monitor will monitor construction activities, maintain the markers limiting construction, and maintain the fence protecting the spineflower to prevent accidental disturbance.

[34] Suitable habitat (areas which need to be surveyed) will be determined by the Permittee through habitat modeling and in consultation with spineflower experts and the Wildlife Agencies.

Santa Ana River Woolly-star

- New construction projects in occupied woolly-star habitat will be avoided if feasible. For projects where the exact location of the facility has not been determined the Permittee or Participating Entity must consider alternatives outside of occupied habitat. If an alternative in occupied habitat is selected, the Participating Entity must demonstrate to the Permittee and or Wildlife Agencies why it was not possible to locate the project in unoccupied habitat. Participating Entities will provide information in their COI application substantiating a determination that locating their proposed project in unoccupied habitat was not possible.
- Prior to ground disturbance from new construction and O&M activities in potentially suitable woolly-star habitat, surveys will be conducted if the area has not been surveyed within the last 5 years to determine if the plant is present. Surveys will be conducted in accordance with the CDFW protocols for surveying Special Status plant populations.
- If woolly-star is detected during pre-project surveys, seeds will be collected at the appropriate time (usually fall) prior to ground disturbance. Seed collection and storage will be by an entity that has a Memorandum of Understanding with the USFWS to process and handle the seeds of endangered plant taxa. In areas of temporary impacts, the seed will be replanted in the temporarily disturbed area. The seed planting time and location for seeds collected from permanent impact areas will be at the discretion of the land manager. The cost of seed collection, up to 2 years of storage, and planting will be borne by the relevant Permittee or Participating Entity.
- Sites where temporary impacts occur will be replanted with the previously collected woolly-star seed over consecutive years following the ground disturbance. The timing and methods of planting will be determined by the Permittee in consultation with a qualified botanist or restoration biologist with woolly-star experience, and will incorporate adaptive management. If the impacts are permanent, an alternate site in suitable habitat will be selected by a qualified restoration biologist or botanist.
- The replanting site will be monitored and maintained (e.g., weed control) for 2 years or until the woolly-star is considered to be re-established to target values established by the HCP Preserve Management Committee. Maintenance weeding will continue after the restoration weeding as part of the annual maintenance program.
- When Covered Activities will take place within 50 meters of known occurrences of woolly-star, a temporary fence will be erected to protect them. A qualified botanist and/or biological monitor will monitor construction activities, maintain the markers limiting construction, and maintain the fence protecting the woolly-star, to prevent accidental disturbance.

San Bernardino Kangaroo Rat

- New construction in areas assessed as medium or high quality habitat for SBKR will be avoided if feasible. For projects where the exact location of the facility has not been determined the relevant Permittee or Participating Entity must consider alternatives outside of medium or high quality areas. If the selected alternative is in a medium or high quality area, the project proponent must demonstrate to the Permittee and the Wildlife Agencies why it could not be located in a lower quality habitat. Participating Entities will provide information in their COI application substantiating a determination that locating their proposed project in a lower quality habitat was not possible.
- If a ground-disturbing activity from new construction or O&M occurs in an area assessed as medium or high quality for SBKR, and is equal to or less than 3 acres, a temporary exclusionary fence meeting USFWS standards will be placed and maintained around the perimeter of the site. The area inside the fence will be trapped for SBKR by a qualified biologist during the 5 nights preceding the ground disturbance. Any trapped animals will be relocated to the nearest undisturbed habitat outside the construction area.
- When new construction or O&M activities with temporary ground disturbance occurs, including trenching, in SBKR habitat, the top 20 inches of soil/substrate will be segregated, preserved, and placed back in the same location and approximate configuration when the trench is backfilled. It will be compacted to within 5% of the average compaction of the natural substrate. If significant (over 30%) invasive weed cover is found, the topsoil will not be replaced in the top uncompacted fill but will be used for lower compacted backfill. In all cases the top 20 inches will be uncompacted and as suitable for

SBKR burrowing as possible.

- For planned ground disturbance in areas assessed as medium or high quality habitat for SBKR that are greater than 3 acres in size, the nearest suitable relocation site will be identified by a qualified biologist in consultation with the Permittee and the USFWS. The translocation site will typically be an area of trace or low quality habitat with suitable substrate, which has recently been restored. Once the relocation site has been identified, exclusionary fencing will be erected, and the area inside the fence will be trapped by a qualified biologist during the 5 nights preceding construction. Temporary burrows will be constructed at the relocation site for relocated animals.
- Prior to grading dirt access roads, other than roads within mining operations areas, a qualified biologist will trap the road and 15 meters on either side during the 5 nights preceding the grading. Trapped animals will be held until the completion of grading and then returned to the location where they were trapped.
- A qualified biologist or biological monitor with SBKR expertise will be present when construction or ground-disturbing O&M activities that could result in take of SBKR occurs in, or within 100 meters of SBKR habitat which is classified as low, medium, or high habitat potential for SBKR.

Coastal California Gnatcatcher and Cactus Wren

- Covered Activities resulting in permanent impacts to gnatcatcher and cactus wren will be avoided if feasible. Where the exact location of the facility has not yet been determined (e.g., new wells) the relevant Permittee or Participating Entity must consider alternatives outside of occupied gnatcatcher habitat and or cactus patches. If an alternative that affects gnatcatcher or cactus wren nesting habitat is selected, the Permittee or Participating Entity must demonstrate to the Permittee and or the Wildlife Agencies why it was not possible to locate the project in non-nesting habitat. Participating Entities will provide information in their COI application substantiating a determination that locating their proposed project in non-nesting habitat was not possible.
- New construction and O&M activities will be avoided to the extent feasible during the breeding season. If a Covered Activity resulting in significant vegetation disturbance or removal of cactus patches takes place during the nesting season, February 15 to August 30, a qualified biologist will conduct pre-activity nest surveys. The area to be disturbed and a 500-foot buffer will be surveyed for 5 consecutive days to determine if gnatcatchers or cactus wrens are nesting in or near the construction or operations and maintenance area. If gnatcatchers or cactus wrens are nesting, a 300-foot buffer will be established and maintained between the Covered Activity and the nest area until nesting is completed. Noise within the buffer area will not exceed 60 dBA Leq. Daily noise monitoring reports will be provided to the Conservation District prior to the beginning of the next construction work day.

Breeding Birds

- If construction-related activities are to occur during the nesting season (February 1 through September 15), a qualified biologist will conduct a preconstruction survey of the proposed construction area and adjacent habitat in the near vicinity. This preconstruction survey will commence no more than 72 hours prior to the onset of construction. If an active nest is observed, an appropriate buffer will be established until nesting is completed, as determined by a qualified biologist/biological monitor.

Streams and Drainages and Runoff

- 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 USACE, State 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 will be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing of other sediment trapping materials will be installed at the downstream end of construction activity to minimize the transport of sediments off site. Settling ponds where sediment is collected will be cleaned out in a manner that prevents the sediment from reentering the stream. Care will be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.

- Erodible fill material will not be deposited into water courses. Brush, loose soils, or other similar debris material will not be stockpiled within the stream channel or on its banks.
- Covered Activities near to or within the HCP Preserve or other natural areas will incorporate plans to ensure that runoff discharged is not altered in an adverse way when compared with existing conditions, which includes landscape irrigation. Stormwater systems will 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 HCP Preserve.

