

# Upper Santa Ana River Wash Habitat Conservation Plan

## 2022 Annual Report



*Working Draft Submitted: November 8, 2022*

*Final Draft: May 31, 2023*

Prepared by:

San Bernardino Valley Water Conservation District  
1630 West Redlands Blvd., Suite A  
Redlands, California 92373  
Phone 909.793.2503  
[sbvwcd.org](http://sbvwcd.org)

## Acknowledgements

The Conservation District would like to thank the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife, Participating Entities, Bureau of Land Management, and other important partners for their respective contributions towards seeing the Wash Plan successfully implemented since its adoption in 2020.

## Cover Photo

Upper Santa Ana River Wash in 2022. Photo taken just south of the Santa Ana River Channel and east of State Route 210 during spring San Bernardino kangaroo rat habitat surveys.

# Table of Contents

Table of Contents.....	i
Acronyms and Abbreviations.....	ii
Introduction .....	1
Purpose of the Annual Report .....	1
Document Organization.....	1
Distribution and Updates.....	3
Background Information .....	4
Governance and Implementation Structure.....	5
Phasing of the Wash Plan.....	9
HCP Phasing and Stay-ahead Process .....	9
Conservation Phasing.....	10
“Jump Start” Funding and Activities .....	11
Covered Activities .....	12
Certificate of Inclusion .....	12
Status and Progress of Covered Activities .....	13
Land Stewardship.....	16
General Stewardship Monitoring and Management.....	16
Preserve Management.....	16
Conservation Projects.....	18
Monitoring Projects .....	18
Management Projects.....	35
Restoration Projects.....	42
Annual Work Plan .....	47
Information Storage and Management .....	48
Document Library .....	48
Data Entry and Storage .....	49
Administrative Corrections .....	50
Amendments to the HCP .....	50
Appendix A. Wash Plan Programmatic Permits.....	51
Appendix B. Project Records Management .....	52

## Acronyms and Abbreviations

AMMP	Adaptive Management and Monitoring Program
BO	Biological Opinion
BMPs	Best Management Practices
BLM	U.S. Bureau of Land Management
CAGN	California gnatcatcher
CalBG	California Botanic Garden
CESA	California Endangered Species Act
CEMEX	Construction Materials Pacific, LLC
CDFW	California Department of Fish and Wildlife
Conservation District or District	San Bernardino Valley Water Conservation District
COI	Certificate of Inclusion
County	County of San Bernardino
CRAM	California Rapid Assessment Method
East Valley	East Valley Water District
FESA	Federal Endangered Species Act
HCP	Habitat Conservation Plan
Highland	City of Highland
HMMP	Habitat Maintenance and Monitoring Plan
IA	Implementing Agreement
IERCD	Inland Empire Resource Conservation District
ITP	Incidental Take Permit
MCV	Manual of California Vegetation
MSHCP	Western Riverside Multiple Species Habitat Conservation Plan
NPS	National Park Service
O&M	operations and maintenance
PAO	Percent Area Occupied
PMC	Preserve Management Committee
RAFSS	Riversidean Alluvial Fan Sage Scrub
Redlands	City of Redlands
RUD	Redlands Municipal Utility District
Robertson's	Robertson's Ready-Mix Ltd.
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SARWQCD	Santa Ana Regional Water Quality Control Board
SBCFCD or Flood Control	San Bernardino County Flood Control District
SBVMWD	San Bernardino Valley Municipal Water District
SBKR	San Bernardino kangaroo rat
SHA	California Endangered Species Safe Harbor Agreement
SHSF	Slender-horned Spineflower
Trust	San Bernardino Valley Conservation Trust
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Wash Plan or HCP	Upper Santa Ana River Wash Habitat Conservation Plan

## Introduction

The primary goal of the Upper Santa Ana River Wash Habitat Conservation Plan (Wash Plan or HCP) is to balance ground-disturbing activities of water conservation, aggregate mining, recreational activities, and other public services in the Plan Area (Plan Area) with the conservation of natural communities and populations of special-status plant and animal species.

## Purpose of the Annual Report

The Annual Report highlights the accomplishments of the Conservation District and Participating Entities in executing the agreed upon terms and conditions of the Wash Plan.

## Document Organization

This document is organized as follows:

**Introduction** – *The section introduces the Annual Report.*

**Background Information** – *This section serves to quickly orient the reader to the general purpose of the Wash Plan and the specific program goals and objectives. A general map of the Plan Area is included.*

**Governance and Implementation Structure** – *This section identifies the recognized Participating Entities and discusses their specific roles and responsibilities and the formation of the Task Force. Also discussed in this section is the Preserve Management Committee and HCP Implementation Team.*

**Phasing of the Wash Plan** – *This section discusses the phasing of the HCP and related phasing of conservation and impacts from Covered Activities. The section addresses the responsibilities of the Conservation District and Flood Control to provide an 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.*

**HCP Phasing and Stay-ahead Process** – *Through this section the reader is provided with information, captured at a high-level, tracking impacts and conservation within each phase of the HCP to ensure conservation actions stay ahead of Covered Activity implementation.*

**Conservation Phasing** – *This section describes instances where appropriate assurances of long-term conservation have been provided by the respective public agency within the appropriate phase of 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.*

**“Jump Start” Funding** – *This section documents the activities implemented by the Wash Plan Task Force tied to providing 250 acres of early conservation, including 200 acres that will become actively managed within the first seven years (Phase 1).*

**Covered Activities** – *This section details the progress of all activities in the Plan Area carried out by the Permittee and Participating Entities covered by the authorizations for incidental take. Covered activities*

*include projects and the operations and maintenance (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).*

**Certificate of Inclusion** – *This section addresses the need to document (and archive) cases where the incidental take authorization granted to the Permittee has been extended to a member of the Task Force for the purpose of carrying out a Covered Activity. The Permittee’s decision to issue a Certificate of Inclusion to a Participating Entity shall be captured together with required documentation from the USFWS noting the project is a Covered Activity and has complied with the requirements of the HCP.*

**Status and Progress of Activities** – *Both types of Covered Activities, those associated with new or expanded facilities planned in the Plan Area, and those activities related to the O&M of existing facilities or associated with new facilities constructed as a Covered Activity are listed and their progress noted in this section.*

**Land Stewardship** – *Principal threats and stressors impacting, or with the potential to impact, the Wash Plan Preserve are identified in this section together with general stewardship activities designed to address individual and collective threats.*

**General Stewardship Monitoring** – *This section provides information tied to the general stewardship monitoring activities implemented during the reporting period supporting management of the Wash Plan Preserve. Such activities allow for identification of general management issues and documentation of whether management actions are being carried out as planned.*

**Preserve Management** – *This section identifies the Best Management Practices (BMPs) implemented during the reporting period consistent with Section 5.5 of the Wash Plan. Management actions that fall into this category may include stewardship activities such as trash and debris removal, runoff control, fencing and signage installation and repair, routine (minor) weed control, illegal access and encroachment violations, seasonal restrictions and trail closures, trail maintenance, vandalism repair, erosion control, fuel modification, public outreach and education, and enforcement of Preserve regulations.*

**Existing MOA with San Manuel Band of Mission Indians** – *This section identifies specific aspects of the existing agreement between the San Manuel Band of Serrano Mission Indians and the San Bernardino Valley Water Conservation District.*

**Conservation Projects** – *This section reports on the progress of monitoring, management, and restoration projects undertaken by the Conservation District and Participating Entities in support of biological goals and objectives identified in the HCP.*

**Monitoring Projects** – *This section presents monitoring activities employed during the reporting period designed to help the Preserve Manager acquire the appropriate data to ensure goals and objectives of the Wash Plan and the Preserve are met, determine if Preserve management strategies are having the desired effect, and evaluate if underlying biological assumptions are supported by field-collected data.*



**Management Projects** – *Management activities described and addressed in this section support the conservation and protection of Covered Species. 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).*

**Restoration Projects** – *This section highlights activities specific to the long-term management and monitoring of restoration projects expected to be many years in duration.*

**Data Entry and Storage** – *This section highlights details concerning the geospatial database maintained by the Conservation District in support of implementation of the Wash Plan. Lists of available digital copies of monitoring data, including metadata, spatial data, and photo-documentation of project progression will be included.*

**Administrative Corrections** – *This section makes notice of any needed administrative corrections to the Wash Plan in the period of reporting.*

**Amendments to the HCP** – *This section makes notice of any amendments made to the HCP, providing a list of all amendments throughout the life of the Wash Plan.*

**Appendix A: Wash Plan Programmatic Permits** – *The included appendix identifies and reports on the status and provide updates on the progress tied to meeting the obligations associated with the regulatory permits required of Covered Activities approved under the Wash Plan. Such permits are to include the Regional Water Quality Control Board (RWQCB) Programmatic 401 Certification; USACE 404 Programmatic Individual Agreement; CDFW 2081 ITP; CDFW Streambed Alteration Agreement (SAA) Construction Agreement; and CDFW – SAA Maintenance Agreement for Conservation District Activities.*

**Appendix B: Project Records Management** – *The appendix provides description of the type of information found in the Project Management Table and Project Narrative Template accompanying the individual write-ups of monitoring and management projects highlighted in the Wash Plan Annual Report.*

## Distribution and Updates

This document will be posted on <https://www.sbvxcd.org/santa-ana-Wash-plan>. If revisions are required, the update will be noted in a revision log included in the new version and the updated document posted on <https://www.sbvxcd.org/santa-ana-Wash-plan>.

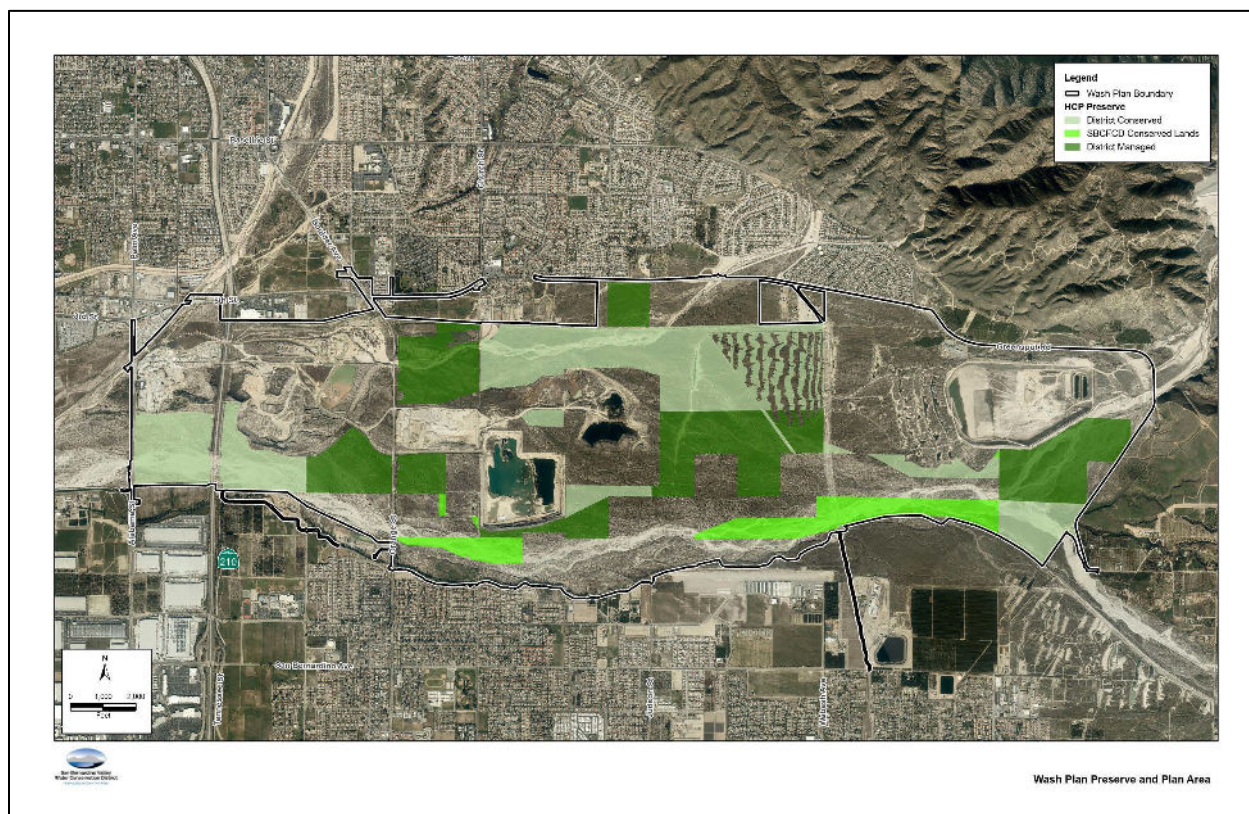
## Background Information

Approval of the Upper Santa Ana River Wash Habitat Conservation Plan by the U.S. Fish and Wildlife Service (USFWS) was accompanied by an Incidental Take Permit (ITP) issued to the San Bernardino Valley Water Conservation District (Conservation District or District) on July 13, 2020.

Consistent with the ITP, the USFWS authorized incidental take under Section 10 of the Federal Endangered Species Act (FESA) for the California gnatcatcher (CAGN; *Poliophtila californica californica*) and San Bernardino kangaroo rat (SBKR) (*Dipodomys merriami parvus*), and coverage for the Cactus wren (*Campylorhynchus brunneicapillus*). Through the ITP, the Conservation District also receives coverage of the Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*, woolly-star) and slender-horned spineflower (SHSF; *Dodecahema leptoceras*, spineflower). The San Bernardino kangaroo rat, woolly-star, and spineflower are also state-listed species and the District 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).

The Wash Plan includes avoidance, minimization, and mitigation measures for each of the Covered Species and through successful implementation provides for the conservation of the Covered Species and their habitat within the Plan Area as mitigation for the effects of Covered Activities.

Figure 1. Wash Plan Boundary and 1,659-acre HCP Preserve





## Wash Plan Annual Report

This Annual Report, required by the Wash Plan (see Section 6.2.2 of the HCP), provides annual updates to the Wildlife Agencies, Participating Entities, and other stakeholders, including the public, regarding what monitoring and management actions occurred during the prior fiscal year (which, for the District, runs from July 1 through June 30) in support of implementation of the HCP, highlighting where and when activities occurred and conveying results, when available.