Chemicals and Hazardous Materials

- Covered Activities within or adjacent to the HCP Preserve or other natural areas that use chemicals (herbicides, rodenticides, insecticides) or generate byproducts that are potentially toxic or may adversely affect wildlife and plant species, habitat, or water quality will incorporate measures to ensure that application of such chemicals does not result in any discharge to the HCP Preserve or other natural areas.
- Equipment storage, fueling, and staging areas will be located on upland sites with minimal risks of direct drainage into the HCP Preserve or other natural areas. These designated areas will be located in such a manner as to prevent any runoff from entering sensitive habitat including riparian areas. Precautions will be taken to prevent the release of toxic substance into surface waters. Project-related spills of hazardous materials will be reported to appropriate entities—including but not limited to the applicable jurisdictional city or county, USFWS, CDFW, and RWQCB—and will be cleaned up immediately and contaminated soils removed to approved disposal areas.
- Grove management practices will include the use methods such as traps and fumigants to control rodents as an alternative to bait containing anticoagulants to prevent reduced fitness and mortality of native predators such as raptors, bobcats, and coyotes.

Traditional Gathering by Native American Tribes

- Through a collaborative effort between the tribe and the Permittee, an orientation to the HCP Preserve and its Covered Species will be provided to all tribal members who collect plants on the HCP Preserve.
- The Preserve Manager will meet with the tribe each year to determine gathering areas, which will avoid and minimize impacts on Covered Species, and specifically nesting cactus wren or gnatcatcher. The Permittee will provide updated maps of avoidance areas.
- The type and amount of plant material collected will not exceed that described in the Memorandum of Understanding with the Permittee.
- When accessing gathering sites, tribal members will drive on established, maintained roads.
- Native American communities collecting plants for culture use will be contacted prior to any herbicide application.

General Measures/Best Management Practices

- Barriers such as boulders, fences, and gates will be placed and maintained on the perimeter of the Plan Area to help prevent unauthorized activities including dumping and off-road vehicle use.
- The Permittee or its authorized agents will make regular patrols of the HCP Preserve to prevent unauthorized use and access.
- Illegal dumping, including hazardous waste, which occurs on HCP Preserve will be cleaned up within 7 days of its discovery. Illegal structures or settlements (e.g., homeless camps) will be removed following appropriate municipal and county protocols.
- The limits of construction for all new Covered Activities (e.g., aggregate mining, wells, water spreading basins, and O&M activities) will be marked, fenced, and maintained until work is completed.
- Personnel will strictly limit their activities, vehicles, equipment, and construction materials to the designated work area.
- Ingress and egress of construction equipment and personnel will be confined to designated access points. Cross-country travel by vehicles and equipment will be prohibited.

- Qualified biologists, botanists, and/or biological monitors approved by the Permittee will be retained to ensure compliance with protective measures for Covered Species or other sensitive species. They will be required for monitoring of any construction or O&M activities that may result in impacts on Covered Species or other sensitive species.
- All persons involved in conducting Covered Activities will receive environmental awareness training. The training will be developed in consultation with a qualified biologist and consist of an onsite or training center presentation for which supporting materials will be provided. Training will provide information about each Covered Species and its habitat and an explanation of the purpose and function of the avoidance and minimization measures and the possible penalties for not adhering to them.
- 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.
- Areas impacted during construction and O&M activities that contain native vegetation will be restored after the project is completed.[35] This will include replanting with a plant palette composed of the species found on site prior to the disturbance. Seed will be collected on site and in adjacent areas to the extent feasible under the direction of the Preserve Manager. If additional seed is needed, it will be obtained from the closest location to the site that is available from a commercial vendor. Restoration will also include weed control. Restoration performance standards, and remediation measures, if necessary, will be developed by the Conservation District and reviewed and approved by the Wildlife Agencies. For sites with 50% or greater native shrub cover with temporary impacts on 0.5 acre or less, in lieu of replanting, grubbed native vegetation can be stockpiled and spread back over the site after the project is complete. This minimization measure does not to apply to the normal maintenance of roads and groundwater recharge basins.
- Equipment (e.g., passenger vehicles, trucks, and heavy equipment) will be cleaned prior to entering the worksite and between worksites to prevent the importation and spread of exotic plant species.
- No open trenches or holes (aggregate mining activities excepted) will be left overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they will be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found will be captured and moved to the nearest safe location outside the construction area.
- Soil temporarily stockpiled during new construction and O&M activities in or adjacent to low, medium, or high quality SBKR habitat will be fenced to exclude SBKR, and stockpiles will be removed 45 days after construction. This measure will not apply to stockpiles in permanently impacted areas and areas adjacent to trace habitat (e.g., active mining areas, the Conservation District's borrow pit [Seven Oaks Dam excavation area], and groundwater recharge basins adjacent to SBKR trace habitat).
- An integrated weed management plan (IWMP) will be developed by the Conservation District and will be implemented by the Permittees and the Participating Entities to minimize the potential introduction of new weeds as a result of Covered Activities and to control the spread of weeds resulting from ground disturbance. The IWMP will be developed within the first year following issuance of the ITP and will be reviewed and approved by the Wildlife Agencies.
- Adequate fire suppression capability will be maintained in active construction areas including having a water tender on site in active construction areas during periods of high fire danger.
- No firearms or pets will be allowed at the work areas. Firearms carried by authorized security and law enforcement personnel are exempt.
- Litter control measures will be implemented. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators.
- Dust will be controlled. If water trucks are to be used, pooling of water will be avoided to minimize the potential of attracting opportunistic predators.

[35] The amount of native seed per acre and the planting method is described in detail in Appendix C.

- Except on paved roads with posted speed limits and in aggregate mining operations areas with established speed limits per their mining plan, vehicle speeds will not exceed 15 miles per hour during travel associated with the Covered Activities. If work must take place at night, the speed limit will be 10 miles per hour.
- Covered Activities, including new project construction and ongoing construction (e.g., aggregate mining), will take place during the daylight hours to the extent feasible. If nighttime work is unavoidable, lighting will be shielded away from the HCP Preserve. Fixtures will be shielded to downcast below the horizontal plane of the fixture height and mounted as low as possible. Permanent nighttime lighting of facilities within the HCP Preserve should be avoided. If permanent lighting is determined to be unavoidable for a Covered Activity (e.g., required by existing law or regulation), a nighttime lighting plan will be prepared by the affected Participating Entity and presented to the Conservation District for its review and approval. To minimize their effects on the HCP Preserve, the plan will include fixtures that shield the light away from the HCP Preserve, are mounted as low as possible, and use the least intrusive type of lighting available (e.g., LED or low sodium lighting).
- Covered Activities adjacent to or surrounded by the HCP Preserve or other natural areas that generate noise in excess of 60 dBA Leq hourly will incorporate setbacks, berms, or walls, as appropriate, to minimize the effects of noise on the adjacent HCP Preserve or other natural areas. Noise must be reduced to 60 dBA Leq at the edge of the HCP Preserve. Berms and other noise abatement measures will only be employed at permanent facilities when noise impacts are ongoing. The berm or other noise abatement measure will be placed within the footprint of the Covered Activity.
- If landscaping is included as part of any Covered Activity, the Preserve Manager will review and approve the proposed plant palette prior to planting. No non-native species will be used.

5.6 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 areas do contribute to the connectivity and total area of habitats conserved and managed for Covered Species. These existing conserved areas are shown in Figure 1-2 and discussed briefly below.

5.6.1 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.

5.6.2 City of Highland Biological Mitigation Area

The City of Highland owns two 10-acre mitigation parcels on the south side of Greenspot Road, with one parcel located on the east side of the BLM property and the other on the west side of the BLM property.

5.7 Future Flood Control Mitigation Area

Flood Control will place a conservation easement approved by the Wildlife Agencies over 321.6 acres of alluvial habitat in the active channel immediately south of the WSPA in the Santa Ana River

Wash. This habitat provides an important linkage between the main river channel and the WSPA and results in more than 700 contiguous acres of quality habitat. 172.0 acres will be mitigation for operations and maintenance and emergency repair Covered Activities on Flood Control facilities within the Plan Area in the Santa Ana River, and on Mill, Plunge, City, and Elder Creeks as described in Section 5.2.1, *Approach to Habitat Conservation*. The remainder of the area, 147.6 acres, which is in excess of what is needed for Flood Control mitigation of their Covered Activities, has been designated as a Future Flood Control Mitigation Area to provide future mitigation options for Flood Control infrastructure construction, maintenance, and permitting activities in ecologically similar areas outside the Plan Area, as needed and appropriate.

The river and stream channels found within the HCP Preserve provide important habitat resources. However, they are an important component of the flood control system that protects life and property within the region. Dedication of these lands for conservation purposes will not impede the actions required in a flood emergency. A flood emergency occurs when immediate action is required to prevent imminent damage to life and property. These emergency responses usually involve prevention of water movement out of floodways onto normally dry land where both public and/or private infrastructure is located.

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 and monitoring results, management treatment areas and management treatment results, areas where habitat has been removed by Covered Activities, and other information relevant to HCP implementation. The Wildlife Agencies will have access to the database to assist them in monitoring the progress and effectiveness of HCP implementation.

The vegetation database will be updated based on an in-field assessment and use of aerial imagery within 3 years of HCP and ITP approval. Thereafter, the vegetation database will be updated at least every 5 years. Species occurrence layers will be updated as new data become available, with the update made on a scheduled basis and at least annually.

Chapter 6
Plan Implementation

6.1 Plan Implementation

Implementation of the HCP begins when the Section 10(a)(1)(B) ITP is issued. Primary responsibility for HCP implementation rests with the Conservation District, Flood Control, and secondarily with the Participating Entities, with support from USFWS and CDFW in reviewing annual reports and providing guidance and input as needed. The successful implementation of the conservation strategy, monitoring program, Covered Activities, and reporting that are part of the HCP require coordinated actions between the Permittees and the Wildlife Agencies.

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

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 HCP. 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 Stay-ahead Phasing, and Tracking Impacts and Mitigation

The Conservation District and Flood Control 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 their respective portions of the Plan Area. At the end of each annual reporting period, the Conservation District and Flood Control will tabulate and summarize all impacts that have 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 to the Wildlife Agencies.

HCP Phasing and the Stay-ahead Process

Conservation District and Participating Entities ITP

A conservation tracking and reporting system will be developed and maintained throughout the permit term of the HCP to ensure that conservation actions stay ahead of the impacts of the Covered Activities. Stay-ahead requirements for the HCP are determined by the phasing of impacts and conservation actions. The conservation actions of the Permittees and Participating Entities (land dedication, management, and monitoring) must be implemented so that conservation actions are accomplished ahead of planned impacts (see Table 2-2).

A total of 1,171.0 acres will be dedicated for conservation during Phase 1, and it is expected that the bulk of these lands will be dedicated within 5 years of permit issuance. The USFWS will require that

conservation actions be implemented in advance of impacts of Covered Activities and that the amount of conservation will stay ahead of the ground-disturbing impacts by a minimum of 5%. For example, 6% of the total conservation to be achieved in Phase 1 will need to occur before the first 1% of ground-disturbing impacts can occur. As Covered Activities come on line, the total amount of conservation acreage set aside and managed must stay no less than 5% ahead of the proportion of ground disturbance from Covered Activities. To stay ahead in the balance of conservation vs. impacts, conservation land will be designated and actively managed early in Phase 1, as a planned "Jump Start," where 200 acres will be designated for conservation and actively managed, within the first 3 years of Phase1.

In addition, the conservation strategy has been designed to offset the impacts of the Covered Activities as a whole. The effectiveness of the conservation strategy is dependent on the availability of the District Conserved and District Managed Lands in their entirety. As such, in addition to the stay-ahead requirements, benchmarks for dedication have been identified.

A minimum of 1,171.0 acres will be required to be dedicated and/or under management by the completion of all Covered Activities in Phase 1, or 10 years after the issuance of the ITP, whichever first occurs. The remaining acreage, 488.4 acres, will be dedicated in Phase 2 and under conservation no later than 28 years after the ITP is issued.

If one or more of the Covered Activities has not been carried out by the relevant benchmark (Phase I or 10 or 28 years), the Conservation District will notify the USFWS that not all Covered Activities have occurred, and the Conservation District will provide the USFWS with an accounting of the portion of the conservation strategy attributable to those Covered Activities. The Conservation District will then finish conservation dedications and or management requirements needed to accomplish the benchmark. The USFWS will acknowledge the conservation values achieved by the Conservation District that were not mitigation for a Covered Activity. The Conservation District could then make those values available to projects that are not Covered Activities. This process does not eliminate or remove the Permittees' responsibilities to accomplish the conservation Jump Start or comply with the stay-ahead provision.

Flood Control ITP

Flood Control Covered Activities will be covered under an independent Flood Control ITP and IA. All SBCFCD Conserved Lands will be dedicated for conservation and under management during Phase 1, and will occur prior to the initiation of the Plunge and Elder Creek Multipurpose Habitat Enhancement and Flood Control Project (FC.09).

Tracking Covered Activity Impacts

The Permittees will review their planned Covered Activities prior to implementation to ensure compliance with the requirements of the HCP and associated permits. Once a Covered Activity has been determined to be in compliance with the HCP, the respective Permittee will record the impact acreage of Covered Activities in a conservation tracking and recording system to confirm that it will not exceed the amount of take (for wildlife species) or adverse impacts (for plant species) 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.[36]

Participating Entities will contact the Conservation District prior to initiating any Covered Activity that is expected to remove habitat. The Conservation District will review the proposed Covered Activity implementation plan 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.

The conservation tracking and reporting system will also track impacts and conservation within each phase of the HCP to ensure that conservation actions stay ahead of Covered Activity implementation of both Permittees and the Participating Entities such that conservation actions are always at least 5% ahead of impacts. All tracking of impacts and conservation will be summarized, mapped, and included in the annual report to the Wildlife Agencies (see Section 6.2.2, *Annual Reporting*).

Tracking Mitigation

HCP Preserve

The conservation tracking and reporting system will also track the conserved lands added to the HCP Preserve. Mitigation is generated by dedicating, managing, and monitoring land for conservation (District Conserved Lands) and by committing to and implementing additional management and monitoring above and beyond what is currently occurring on public land (District Managed Lands).