The Annual Report also functions as a reporting mechanism to ensure the Conservation District and Participating Entities are in compliance with requirements detailed in the Wash Plan. In addition to identifying the management activities undertaken in the last year, the report will document and analyze monitoring results, linking the results to specific goals and objectives identified in the HCP.

Consistent with the HCP, the Annual Report is to be prepared and submitted to USFWS and CDFW before November 1 of each year to demonstrate annual compliance with the terms and conditions of the HCP, ITPs, Implementation Agreements and to determine if the goals and objectives of the HCP are being met. At a minimum, the Annual Report is to include the following:

- A report on HCP Phasing and status of the stay-ahead provision including an accounting of the total impact and mitigation acreage
- Documentation of cases when the incidental take authorization has been extended for purpose of carrying out a Covered Activity
- Status and progress of approved Covered Activities
- General stewardship monitoring and preserve management activities
- Monitoring and management activities tied to supporting the conservation and protection of Covered Species
- Habitat restoration and enhancement activities implemented in support of the biological goals and objectives of the HCP
- Progress made in meeting biological goals and objectives of the HCP
- An accounting of expenditures and available funds for HCP implementation
- An annual work plan for the upcoming year

## Governance and Implementation Structure

Implementation of the HCP began with execution of the Conservation District's Implementing Agreement (IA) and issuance of the Conservation District's ITP. Primary responsibility for HCP implementation rests with the Conservation District and updates concerning Wash Plan implementation are provided to members of the Conservation District's Board of Directors on a regular basis.

### **FY22 Updates:**

Updates in FY22 tied to implementation of the HCP were provided to members of the Conservation District Board on the following dates:

- July 14, 2021
- August 11, 2021
- September 8, 2021
- October 13, 2021
- November 10, 2021
- December 8, 2021
- January 12, 2022
- February 9, 2022
- March 9, 2022
- April 13, 2022
- April 27, 2022
- May 18, 2022
- June 8, 2022

-----

In addition to the Conservation District, several other entities participate in the implementation of the HCP through a Certificate of Inclusion (COI) to receive coverage for their planned projects. Recognized as Participating Entities, these entities include the City of Redlands (Redlands), City of Highland (Highland), San Bernardino Valley Municipal Water District (SBVMWD), East Valley Water District (East Valley), Construction Materials Pacific, LLC (CEMEX) , and Robertson's Ready-Mix, Ltd. (Robertson's). The San Bernardino County Flood Control District (SBCFCD or Flood Control) has been issued an independent Implementing Agreement (IA) and ITP under the HCP.

#### Wash Plan Task Force

A task force (Task Force), made up primarily by the Conservation District together with Participating Entities, was formed to create a framework for joint funding and planning for the entities that would participate in the development of land and habitat management plans, including the Wash Plan HCP. The members of the Task Force include: Permittee (Conservation District), the United States Department of the Interior Bureau of Land Management (BLM), the County of San Bernardino (County), Highland, Redlands, Redlands Municipal Utility District (RUD), East Valley, SBCFCD, SBVMWD, CEMEX and Robertson's. The eight public agencies and two private entities that make up the Task Force are the parties that signed the Agreement to Form the Upper Santa Ana River Wash Land Management and Habitat Conservation Plan Task Force, dated November 20, 2002, and the Memorandum of Understanding to Implement the Habitat Conservation Plan for the Upper Santa Ana River Wash Plan and Associated Implementing Agreement.

The Task Force also has advisory participation by: USFWS, CDFW, and BLM. The Permittee is the project manager and provides staff support for the Task Force.

The cost of plan implementation is shared by the Permittees (Conservation District and Flood Control) and the Participating Entities, based on a cost-sharing allocation approved by the Task Force. Through the duration of plan implementation ongoing costs of the program will be funded directly by the Participating Entities or through income generated by the non-wasting Wash Plan Endowment. The primary purpose of the Wash Plan Endowment is to fund the cost of needed management, monitoring, and administrative activities in perpetuity. Consistent with the Wash Plan (Section 7.1.1), the estimated size of the endowment to fund the ongoing management and monitoring of the HCP Preserve lands is \$11.4 million (in 2016 dollars) with annual returns on endowment fund balances assumed to equal 4%.

Nearly all the 1,659.1 acres conserved and managed in the Plan Area are in public ownership, and all the land is owned by members of the Task Force.

#### **FY22 Updates:**

Following approval of the Wash Plan by USFWS in July 2020, through the close of 2022 calendar year, the Wash Plan Task Force has met on the following dates to discuss progress and financial commitments tied to HCP implementation and the awarding of related programmatic permits required of the Clean Water Act, Porter-Cologne Water Quality Control Act, and State Endangered Species Act:

- December 08, 2020
- March 24, 2021
- December 15, 2022

#### **Preserve Management Committee**

Consistent with the Wash Plan (Section 5.2.2), the Preserve Management Committee (PMC), which, at a minimum, includes 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, is to provide technical advice, recommendations, and feedback to the Conservation District's Preserve Manager on activities undertaken in support of implementation of the Wash Plan consistent with the Natural Resource Management Plan, including recommendations for approval of the annual management and monitoring budget and report.

The Preserve Manager is 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 is to oversee all consultant work performed to implement the HCP programs and review all Covered Activities prior to ground-breaking by the Participating Entities to ensure consistency with the HCP and authorized level of take.

#### **FY22 Updates:**

The inaugural meeting of the PMC was held on October 13, 2022. Representatives from the USFWS, CDFW, BLM, San Bernardino County Flood Control District, Orange County Flood Control District and San Bernardino Valley Municipal Water District participated. At the meeting, District staff highlighted the roles and responsibilities of committee members and accomplishments occurring over the last fiscal year with regards to implementation of the Wash Plan. The current work plan for the Wash Plan Preserve and major initiatives to be implemented over the next several years were also discussed.

Next meeting of the PMC is to be scheduled for spring, 2023 the principal agenda item will be discussion of the FY 2024 Budget and Workplan.

#### **Wash Plan Implementation Team.**

In support of activities of the PMC, the Wash Plan recognizes the value of creating an HCP Implementation Team that is to include representatives from the USFWS, CDFW, the Conservation

District, and other species and habitat experts as needed. The Implementation Team is to support development of an effective annual work plan based on the guidelines in the Natural Resource Management Plan, prioritizing management and monitoring activities for each year, with focus on habitat management efforts leading to expansion of existing high-quality habitat within the Wash Plan Preserve as well as the protection and establishment of new areas occupied by Covered Species and viable corridors to enhance connectivity between core habitat areas.

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

**FY22 Updates:**

As lead Permittee and entity responsible for coordinating implementation of the Wash Plan HCP, the Conservation District is the administrator for HCP implementation. Throughout much of FY22, the Conservation District and USFWS met monthly. Regular coordination meetings between the two agencies are expected to continue through 2023 and beyond.

From completion of the Wash Plan in 2020 through the writing of this report, regular, informal meetings tied to HCP implementation have occurred between the Conservation District and SBVMWD. Topics addressed during the meeting typically focused on issues tied to the management and monitoring of Covered Species and coordination on Covered Activities involving both districts.

## Phasing of the Wash Plan

Implementation of the Wash Plan was initiated when the Section 10(a)(1)(B) ITP was issued in July 2020. Over the course of the 30-year plan period, the HCP is designed to be implemented in two phases. Details tied to the phasing of conservation and impacts from Covered Activities are highlighted in the table below taken from the HCP.

Phase	HCP Preserve	Conservation	Impacts of Covered Activities
Phase 1 (pre-BLM land exchange)	<b>Total Phase 1 Conservation 1,170.7 acres</b>	<ul style="list-style-type: none"> <li>Land dedication of all HCP Preserve areas identified as District Conserved Lands that are not part of the BLM land exchange</li> <li>Management and monitoring of all District Conserved Lands that are not part of the BLM land exchange</li> <li>Management and monitoring of all District Managed Lands that are not part of the BLM land exchange</li> </ul>	<ul style="list-style-type: none"> <li>Mining identified for Phase 1 is 201.3 acres</li> <li>Construction related to all non-mining Covered Activities</li> <li>Ongoing operations and maintenance</li> </ul>
	District Conserved 482.8 acres		
	SBCFCD Conserved 185.8 acres		
	District Managed 502.2 acres		
Phase 2 (post-BLM land exchange)	<b>Total Phase 2 Conservation 488.4 acres</b>	<ul style="list-style-type: none"> <li>Completion of BLM land exchange</li> <li>Dedication of all HCP Preserve lands obtained by the Conservation District in the BLM land exchange</li> <li>Management of all District Managed Lands and District Conserved Lands which were part of the BLM land exchange</li> <li>Ongoing management and monitoring of the whole HCP Preserve</li> </ul>	<ul style="list-style-type: none"> <li>Mining identified for Phase 2 is 200.2 acres</li> <li>Ongoing operations and maintenance</li> </ul>
	District Conserved 294.8 acres		
	District Managed 193.6 acres		

## HCP Phasing and Stay-ahead Process

Tracking impacts and conservation within each phase of the HCP to ensure conservation actions stay ahead of Covered Activity implementation is the responsibility of the Conservation District and Flood Control.

A tabular tracking ledger to ensure the balance of take and conservation is maintained and is to be included in the Annual Report along with reference to a related spatial database where such information



is housed (Section 6.2.1). 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 are to tabulate and summarize all impacts that have occurred by vegetation community and species habitat type. The acreage 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.

A minimum of 1,170.7 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.

## Conservation Phasing

Appropriate assurances of long-term conservation are to be provided by the respective public agency within the appropriate phase of 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. At a minimum, lands placed into conservation are to be identified by the landowner and the phase of Conservation Phasing (either Phase 1, prior to the BLM land exchange, or Phase 2, following the BLM land exchange) will be identified.

San Bernardino County Flood Control District phasing, which involves dedication of SBCFCD Conservation Areas and Future Flood Control Mitigation Area (see Appendix B.3 of the Wash Plan), will also be described in the Annual Report, as appropriate.

In part, to support the Conservation District and Participating Entities in successfully executing the conservation commitments made explicit in the Wash Plan, the San Bernardino Valley Conservation Trust (Trust) was created in 2016. Envisioned roles and responsibilities of the Trust tied to implementation of the Wash Plan include, holding and investing Endowment Funds and serving as an independent third-party holding and enforcing Conservation Easements. The Trust is responsible to the Trust Board of Directors, California Department of Fish and Wildlife, IRS for maintenance of non-profit status, and the public as a Public Benefit non-profit.

### **FY22 Updates:**

As of the close of Calendar Year 2022, no land identified for permanent protection under the Wash Plan had been formally enrolled in a conservation easement.

Although no properties were protected under a conservation easement, as the Conservation District is awaiting the finalization of the 2081 ITP and findings by CDFW with regards to needed conservation lands, the Trust took significant steps in 2022 to ensure the organization is able to hold endowments and conservation easements consistent with state policies. In August, at the request of CDFW, and consistent with the Department's policy for approving entities to hold conservation easements or manage and steward mitigation lands updated April 5, 2021, the Conservation District and Trust

completed the “*Application for Government Entity, Special District, or Nonprofit Organization Requesting to Hold and Manage Land*”.

At the close of the Calendar Year 2022, the submitted materials were undergoing review by CDFW as part of their accreditation and approval process. The materials provided to CDFW served to reinforce the state’s previous finding in the ability of the District and Trust to manage and protect lands, water, and natural resources. The shared information highlights the ability of the Trust to report on land management activities, create baseline information, and guide development of acceptable monitoring practices, procedures, and reporting policies tied to holding and managing Conservation Easements.

## “Jump Start” Funding and Activities

To stay ahead in the balance of conservation vs. impacts, conservation land is to 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 Phase 1. Such activity will ensure sufficient conservation has been generated to accommodate Covered Activities early in the HCP implementation.

Jump Start activities to be implemented by the Wash Plan Task Force tied to providing 250 acres of early conservation, including the 200 acres that will become actively managed within the first seven years (Phase 1) are detailed below.

In Years 1–3:

- 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.
- Initiate control of 20 acres of invasive vegetation, primarily non-native annual grasses, in and adjacent to spineflower patches.
- 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 over the “D-Dike,” and thinning shrubs if necessary.
- 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:

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

Relatedly, the activity of depositing the identified funds needed to manage the conserved lands is to be recorded (see IA-13) and highlighted in the Annual Report.

## **FY22 Updates:**

Jump Start activities implemented by the Conservation District in FY22 include the second year of implementation of the land management activities tied to improving conditions across the 200-acre Plunge Creek Conservation Project.

For details concerning management activities implemented in support of meeting Jump Start obligations see information associated with [Plunge Creek Conservation Project](#) and [Slender-horned Spineflower Management](#) described under Conservation Projects.

Jump Start Funds – Of the \$231,000 in funds required to complete the Jump Start conservation actions as identified in the Conservation District ITP, \$66,000 has been funded through FY 2022.

## **Covered Activities**

Covered activities include all the activities in the Plan Area carried out by the Permittee and Participating Entities covered by the authorization for incidental take. Activities are recognized in the HCP as either projects or operations and maintenance (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 Activities fall into one or more of the following general categories:

- 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.
- 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 wells and access roads.
- Transportation—activities related to the construction, operation, 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 and new flood control facilities.
- Trails—the development of trails (provisional).
- Habitat Enhancement and Monitoring—activities that support the restoration and maintenance of habitat values in the Wash.
- Agriculture—the continued operations and maintenance of existing citrus groves.

## **Certificate of Inclusion**

The Conservation District is required to document (and archive) cases where the incidental take authorization granted to the Permittee has been extended to a member of the Task Force for the purpose of carrying out a Covered Activity. The Permittee’s decision to issue a Certificate of Inclusion to

a Participating Entity is to be captured together with required documentation from the USFWS noting the project is a Covered Activity and has complied with the requirements of the HCP.