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, ITPs, and IAs. Amendments or administrative corrections will also be reported.

Annual reports will be prepared and submitted to USFWS before November 1 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 the following:

1. Results of the Adaptive 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. A report on the stay-ahead provision including an accounting of impact and mitigation acreage totals.
5. Any instances of non-compliance with the terms of either ITP.
6. An accounting of expenditures and available funds for HCP implementation.
7. Problems or issues identified during implementation and the steps taken or recommended to address them.

[36] Flood Control will provide an accounting of their Covered Activities to the Conservation District within 30 days of the end of each calendar year for inclusion in the database and the annual report.

8. COI Avoidance and Minimization Measures compliance.
9. O&M activities completed.
10. Covered Activities completed and amount of associated ground disturbance.
11. Land and funding offsets for Covered Activities and status of stay-ahead provision.

A copy of the report will be provided to CDFW.

6.3 Consistency Determination Process

For purposes of overseeing compliance with the requirements of the HCP, ITP, and IA, a consistency determination process will be instituted by the Conservation District for entities wishing to participate in the HCP through a COI. The process will provide for the evaluation of each application for a COI to ensure that the proposed funding and or land dedications offered are sufficient to offset the impacts of the Covered Activity proposed for inclusion and to meet the HCP's stay-ahead requirements. This process will facilitate implementation of the HCP by ensuring that required mitigation and avoidance and minimization measures are in place prior to the initiation of Covered Activities. Flood Control will seek an independent ITP and develop a separate IA, and therefore will not participate through a COI, nor will other entities be allowed to receive a COI under the Flood Control ITP and IA.

6.3.1 Criteria for Issuance of Certificate of Inclusion

The Conservation District shall not issue a Certificate of Inclusion (COI) unless a proposed Covered Activity satisfies all of the following criteria:

- The proposed Covered Activity is consistent in substance and scope with the Covered Activities described in the HCP, and the Conservation District's ITP, and IA. The applying Participating Entity will submit information such as biological reports, species surveys, construction drawings, final environmental documents, and GIS files as appropriate to demonstrate that the impacts on Covered Species that will result from the Covered Activity are as described in the HCP.
- The Participating Entity has provided mitigation for the proposed Covered Activity's impacts as described in the HCP.
- The Participating Entity has complied with all requirements of the ITP and the IA in connection with the implementation, operation, and maintenance of the Covered Activity.
- Looking at the Plan Area as a whole, issuing a COI for the proposed Covered Activity will not render the Plan Area out of compliance with the mitigation phasing requirements of the HCP, ITP, and IA (which require mitigation to stay 5% ahead of take).

Consistency Determination Process

Step 1: Initial Consistency Determination

a. A Participating Entity proposing a Covered Activity shall submit to the Conservation District, in writing, an application for a COI. Such application shall contain information sufficient to demonstrate all of the following: (1) identify which Covered Activity is being proposed by reference number in the HCP; (2) describe in detail the Covered Activity, including any material variations from the design, scope, or manner of implementing the Covered Activity from those discussed in the EIS/EIR for the HCP; (3) identify the amount of take of (for

wildlife) or adverse impacts on (plants) Covered Species or their habitat being proposed in connection therewith; (4) include specific reference to the Covered Activity's environmental review and/or habitat impact assessment analyses where the Covered Activity was described and analyzed; (5) identify the mitigation, avoidance and minimization measures or management requirements, as specified in the HCP, that are applicable to the Covered Activity under the project*;* and (6) demonstrate how the mitigation being offered, funded, managed, or otherwise contributed by the proposing Participating Entity meets the requirements of the HCP, the ITP, and the IA with respect to the proposed Covered Activity and the stay-ahead provision.

b. Upon receipt of the application for a COI, Conservation District staff shall review it to determine if the application is complete.

c. Upon determining that the application is complete, the Conservation District shall review it to determine if the proposed mitigation and minimization measures are consistent with the requirements of the HCP, the ITP, and the IA. Within 10 working days of receiving a Participating Entity's complete application for a COI, the Conservation District shall make an initial determination of whether the proposed Covered Activity is consistent with the HCP, the ITP, and IA (the "Initial Consistency Determination").

d. If the Conservation District determines the proposed Covered Activity is not consistent (or if the Conservation District does not have sufficient information to determine whether the proposed Covered Activity is not consistent), it must notify the Participating Entity, in writing, of the basis for this determination.

Step 2: Processing the Request for Certificate of Inclusion

a. If the proposed Covered Activity is determined by the Conservation District to be consistent with the HCP, the ITP, and IA, the Conservation District shall proceed with processing the request for the COI and notify the Participating Entity who made the request (applicant) of the estimated reasonable costs for the processing of the request for the COI, as described in subsection b. below, which cost the Participating Entity shall thereupon deposit with the Conservation District.

b. The costs of processing a request for a COI shall not be funded by the proceeds of the non-wasting endowment*.* A Participating Entity applying for a COI must pay the actual reasonable costs for the processing of the request for a COI. The Conservation District shall not be obligated to process a request for a COI until the applicant provides a reasonable deposit sufficient to fund the time, materials, and work of processing the request. Upon receipt of a request for a COI, the Conservation District shall provide the requesting Participating Entity an estimate of such reasonable costs and the amount of the requested deposit. The Conservation District may establish a schedule of such costs based upon its reasonable estimates of such costs generally or its experience over time in administering such requests, in an effort to standardize such initial deposit amounts.

c. The Conservation District's decision to issue a COI to a Participating Entity shall be reported to the USFWS with documentation that the project is a Covered Activity and has complied with the requirements of the HCP. Consistent with the IA, the USFWS shall have 10 working days to review the matter, and shall either concur with the determination to issue the COI, or if it does not concur, specify in writing to the Conservation District and the Participating Entity the precise grounds upon which it believes the proposed Covered Activity is inconsistent with the ITP, IA, or the HCP, and what it believes must be modified in order to achieve such consistency. If the USFWS determines that insufficient information has been provided to complete its review, it will immediately request the missing information. Upon receipt of the additional information, the USFWS will have 10 working days to complete its

review. If within the 10 working day review period USFWS does not respond, or fails to identify any information or material it believes is required to make a determination on the propriety of the Conservation District issuing the requested COI, the Conservation District may issue the COI consistent with the ITP, IA, and HCP.

6.4 Responses to Changed Circumstances

6.4.1 Summary of Circumstances

Section 10 regulations (50 CFR 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 (69 FR 71723, December 10, 2004, as codified in 50 CFR 50 CFR 17.22 [b](5) and 17.32 [b][5]) describes the obligations of the Permittees 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 Permittees.

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 provided for in the plan's responses to the identified changed circumstances (e.g., conservation management activities or mitigation measures expressly agreed to in the HCP), then the Permittees 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 responses to the identified changed circumstances, USFWS will not require these additional measures absent the consent of the Permittees, provided that the HCP is being "properly implemented" (to properly implement the HCP means fully implementing all commitments and provisions agreed to in the HCP, the IAs, and the ITPs).