A Certificate of Inclusion Agreement is the document executed by Permittee and a Participating Entity that extends the incidental Take authorization granted to the Permittee to such Task Force member for the purpose of carrying out a Covered Activity on Covered Lands. Execution of a Certificate of Inclusion by the Participating Entity shall place the Participating Entity under the legal control of Permittee for purposes of enforcing and implementing the Permit, including the HCP and the Implementation Agreement.

#### **FY22 Updates:**

Project Name(s): Santa Ana River Enhanced Recharge, Phase 1B – Phase A and B; New Access Roads for Spreading Basins

Wash Plan Covered Activity ID(s): VD.01 (Enhanced Recharge Project); CD.07 (New Access Roads for Spreading Basins)

Application(s) submitted and approved:

- Approval of issuance of the COI received from USFWS for Phase A and New Access Roads on April 25, 2022
- Approval of issuance of the COI received from USFWS for Phase B and New Access Roads on November 15, 2022

A single Certificate of Inclusion Agreement for Phase A and Phase B of the Enhanced Recharge Project and New Access Roads for Spreading Basins has been drafted and was in review with SBVWCD and SBVMWD as of December 31, 2022.

## Status and Progress of Covered Activities

The two types of Covered Activities are recognized in the HCP and include those activities associated with construction of new or expanded facilities planned in the Plan Area, and those activities related to the O&M of existing facilities or associated with new facilities constructed as a Covered Activity. Both types of Covered Activities, either initiated or ongoing, are discussed below.

### Construction of New or Expanded Facilities

A total of 20 New Construction projects are recognized as Covered Activities under the Wash Plan.

#### **FY22 Updates:**

No new construction activity was initiated by SBVWCD or any Participating Entity in FY22.

-----

### Operations and Maintenance (O&M) of Existing Facilities Permitted Under the HCP

Normal maintenance activities tied to operation of existing groundwater recharge facilities located within the Plan Area and permitted under the HCP are detailed in the SBVWCD Operations Manual, most recently updated in 2022. Maintenance activities conducted by SBVWCD within the Plan Area occur both outside and within existing percolation basins. These activities generally include maintenance of the spreading basins, canals, access roads, intake structures and weirs/gates.

In general, the District typically performs maintenance of existing facilities on an annual basis. During facility and basin maintenance activities the District usually gains access from roads or the basins and canals themselves, so as not to disturb native habitat. Any remnant water facilities, such as rock walls and gate structures are protected in place.

Within the percolation basins, maintenance is conducted on a less frequent basis, but repairs and general upkeep are of the upmost importance and essential to ensuring efficient groundwater recharge. Basins are restructured and reshaped typically on a 10-year rotational basis as part of ongoing maintenance activities for the purpose of redefining basin boundaries and changing basin dynamics to optimize percolation rates. In the interim, ideally, each basin is cleaned out every three years to maximize the rate of percolation, removing debris, sediment, algae, and any silt that can build up during a three-year period and decrease the efficiency of the spreading grounds.

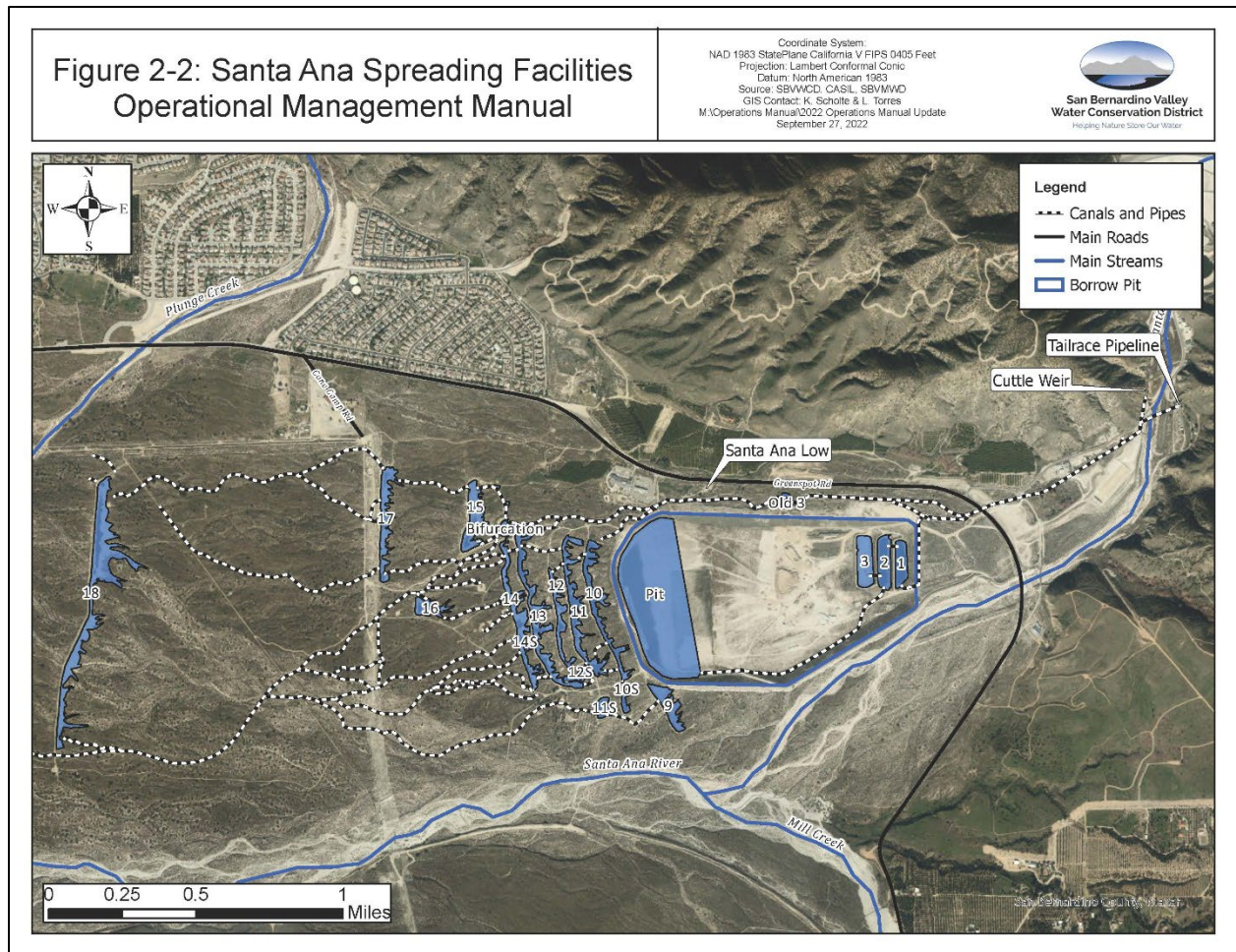
Maintenance within the canals is typically minimal and is completed on an as needed basis. The primary goal is to ensure canals are clear to allow flow to pass from basin to basin without being hindered. Vegetation, primarily invasive plants, is frequently removed by hand and treated with an aquatic pesticide. Larger debris occasionally needs to be removed with the assistance of heavy equipment such as an excavator.

Access roads are routinely kept clear of vegetation and debris to allow passage. Roads are dragged or scrapped of vegetation encroachment, typically annually during the late summer.

The Santa Ana River diversion structures are monitored for debris build up in front of gates in times of heavy flows. Debris can limit the amount of flow for spreading and can potentially cause damage to intake structures. Access gates are inspected for damage, repainted, signage replaced, and fully replaced as necessary as part of ongoing maintenance activity. Culverts are routinely monitored for clogging of debris, vegetation growth and damage.



Figure 2. Santa Ana Spreading Facilities as detailed in the SBVWCD Operational Management Manual



#### FY22 Updates:

Ongoing maintenance activities tied to existing facilities operated by SBVWCD implemented in FY22 include:

- Existing Recharge Basins and Access Roads (CD.01) – Maintenance
- Conservation District Canal (CD.02) – Wells and Water Infrastructure

## Land Stewardship

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. Management activities are most effective in supporting the goals and objectives of the HCP when they address the principal threats and stressors impacting, or with the potential to impact, the Wash Plan Preserve and individual Covered Species.

With regards to threats and stressors present within the Santa Ana River Wash, the list is varied and ranges from the presence of invasive plants, largely grasses of Mediterranean origin, that impede movement of listed species and outcompete native plants for limited water resources, to human activity, in the form of illegal trespass, dumping, and/or establishment of unauthorized encampments, leading to the fragmentation and degradation of protected lands and increased fire risk. At a landscape-scale, development pressure over the last century has resulted in habitat loss and fragmentation, further isolating remaining populations of native plants and animals, and challenging the metapopulation dynamics of Covered Species. The construction of Seven Oaks Dam has muted fluvial processes associated with the Santa Ana River and limited the natural disturbance regimes critical to the species and habitat dependent on early and mid-stage successional dynamics for long-term sustainability.

## General Stewardship Monitoring and Management

General stewardship monitoring activities supports management of the Wash Plan Preserve. Monitoring helps to identify general land management issues that need to be addressed and documentation of whether management actions are being carried out as planned.

General management activities benefiting from monitoring include trail closures, erosion control, fence and gate repair, signage installation, and routine invasive plant inventory and control. General stewardship monitoring also provides quick feedback on the status of identified threats impacting biological resources on the Preserve (see page B-10 in the HCP) and the success of habitat management treatments considered an important part of the adaptive management of the HCP Preserve (which includes both District Conserved and District Managed Lands).

It is important to note, the primary focus of the envisioned habitat 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.

## Preserve Management

The Wash represents an altered alluvial system. Existing conditions throughout the Wash are a combination of natural conditions existing in a varied state of disturbance due to past and present fluvial processes and areas undergoing active resource extraction and water management.

As District facilities are large open space areas adjacent to densely populated urban areas, the facilities attract trespassers and squatters. Main violators include off-roaders and homeless camping on or near

District lands, including the lands enrolled in the Wash Plan Preserve. These users often damage gates to create swimming areas, drive off designated roads harming habitat, or leave debris. As a management response, District staff regularly patrol the facilities for damage to fences, gates and locks as well as dispose of illegally dumped trash. In addition, warning/ trespassing signs and stencils are constructed and strategically placed throughout the District's facilities to prevent trespassing and vandalism.

Best Management Practices (BMPs) implemented during the reporting period consistent with Section 5.5 of the Wash Plan are listed below. Management actions that fall into this category include stewardship activities such as trash and debris removal, runoff control, fencing and signage installation and repair, routine (minor) weed control, illegal access and encroachment violations, seasonal restrictions and trail closures, trail maintenance, vandalism repair, erosion control, fuel modification, public outreach and education, and enforcement of Preserve regulations.

#### **FY22 Updates:**

BMPs implemented by SBVWCD in FY22 include the following:

- Barriers such as boulders, fences, and gates were placed and maintained on the perimeter of the Plan Area on both the west and east side of Orange Street south of CEMEX operations to help prevent unauthorized activities including dumping and off-road vehicle use.
- The Permittee, as part of its ongoing operations tied to groundwater recharge and general land stewardship responsibilities, made regular patrols of the HCP Preserve to prevent unauthorized use and access.
- Illegal dumping, including hazardous waste, discovered within the Wash Plan Preserve was cleaned up or noted for future removal following discovery in high traffic areas on either side of Orange Street. Illegal structures or settlements (e.g., encampments used by the unhoused) identified within the Wash Plan Preserve on either side of Orange Street, within the mainstem and the tributaries of Plunge Creek, and north of the Santa Ana River Channel were removed or noted for future removal following appropriate municipal and county protocols.
- Discoveries of problematic invasive plants, such as stinknet (*Oncosiphon piluliferum*) and stinkwort (*Dittrichia graveolens*), when made within the Wash Plan Preserve and active mining areas, were largely addressed in the spring of 2022 through manual removal or herbicide application.

## Conservation Projects

Progress of monitoring, management, and restoration projects undertaken by the Conservation District and Participating Entities in support of biological and preserve-wide objectives identified in the HCP are reported each year in the Annual Report.

### FY22 Updates:

Principal monitoring and management initiatives implemented in the Wash Plan Preserve in FY22 are highlighted in the table below.

Initiative	Project Type	Species Specific/ Preserve-Wide Objectives Addressed	Timing of Implementation
Vegetation Classification and Mapping	Monitoring	Preserve Objective 10	Spring/Summer 2022
SBKR Monitoring Protocol	Monitoring	Preserve Action 10A; SBKR Action 7A, 7C	Fall 2021
SBKR Trapping and Habitat Surveys	Monitoring	Preserve Action 10A; SBKR Action 7A, 7C	Fall 2021, Spring 2022
California Gnatcatcher Monitoring	Monitoring	CAGN Action 4, 6A	Spring 2022
Slender-horned Spineflower Monitoring Protocol and Monitoring	Monitoring	SHSF Action 9, 10A, 10B	Spring/Summer 2022
Slender-horned Spineflower Management	Management	SHSF Action 2, 5, 6A, 6B	Winter 2021, Spring 2022
Slender-horned Spineflower Restoration Program	Management	SHSF Action 3, 4	Summer 2022
Plunge Creek Conservation Project	Management	Preserve Action 9C; SARWS Action 2, 5; SBKR Action 2	Winter 2021, Spring/Summer 2022

## Monitoring Projects

Monitoring actions are those specific actions that are taken to track the status and trend of Covered Species populations and of their habitats within the Wash Plan Preserve and to inform the management strategy and tasks. Monitoring actions are conducted within an adaptive management context so monitoring results can be linked to management actions to inform and improve the efficacy and efficiency of management actions through time.

In the material shared below, we purposefully highlight the general components and characteristics of individual projects to allow for higher-level assessment of the allocation of funding and attention given by Program Area and Program Class. Through biological monitoring, biologists and land managers can measure the effectiveness of the overall conservation approach, support informed adaptive management decisions, assist in defining and modifying biological goals and objectives, and provide the

Conservation District and Wildlife Agencies with information to conduct assessments of baseline conditions and species status.