The management budget contains an annual line item for Changed Circumstances of approximately $17,472 for the Conservation District ITP and $1,308 for the Flood Control ITP. Any year-end balance will be carried forward until the Changed Circumstance reserve fund equals $125,000. If all or part of the reserve fund is used to address a Changed Circumstance, it will be restored to $125,000 through the annual allocation. Funds from the Changed Circumstance account in excess of $125,000 may be added to the reserve fund or used for annual management at the discretion of the Preserve Management Committee.

The 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 is 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).

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 HCP 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, provides 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 shrub lands 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 1 to 3 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.

Response to Fire: 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/or type conversion will be applied as part of AMMP implementation. The damage caused by wildfires will be addressed as follows:

- Non-native annual grasses and other invasive plants becoming established in the burn area will be controlled.
- Straw wattles or their equivalent will be placed in areas vulnerable to erosion.
- Native shrubs and annual forbs will be re-vegetated through seeding and/or container plants if, within 5 years of the fire, the percent cover of native vegetation is less than 30% of the pre-fire perennial and annual cover and/or in an adjacent unburned area of similar habitat.

Drought

For the purpose of defining Changed Circumstances, drought is defined as climatic drought of generally 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 (greater than 10 years) are considered unforeseen circumstances.

Response to Drought: Depending upon the extent and severity of the drought, a specific adaptive management action plan will be developed and implemented. Management activities may include increased effort to control non-native weeds and other invasive species.

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 HCP Preserve.

Response to Flood: 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 the HCP Preserve 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 the HCP Preserve of a species not currently known to be a noxious elsewhere, but that becomes so upon introduction to the HCP Preserve.

Response to Invasion of Exotic Species: 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.
- Mapped infestations of the invasive species will be treated and retreated as necessary to achieve control and eventual eradication.
- 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.

Response to Future Listings of Non-Covered Species: The Permittees, with assistance from USFWS, will evaluate the potential effects of Covered Activities on the newly listed species and any designated critical habitat. If there is a potential for adverse effects to occur during implementation of Covered Activities, the Permittees will implement measures identified by USFWS to avoid the likelihood of take of the newly listed non-covered species, or modification of the newly designated critical habitat, until the HCP and ITP are amended to include such species, or until USFWS notifies the Permittees that such measures are no longer needed. The Permittees may enter into negotiations with USFWS regarding necessary modifications to the HCP, if any, to revise or amend the ITPs to cover the newly listed species. If the Permittees decide to pursue coverage of the species under this HCP, USFWS will provide technical assistance in identifying appropriate modifications to the HCP that will be necessary to revise or modify the ITPs to cover the newly listed species. The USFWS will take into account habitat benefits for the newly listed species provided by existing HCP management activities.

Failure of Slender-horned Spineflower Enhancement and Relocation Program

Failure of the Spineflower Enhancement and Relocation Program will be considered a Changed Circumstance. Program failure is defined as failure to meet the biological objectives for population density and distribution.

Response to Failure of Slender-horned Spineflower Enhancement and Relocation Program: Criteria for determining what would constitute failure of the spineflower program will be identified in the detailed plans for the program. The Conservation District will work with the USFWS to identify actions to reduce or eliminate impacts on spineflower or provide for additional management and enhancement of known populations that will be implemented to achieve equivalent level of mitigation.

6.5 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 Permittees 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 Permittees.

In case of an unforeseen event, the Permittees will immediately notify USFWS staff who have functioned as the principal contacts for the HCP. In determining whether such an event constitutes an unforeseen circumstance, USFWS will 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 HCP, percentage of range conserved by the HCP, ecological significance of that portion of the range affected by the HCP, level of knowledge about the affected species and the degree of specificity of the species' conservation program under the 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 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 HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that are already set-aside in the HCP's operating conservation program. Additional conservation and mitigation measures will not involve the commitment of additional land, water, or financial compensation or restrictions on the use of land, water, or other natural resources otherwise available for use by Covered Activities under original terms of the HCP, unless agreed to by the Permittees.

6.6 HCP Amendment Process

6.6.1 Minor Amendments

Minor amendments are changes that would not appreciably affect the HCP's impacts associated with Covered Activities, implementation of the conservation strategy, or amount of take, or require an amendment to the ITPs. A minor amendment is not appropriate to add a new species to be covered under the HCP, or to change 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 Palm Springs Field Office.

6.6.2 Major Amendments

Major amendments to the HCP would require an amendment to the ITPs. 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.

6.6.3 Suspension/Revocation

USFWS may suspend or revoke its permit, if the Conservation District or Flood Control fails to implement the 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 its regulations in effect at the time of such suspension or revocation (see 50 CFR 13.27-29, 17.22(b)(8) and 17.32 (b)(8)).

6.6.4 Permit Renewal

Upon expiration, the Section 10(a)(1)(B) permit may be renewed without the issuance of a new ITP, in accordance with the permit renewal regulations then in effect, provided that the biological circumstances and other pertinent factors affecting Covered Species are not significantly different than those described in the original HCP. To renew the ITP, the Conservation District or Flood Control will submit the following to USFWS, in writing:

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

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

6.7 Institutional Structure

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

1. Consistent with its role as lead Permittee and entity responsible for coordinating implementation of the Wash Plan HCP, the Conservation District will be the administrator for HCP implementation.
2. In its capacity as a lead Permittee and the administrator, the Conservation District will provide for an HCP Implementation Team to administer the HCP. The HCP Implementation Team will consist of an Executive Director, Preserve Manager, Biological Consultants, and an HCP Preserve Management Committee.
    a) The General Manager for the Conservation District will 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 serving as chairperson of the Preserve Management Committee. The Executive Director will ensure that there is full compliance with the terms and conditions of the ITP, by all parties covered by the Conservation District's ITP.
    b) The Preserve Manager will be responsible for overseeing development and implementation of the management programs for the HCP Preserve, 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 Preserve Manager will oversee any and all consultant work performed to implement the HCP programs. The Preserve Manager will also review all Covered Activities prior to ground-breaking by the Participating Entities to ensure consistency with the HCP and authorized level of take.
    c) Biological Consultants will be retained to provide required technical assistance in the development and implementation of the Adaptive Management and Monitoring

Program and compliance with habitat management measures, species surveys, and other biological oriented activities.

d) The Preserve Management Committee will provide advice and feedback to the Preserve Manager including review and preliminary approval of the annual management and monitoring budget. They will provide advice and recommendations to the Conservation District on HCP activities.

e) The Conservation District and Flood Control will be the permit holders for their respective ITPs. The authorization for incidental take on non-federal land would be conditioned on preservation of proposed District Conserved Lands under conservation easements or comparable arrangements and habitat enhancement on District Managed Lands. Where HCP-associated activities, including management, result in incidental take on federal land administered by the BLM, such take will be addressed in a biological opinion issued to BLM with the Conservation District, applicable Participating Entity, or Flood Control as the applicant.

When a Covered Activity on non-federal land requires a federal permit (e.g., a CWA 404 permit) or other authorization and a formal Section 7 consultation under the FESA, exemption for any associated incidental take by the applicable federal agency(ies) will be provided through the consultation, while authorization for any associated incidental take by the Permittees or Participating Entity will be provided by the ITP associated with the HCP.

3. As the lead permit holder for the ITP, the Conservation District will convey the permit authority to the Participating Entities under Certificates of Inclusion as described in Section 6.3, *Consistency Determination Process*. Flood Control will maintain a separate ITP.

4. Each COI will be associated with a single Participating Entity and will address one or a group of closely related Covered Activities. Certificates of Inclusion 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.

5. If a Participating Entity operating under a COI does not provide adequate mitigation funding and/or violates permit terms, the take authorization conveyed through the COI will be revoked immediately, and any subsequent take of Covered Species will not be covered by the ITP until the violation is corrected and the Certificate is modified, as appropriate. Breach of the terms in the COI also triggers notification of the Wildlife Agencies.

6. Certifications will be included in the annual reports submitted to the USFWS and CDFW.

7. USFWS, CDFW, and BLM will provide technical assistance to the HCP Implementation Team and Preserve Management Committee and will participate in meeting discussions and program review.

8. Time deadlines for review periods, responses to required consultations, and coordination of activities are established in the IA.

9. 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 Preserve Manager and approved by the Preserve Management 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 2 years of HCP and ITP approval. Annual work plans will guide implementation on a yearly basis. Thereafter, the 5-year work

plan will be updated every 3 years. The schedule for approval of the annual and 5-year work plans will coincide with the Conservation District's adoption of its annual work program and budget.

10. Under the terms of the *Agreement by and Between the United States Bureau Of Land Management and the California Department of Fish and Wildlife*, dated October 25, 2015, (Durability Agreement) BLM can grant easements to the CDFW for mitigation activities. CDFW will apply for easements over BLM-owned District Managed Lands in the HCP Preserve to provide for their long-term preservation and management. The Conservation District will enter into an agreement with the BLM and/or CDFW to provide for additional habitat management on BLM lands within the Plan Area consistent with the Durability Agreement. The Conservation District will enter into an agreement with the USACE and Flood Control to provide for additional habitat management on the 43.5 acres being added to the WSPA through a land exchange between Flood Control and Robertson's. The agreement will be in place early enough to ensure that the stay-ahead provisions of the HCP are maintained.
11. The Conservation District will contract with the Conservation Trust to hold, invest, manage, and distribute proceeds of the non-wasting endowment for HCP implementation at the Conservation District's direction, pursuant to the following:
    a) The Conservation Trust or successor nonprofit shall segregate the endowment funds into a separate non-wasting endowment fund, accounted for consistent with standards promulgated by the Governmental Accounting Standards Board, or any successor entity.
    b) The Conservation Trust or successor nonprofit shall invest and manage funding in accordance with the Statement of Investment Policy approved by the Conservation District Board of Directors.

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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 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 HCP. 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 Participating Entities, and endowment requirements will be made as needed.

7.1.1 Implementation Costs

There are three components of HCP implementation that require 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 Property 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

Conservation of the HCP Preserve

Nearly all of the 1,659.5 acres conserved and managed in the Plan Area are in public ownership, and all of the land is owned by members of the Task Force. Current land value estimates of $25,000 per acre place the value of the land contributed to the HCP at approximately $41.5 million. The lands that will be placed into conservation are primarily owned by the Conservation District, with additional holdings by the BLM, Flood Control, and Redlands (see Table 3-1). Appropriate assurances of long-term conservation will be provided within the first two years of the plan implementation (and before any impacts on Covered Species are allowed by Covered Activities), either through conservation easements or other agreement acceptable to the Wildlife Agencies.

Conservation of Flood Control Lands

Flood Control has identified 336.6 acres of alluvial habitat for conservation in the active channel immediately south of the WSPA in the Santa Ana River wash, which provide an important linkage between the main river channel and the WSPA. Approximately 185.7 acres will be placed into the

SBCFCD Conserved Lands to mitigate for Flood Control Covered Activities under the HCP. The excess Flood Control mitigation land is identified and mapped as Future SBCFCD Mitigation Area, and covers approximately 150.9 acres of alluvial habitat in the active channel of the Santa Ana River immediately south of the WSPA. The Future SBCFCD 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 Wildlife 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 Flood Control Covered Activities evaluated by the HCP and the associated mitigation measures will be included in an independent Flood Control IA and ITP.

Conservation of BLM Lands

The BLM has designated portions of its lands in the Plan Area as an ACEC to protect their conservation values. ACEC lands are part of a conservation ecology program in the western United States, managed by the BLM as part of the 1976 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 BLM normally does not place easements or other restrictions on lands they hold. However, the ACEC lands in the Plan Area, including the District Managed Lands BLM will receive in the land exchange, are right-of-way avoidance areas. This designation helps ensure the continued conservation of the natural resource values in the ACEC by allowing BLM to deny right-of-way applications, permits, and leases that are not consistent with the goals and objectives of the ACEC and the HCP.

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 Covered Species through the HCP.

General Land Stewardship Costs

The general land stewardship activities are addressed in more detail in Section 5.2.2, *Approach to Habitat Management*. General land stewardship costs are included in Table 7-1.

General land stewardship activities include:

- Trash removal
- Minimization and clean-up of illegal dumping,
- Restricting unauthorized access
- Maintenance of facilities and equipment needed for habitat management

Table 7-1. General Land Stewardship Cost Estimate per Year

Stewardship Activities	Assumptions	Conservation District ITP Estimated Cost	Flood Control ITP Estimated Cost
Patrol Costs	BLM ranger contract (2 full days/month)	$22,360	$5,000
Legal Costs	Legal support ($300/hour)	$5,000	$0
Illegal Dumping Clean up	Includes access management/fence repair/general land management	$16,350	$2,500
Total Annual Cost		**$43,710**	**$3,000**

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 HCP conservation program (see Section 5.2.2, *Approach to Habitat Management*). An Adaptive Management and Monitoring Program (AMMP) has been prepared (Appendix B of the HCP) to provide specific details on the implementation of the habitat and species management actions identified in Section 5.2.2. As stated above, a more detailed management plan based on the current AMMP will be developed within two years of issuance of the ITP. An 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 work plan 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 work plan will use the following:

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.
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.

Because spineflower habitat management and population enhancement was specifically identified as critical to the success of the HCP, each annual work plan will identify actions specific to spineflower, 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 work plan will also provide a mechanism to track habitat enhancement beyond what is required as part of the HCP. There may be other activities undertaken in the HCP Preserve for the benefit of Covered Species or other sensitive species (e.g., research). If the other activities are mitigation, the additional activities must be acknowledged by the Wildlife Agencies as in excess of or otherwise not expected or required under the terms of the HCP or permit before they are undertaken. 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 HCP it is understood that the action benefiting other species cannot impact Covered Species, and all proposed additional actions require approval by Wildlife Agencies. It is also understood that these additional activities or sources of funding do not replace obligations of the Permittees or Participating Entities outlined in the IA.