#### **FY22 Updates:**

Principal monitoring projects implemented in FY22 include the following:

- Vegetation Classification and Mapping (Preserve Objective 10)
- SBKR Monitoring Protocol (SBKR Action 7A; Preserve Action 10A)
- SBKR Trapping and Habitat Surveys (SBKR Action 7A; Preserve Action 10A)
- California Gnatcatcher Monitoring (CAGN Action 4, 6)
- Slender-horned Spineflower Monitoring Protocol and Monitoring (SHSF Action 10A, 10B)

#### **Vegetation Classification and Mapping**

Project ID(s)	2201
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	Project is to result in development of a classification of natural and naturalized vegetation occurring within the Wash Plan Preserve and on lands owned and managed by the Conservation District according to the Manual of California Vegetation. The Conservation District is preparing the classification to provide a consistent system for mapping of vegetation within the Wash Plan Preserve and on its own lands. A decision-making key is to accompany the classification to allow for consistent application of the derived classification. The vegetation classification and key are to be used to prepare an updated vegetation map of the 2,245-acre project area.
Contractor(s)/Researcher	AECOM
Time Period	2021-2022
Total Estimated Project Cost	\$118,950
Amount Budgeted in FY	\$118,950
Fund(s)	Wash Plan Endowment; Active Recharge Transfer Project Funds
Matching Contribution(s)	N/A
Landowner Involvement	SBVWCD, BLM
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Monitoring/research
Program Area	Sensitive biological resources
Resource (e.g., Monitoring or Management Target)	Riversidean alluvial fan sage scrub
Wash Plan Conservation Actions	
Species-specific Actions	N/A



Preserve-wide Objectives	Preserve Objective 10
Monitoring Type (if applicable)	Baseline (Inventory) Monitoring, Regional Monitoring
Monitoring Method (if applicable)	Vegetation Mapping
Specific Threat/Stressor	Human activity (development and trespass); Wildfire
Management Treatment	N/A
Intensity of Management	N/A
Available Report(s)	<i>AECOM 2022. Vegetation Classification Report for the San Bernardino Valley Water Conservation District – With Vegetation Key &amp; Descriptions. Unpublished report prepared for San Bernardino Valley Water Conservation District. 64p.</i>
Available Geospatial Product(s)	<i>GIS Data, Orthophotography Data, and Report Data associated with aerial imagery</i>

### Project Narrative Template

Overview	<p>In 2021, the Conservation District employed AECOM to develop a classification of natural and naturalized vegetation occurring within the Wash Plan Preserve and on lands owned and managed by the Conservation District according to the Manual of California Vegetation (MCV), developed by the California Department of Fish and Wildlife (CDFW) VegCAMP, as informed by the methods for vegetation classification developed by the National Park Service (NPS) Vegetation Inventory. The Conservation District is preparing the classification to provide a consistent system for the mapping of vegetation within the Wash Plan Preserve and on its own lands. A decision-making key is to accompany the classification to allow for the consistent application of the derived classification.</p> <p>The defined study area for the vegetation classification is a 2,245-acre portion of the Upper Santa Ana River Wash, including 1,475 acres of the Wash Plan Preserve, 195 acres of Community Mitigation Lands, 280 acres of Mill Creek Lands, and 295 acres of River HCP Preserve. The prepared vegetation classification will classify vegetation in the project area to the alliance and/or association level of the MCV (the association level will be provided wherever data are sufficient to generate such a classification).</p> <p>Based on the completed vegetation classification and key, AECOM will prepare an updated vegetation map of the 2,245-acre project area. Vegetation polygons will be delineated to the alliance or as appropriate to the association level using a combination of photointerpretation and field reconnaissance as appropriate to accurately define ecological boundaries. Vegetation will be mapped with a minimum mapping unit of 0.5 acre and aerial photographs of the project area will be prepared and delivered (at 0.5-foot resolution) by GeoTerra, an approved subcontractor to AECOM.</p> <p>Preparation of the vegetation map will consist of four principal tasks: 1) field reconnaissance; 2) photo interpretation and digitization of vegetation; 3) quality control; and 4) field validation. During field reconnaissance, the ecologists will compare aerial photo “signatures” to ground conditions and collect geo-referenced field notes and ground photographs to assist office-based photointerpretation. The digitization of</p>
----------	---

	<p>vegetation polygons will be created by vegetation ecologists in an ArcGIS environment using on-screen digitizing methods over suitable orthophotographs. Quality control steps will include checking tables for complete attribution and performing checks of the map topology. A final validation task will be completed to field verify a sampling of map polygons to assess the accuracy of the mapped vegetation prior to finalization of the vegetation map and creation of the project summary report.</p>
Progress	<p>AECOM scheduled flights (to be completed using manned aircraft) to collect aerial imagery (at 6-inch resolution) of the Wash in late April/early May and initiated complementary field surveys beginning in early May to aid in the classification process. During field reconnaissance, ecologists from AECOM compared aerial photo “signatures” to ground conditions and collected geo-referenced field notes and ground photographs to assist in the office-based photointerpretation.</p> <p>Plant ecologist from AECOM meet with Todd Keeler-Wolf (of CDFW; lead author of the Manual of California Vegetation) to discuss classification of vegetation on June 1. In June, AECOM was reviewing plot data collected in early May and testing its fit with literature describing alluvial scrub vegetation. Aerial imagery of the Wash captured in early May was made available to AECOM on June 20; District obtained the imagery on June 28. District shared the habitat data of the SBKR monitoring plots collected during the spring with AECOM on June 22 to assist with the vegetation mapping effort.</p> <p>AECOM submitted a draft vegetation classification report to the District for review on August 19. A presentation on the project was given by AECOM to District staff on August 23. District reviewed the draft report and submitted comments to AECOM on August 30. AECOM completed review of the updated imagery and preparation of the vegetation map was initiated in August.</p> <p>The final amended Vegetation Classification Report was completed by AECOM and shared with the District on September 20. Additional fieldwork supporting the vegetation mapping component of the project was conducted by AECOM on September 22 and 23.</p> <p>An in-person meeting between AECOM and the District is to be scheduled in the field following completion of the vegetation mapping. The meeting affords AECOM the opportunity to showcase examples when discussing the classification and mapping methodologies and results of the mapping effort. Through engaging AECOM staff in the field, District biologists become more familiar with the classification scheme and are more apt to use employ the mapping products in their stewardship activities.</p>
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. Review existing mapping and regional vegetation classification data to define a preliminary set of alliances and association expected to be present within the project area – <i>Completed</i></li> <li>2. Design a vegetation sampling plan for the project area – <i>Completed</i></li> <li>3. Perform field reconnaissance and collect vegetation plot data – <i>Completed</i></li> <li>4. Conduct a valid analysis to assign each vegetation plot to an MCV alliance/association – <i>Completed</i></li> <li>5. Prepare a dichotomous vegetation key to all the vegetation alliances sampled based on physiognomy and quantitative species composition data – <i>Completed</i></li> <li>6. Prepare a final vegetation classification report – <i>Completed on September 20, 2022</i></li> </ol>