Table 7-2. Habitat Management Cost Estimate per Year

Habitat Management Activities	Assumptions	Conservation District ITP Estimated Cost	Flood Control ITP Estimated Cost
Vegetation management			
Thinning		$20,450	$0
Invasive Plant Control - Herbicide		$70,850	$4,200
Field Equipment	ATV, spray equipment, misc. equip.	$15,000	$0
Herbicide other	Glyphosate, spray marker, surfactant	$8,500	$0
Invasive Plant Control – Grazing	Establish, manage, and monitor grazing contract	$6,338	$780
Invasive Plant Control – Fire	CDF inmate crew fire preparation 5 days @$250/day; Prescribed burn plan preparation with CDF Forester	$5,675	$600
Spineflower Habitat Management	Spineflower habitat assessment and propagation	$18,360	$7,000
Coordination Meetings	Coordination with adjoining land managers	$4,200	$0
Total Annual Cost		**$149,373**	**$12,580**

Trail Management Costs

The HCP only addresses take authorization of Covered Species and mitigation measures for the operations and maintenance of the documented trail system within the Plan Area (development and maintenance of staging areas are planned for areas outside the Plan Area). 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 by paid rangers and potentially volunteers, and placement and repair of signage. These costs are not included herein, and they have not yet been calculated because a trail plan has not yet been developed. The costs will be the responsibility of the Participating Entities operating the trail system. Financial and avoidance and minimization

assurances must be in place prior to the operation of a trail system through or adjacent to HCP Preserve.

Monitoring and Reporting Costs

The species covered in the HCP will be monitored regularly as required in Section 5.2.2 of the HCP and reflected in the annual work plan. 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 work plan and approved as part of the work plan development process.

A comprehensive annual report of activities undertaken as part of the annual work plan, 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 work plan. Both the annual report and work plan will be prepared by the Conservation District and will be provided to all participating Task Force entities including the Wildlife 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 estimates for species and habitat monitoring, reporting, and data management are included in Table 7-3.

Table 7-3. Monitoring and Reporting Cost Estimate per Year

Monitoring and Reporting	Assumptions	Conservation District ITP Estimated Cost	Flood Control ITP Estimated Cost
Vegetation Monitoring	Annual vegetation surveys at monitoring plots	$14,160	$4,000
Spineflower Monitoring	Annual population survey	$6,860	$2,000
Woolly-star Monitoring	Focused survey (once every 5 years)	$14,275	$7,200
Cactus Wren/Gnatcatcher Monitoring	Focused survey (once every 2 years)	$14,275	$7,200
SBKR Monitoring	Focused survey (once every 3 years)	$15,525	$9,000
Compliance monitoring	Compliance and effectiveness monitoring	$5,500	$550
Monitoring Subtotal		***$70,595***	***$29,950***
Data Management		$10,750	$3,500
Annual Reporting	Annual report to Preserve Management Committee	$5,500	$690
Comprehensive Reporting	Report every 5 years	$7,000	$1,000
Reporting and Data Management Total		***$23,250***	***$5,190***
Total Monitoring and Reporting		**$93,845**	**$35,140**

Emergency Funds, Contingency, and Administrative Overhead

Funds to address unanticipated emergencies or 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 per Year

Monitoring and Reporting	Assumptions	Conservation District ITP Estimated Cost	Flood Control ITP Estimated Cost
Emergency Fund	Changed Circumstances (fire and/or flood recovery)	$17,472	$1,308
Contingency	Management Contingency	$4,368	$327
Overhead (20%)	Admin support and equipment repair/replacement	$80,000	$8,000
Contingency/ODC Total		**$101,840**	**$9,635**

The total annual cost estimated for implementation of the HCP is $388,768 under the Conservation District ITP, and an additional $60,355 under the Flood Control ITP. This does not include the funds required to complete the Jump Start conservation actions ($231,000 under the Conservation District ITP and $70,000 under the Flood Control ITP), which are described in the next section. In coordination with the Task Force, the Conservation District has developed a formula to equitably share the cost of HCP implementation among the Conservation District and the Participating Entities, 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 aggregate 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 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 ahead of the impacts.

To accomplish this, the 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 7 years. The Jump Start costs are included in Table 7-5.

Table 7-5. Jump Start Cost Estimate per Year

Jump Start Activities	Assumptions	Conservation District ITP Estimated Cost	Flood Control ITP Estimated Cost
Baseline Survey			
Baseline species surveys	One annual survey per Covered Species	$5,500	$3,000
Baseline vegetation mapping	Aerial photo interpretation and ground-truthing	$5,000	$2,500
Invasive Species Control			
Control invasive grasses and other problem species	Labor (3 crewmembers/ 4 weeks)	$20,000	$4,000
Field supplies	Glyphosate, spray marker, surfactant	$2,500	$500
Jump Start Total		**$33,000**	**$10,000**

Endowment Establishment and Management

During the duration of HCP implementation some ongoing costs of the program will be directly funded by the Participating Entities, 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 contributions as Covered Activities are initiated. The estimated endowment to fund the ongoing management and monitoring of the HCP Preserve lands is $11.4 million (in 2016 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 Permittees (Conservation District and Flood Control) and the Participating Entities, based on a cost-sharing allocation approved by the Task Force.

The financial obligations of the Conservation District and the Participating Entities are described in the Conservation District's Implementing Agreement included as Appendix A of this document. Participating Entities implementing Covered Activities with permanent impacts (e.g., construction of new facilities) will pay the proportional mitigation fee to the Conservation District 6 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 7 days of receipt of payment to ensure investment in the endowment within 30 days of receipt of payment. Lands to be included in the HCP Preserve through fee title transfer to the District or a suitable deed restriction, as part of required mitigation, must also be completed 6 months prior to ground disturbing activities.

Placement of easements on property used for mitigation will comply with the 5% stay-ahead provision.

Participating Entities (and Flood Control as second Permittee) with Covered Activities related to 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 Participating Entities and Flood Control implementing ongoing operations and maintenance Covered 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 7 years of HCP implementation). If a Participating Entity who only has operations and maintenance activities elects to pay annually, their Jump Start amount will include the prepayment of 2 years of annual contributions and a review by the Conservation District of planned activities prior to issuance of a COI. Additional payment and review must occur 12 months prior to the beginning of O&M activities the following year. Failure to pay the fee in full prior to any Covered Activity will result in revocation of the take authorization conveyed through the COI and notification of the Wildlife Agencies. Any modification of the fee structure or payment schedule is at the discretion of the Task Force and/or Conservation District and Wildlife Agencies.

Should the endowment not generate sufficient funds to implement the annual work plan, the Conservation District will consult with the Wildlife Agencies and develop an alternative strategy to ensure the biological goals and objectives of the HCP are met.

As an added assurance that adequate funding is available to initiate plan implementation, the Participating Entities will establish and maintain a Jump Start fund adequate to cover priority management and monitoring activities within the first 7 years of program implementation. Based on the estimated costs, the Jump Start fund for the Conservation District ITP will be approximately $231,000 ($33,000 per year on average) and $70,000 ($10,000 per year on average) for the Flood Control ITP.

Chapter 8
Alternatives Considered but Rejected

As part of the development of this HCP, multiple alternatives to the proposed taking were considered along with other conservation strategies. The primary alternatives considered and the reasons why each alternative was not selected are described below.

8.1 Complete Avoidance of Take

Under this alternative, activities in the Plan Area would be conducted to avoid take of SBKR and, gnatcatcher, and to avoid impacts on woolly-star and spineflower. Because of the broad distribution of SBKR and woolly-star, complete avoidance of take of or adverse impacts on 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 2008 Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Document as well as this HCP. The alternative was rejected in favor of reconciling land use and species/habitat conservation goals for the Wash and seeking authorization for incidental take.

8.2 No Impacts on Slender-horned Spineflower

Of the five proposed Covered Species, spineflower is the most at risk. The Plan Area is one of only eight remaining known locations for this narrow endemic plant species and one of only two known 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 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 impacts on 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 loss could occur without posing jeopardy to the species.

8.3 Reduced Take of SBKR and Impacts on 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 lost by limiting the size and location of the areas where impacts could occur in connection with aggregate 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 2008 Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Document EIR, which analyzed a reduced mining area impact area, alternate

locations for aggregate 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 or loss of individuals and creating a Wash-wide HCP Preserve for these species by adding conserved lands in areas adjacent to the WSPA.

8.4 Comprehensive Multiple Species Conservation Program

Under this alternative, a Natural Community Conservation Plan (NCCP) or other comprehensive multiple species conservation program would be prepared and implemented for the Plan Area instead of the HCP for the five Covered 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 HCP was being completed. The decision to focus on the five listed species was a matter of expediting implementation of the HCP rather than a rejection of a multiple species conservation strategy. Nothing in the HCP for the five Covered Species precludes a multiple species program being developed to include the Wash Plan HCP Plan Area at a future date. Further, implementation of the HCP will be coordinated with the USACE's proposed Multi-species Habitat Management Plan 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 HCP that can reasonably be anticipated and planned for by HCP developers and the USFWS.

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

Conserve – The terms *conserve, conserving,* and *conservation* refer to the implementation of management and monitoring methods that are necessary to maintain and enhance a species habitat and population, and contribute to the species recovery as described by the biological goals and objectives, and the conservation actions of the HCP. The conservation actions are implemented within the HCP Preserve.

Conservation Actions – Any actions taken to preserve, manage, and monitor land for conservation of Covered Species that is suitable for the species and configured and connected such that the Covered Species can maintain sustainable populations within the HCP Preserve.

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 Permittees and Participating Entities and covered by the authorizations for incidental take. Covered activities include projects and O&M. Projects are well-defined actions that occur once in a discrete location (e.g., aggregate 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).

Covered Species – Those species within the HCP that will be adequately conserved through implementation of the HCP. The species covered by the HCP are woolly-star, spineflower, SBKR, gnatcatcher, and cactus wren.

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

District Conserved Lands – Lands that will be permanently conserved for the five species covered by the HCP. These areas include lands owned by Conservation District and Redlands, and lands included in the land exchange between BLM and the Conservation District.

District Managed Lands – Lands in the HCP Preserve that are conserved by another entity (e.g., BLM or WSPA lands) but managed by the Conservation District under the HCP. This includes certain BLM lands and 42.29 acres of WSPA lands for which the HCP will provide additional management and monitoring for the benefit of the Covered Species. These areas will include lands retained by BLM after the land exchange.

Disturbed Land – Land which has been significantly modified by previous legally authorized human activity, but continues to retain a soil substrate will be considered disturbed land (Holland Code 11300). This will 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 (e.g., dirt parking lots, incised trails, etc.).

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 FESA or CESA.

Endangered Species Act – The Federal Endangered Species Act of 1973, as amended (16 USC 1531 et seq.), including all regulations promulgated pursuant to that Act.

Existing Conserved Lands – In addition to BLM lands, two other areas within the Plan Area have already been placed in conservation, including the Santa Ana River WSPA, an existing 764-acre area preserve established as mitigation for impacts on SBKR, spineflower, and woolly-star resulting from the construction and operation of the Seven Oaks Dam; and Highland Biological Mitigation Area, a mitigation area that includes two 10-acre parcels available for Highland to mitigate impacts not associated with HCP Covered Activities.

Existing Mining and Mining Impact Areas – The areas in which aggregate mining operations by Robertson's and Cemex will continue and expand as delineated in the HCP, its EIR, and the EIS for the land exchange between the Conservation District and BLM.

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 or as permitted under the Natural Community Conservation Planning Act (NCCPA) (California Fish and Game Code Section 2800 et seq.).

Future SBCFCD (Flood Control) Mitigation Area – This area includes approximately 150.9 acres of alluvial habitat in the active channel of the Santa Ana River immediately south of the WSPA that 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.

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.

HCP Preserve – The HCP Preserve is defined as that area that will be conserved, managed, and monitored under the direction and responsibility of the Conservation District. It includes the District Conserved Lands and the District Managed Lands. The HCP Preserve also includes Flood Control Conserved Lands that are the responsibility of Flood Control, including funding and implementation of a Habitat Mitigation and Monitoring Plan for this area. The HCP Preserve will be managed in coordination with the entities responsible for the Existing Conserved Lands.

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 that 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.

Management Actions – Those actions taken to improve and maintain 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 (e.g., invasive plant infestations or trespass).

Migratory Bird Treaty Act – The Federal Migratory Bird Treaty Act (16 USC 701 et seq.), including all regulations promulgated pursuant to that Act.

Monitoring Actions – Those actions that are taken to track the status and trend of Covered Species populations and of their habitats within the HCP Preserve. Monitoring actions will 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 management actions through time.

Neutral Lands – This includes the areas that are within the Plan Area but that 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 (*Lepidium latifolium*) (but not non-native grasses) to ensure they are not a source for infestation of conserved and managed lands. Management would occur when possible.

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

Not A Part – These are lands owned by other entities including areas within the Caltrans ROW along State Route 210 and other lands with private owners who are not Permittees or Participating Entities under the HCP. These areas are inholdings in the Plan Area and are not addressed by the HCP.

Other Covered Activities Areas – The areas where non-mining Covered Activities are planned, including O&M of existing facilities and construction of new facilities.

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 will generally be determined based on the number of individuals; however, area may be appropriate for some species.

Preserve – The terms *preserve*, *preserving*, and *preservation* refer to the preservation of natural resources by setting aside or acquiring land in fee title or land protected by a permanent conservation easement.

SBCFCD (Flood Control) Conserved Lands – Lands that will be permanently conserved for the five species covered by the HCP and under the Flood Control IA and ITP. These areas include lands owned by Flood Control.

San Bernardino Valley Conservation Trust (Conservation Trust) – The Conservation Trust is a California nonprofit benefit corporation and 501(c)(3) organization established on March 10, 2016, with the mission to directly support the protection and stewardship of lands and endowments protecting natural resources, endangered species habitats, open space, and outdoor recreational areas in the San Bernardino Valley through the Wash Plan and other future projects. The Conservation District will contract with the Conservation Trust to hold, invest, manage, and distribute proceeds of the non-wasting endowment for HCP implementation at the Conservation District's direction.

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 Covered Species, to the extent take of such species is otherwise prohibited under Section 9 of FESA. "Take" under FESA does not apply to plant species, and 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 HCP are listed in the 10(a)(1)(B) permit in recognition of the conservation measures and benefits provided for them under the HCP 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 7 – Section 7(a)(2) of FESA (16 USC 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 that 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 USC 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 FR 44412 and 46 FR 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 HCP that could not reasonably have been anticipated by HCP developers or the USFWS at the time of the HCP'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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Implementing Agreement

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Appendix B: Adaptive Management and Monitoring Plan

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Adaptive Management and Monitoring Plan

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Appendix C: Avoidance and Minimization Measures Covered Activities Matrix

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Avoidance and Minimization Measures Covered Activities Matrix

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