	<ol style="list-style-type: none"> <li>7. Acquire and review raw aerial imagery of the project area – <i>Completed</i></li> <li>8. Prepare and transfer GIS Data, Orthophotography Data, and Report Data associated with aerial imagery to Conservation District – <i>Completed on June 24, 2022</i></li> <li>9. Conduct photo interpretation and digitization of vegetation in an ArcGIS environment using on-screen digitizing methods over suitable orthophotographs – <i>Completed</i></li> <li>10. Perform quality control and field validation to assess the accuracy of mapped polygons – <i>Completed</i></li> <li>11. Prepare a final vegetation mapping report – <i>In development; estimated to be completed in January 2023</i></li> <li>12. Prepare and transfer final project geodatabase containing the final vegetation feature class – <i>In development; estimated to be completed in January 2023</i></li> </ol>
Key Findings	<p>Classification assignments resulted in 14 MCV alliances and 17 associations being determined for District lands. All alliances and associations are well represented in the compiled regional dataset, except for two: the <i>Heterotheca sessiliflora</i> Association and <i>Opuntia littoralis</i> - <i>Opuntia oricola</i> - <i>Cylindropuntia prolifera</i> Shrubland Alliance. <i>Heterotheca sessiliflora</i> Association was originally known as a special stand type from plots (<math>n=8</math>) collected for a vegetation inventory in Pinnacles National Park (Kittle <i>et al.</i> 2012). This association is currently included in the MCV based on the Pinnacle stands. The plot representation on District lands occupies similar alluvial habitat and with high relative cover of <i>H. sessiliflora</i>, albeit with far less nonnative cover than the plots at Pinnacles National Park. The <i>Opuntia</i> alliance named above is described principally as a coastal vegetation alliance in the MCV and is represented in the western Riverside classification by a single inland plot (CNPS 2005). The single western Riverside plot has been included in the stand table summary for this alliance.</p>
Notes	<p>The overall accuracy of the new fine-scale vegetation map may be measured by completing an independent accuracy assessment. An accuracy assessment would include field sampling, analysis of results, and documentation of an overall user's accuracy score. California state standards require a threshold of overall accuracy of 80%. As part of the assessment, it may be beneficial to create a crosswalk and make a comparison between the new map and existing vegetation maps of the project area.</p>

### SBKR Monitoring Protocol

Project ID(s)	2202
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	The purpose of the project is to develop a scientifically valid, productive, and cost-effective monitoring program for San Bernardino kangaroo (SBKR) rat within the Wash Plan Preserve. The monitoring program is to allow for determination of the status and distribution of SBKR, monitoring of the species long-term trends, and assessment of the effectiveness of management actions in maintaining and increasing the quality of SBKR habitat and population of SBKR in the

	Wash Plan Preserve consistent with implementation of the Upper Santa Ana River Wash HCP.
Contractor(s)/Researcher	USGS; SJM Biological Services
Time Period	2021-2022
Total Project Cost	\$54,500
Amount Budgeted in FY	\$54,500
Fund(s)	Wash Plan Endowment
Matching Contribution(s)	N/A
Landowner Involvement	SBVWCD, BLM
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Monitoring/research
Program Area	Sensitive biological resources
Resource (e.g., Monitoring or Management Target)	SBKR
Wash Plan Conservation Actions	
Species-specific Actions	SBKR Action 7A
Preserve-wide Objectives	Preserve Action 10A
Monitoring Type (if applicable)	Baseline (Inventory) Monitoring, Effectiveness Monitoring, Regional Monitoring
Monitoring Method (if applicable)	Occupancy Monitoring
Specific Threat/Stressor	Human activity (development); Absence of disturbance
Management Treatment	N/A
Intensity of Management	N/A
Available Report(s)	<i>Brehme, CS, SJ Montgomery, B. Miller, M. Romich, RN Fisher 2022. San Bernardino Merriam's Kangaroo Rat (Dipodomys merriami parvus) Monitoring Protocol for San Bernardino Valley Water Conservation District. DRAFT Report to San Bernardino Valley Water Conservation District. 72p.</i>
Available Geospatial Product(s)	<i>In development</i>

#### Project Narrative Template

Overview	SBKR is a Covered Species under the Wash Plan which was accompanied by an Incidental Take Permit (ITP) from the USFWS on July 13, 2020. As the ITP holder for the Wash Plan, and consistent with the requirements of the Wash Plan, SBVWCD retained the U.S. Geological Survey (USGS) and SJM Biological Services in 2021 to develop a scientifically valid, effective, and cost-effective monitoring program for SBKR within the Wash Plan Preserve. The Wash Plan requires development and implementation of a monitoring program for SBKR to determine status and distribution of the species in the Preserve, monitor long-term trends, and assess the effectiveness of management
----------	--

	<p>actions. Specific objectives of the monitoring program to be developed by the USGS included:</p> <ul style="list-style-type: none"> <li>• Evaluate detection probabilities, spatial sampling scale(s), and covariate data from existing planning documents, and use them to develop a Percent Area Occupied (PAO) monitoring protocol and occupancy model for SBKR within the Wash Preserve.</li> <li>• Monitoring protocol should allow SBVWCD to meet the monitoring requirements of the Wash Plan.</li> <li>• Monitoring protocol should include a density index.</li> <li>• Monitoring data should strongly support informed use of Wash Plan endowment for land management actions to meet Wash Plan goals for SBKR.</li> <li>• If possible, protocol should allow for combined analyses with existing preserve-level SBKR monitoring and future range-wide SBKR monitoring.</li> <li>• Monitoring results should contribute to answering knowledge gaps related to SBKR where possible (e.g., short and long-term trends in area occupied by SBKR, SBKR densities, and SBKR responses to landscape and environmental factors, habitat management, disturbance).</li> <li>• Utilize the Wash Plan SBKR habitat suitability model to identify the number and location of stratified sampling points across the Wash Preserve, if warranted.</li> <li>• Develop a monitoring program that will accommodate significant restoration in low suitability areas via weeding, substrate addition/modification, flooding and fire over the 30-year term of the Wash Plan ITP. Low suitability areas will be identified using results of habitat modeling and occupancy (or lack thereof) of SBKR.</li> <li>• Incorporate long-term evaluation of the Plunge Creek Conservation Project within the Wash Plan on SBKR occupancy.</li> <li>• Include the minimum amount of survey sites supported by the Wash Plan endowment to generate spatial data to inform land use and management within and adjacent to the Wash Preserve.</li> <li>• Incorporate survey sites for future sampling of SBVWCD Mill Creek Conservation lands and Community Mitigation lands outside of the Preserve.</li> <li>• Incorporate long-term evaluation of the Seven Oaks Dam High Flow projects.</li> </ul> <p>The monitoring program includes collection of various habitat covariates that will be used for habitat modeling to help further understand SBKR and their needs for survival. Habitat covariate data is scheduled to be collected by SBVWCD in the spring of 2022. All habitat characteristics to be measured are hypothesized to be important for SBKR habitat suitability and were based on the current SBKR habitat characterization protocol for Woolly-star Preserve Area and lands protected under the Western Riverside Multiple Species Habitat Conservation Plan.</p>
Progress	<p>In late summer/early fall of 2021 the USGS completed a draft monitoring protocol allowing for the collection of first year SBKR trapping data in fall of 2021 across the Wash Plan Preserve. Analysis of the first year of trapping data collected under the new</p>



	<p>sampling protocol was initiated in winter and results were made available to SBVWCD in spring 2022.</p> <p>On April 7, SBVWCD hosted a regional coordination meeting discussing the SBKR monitoring approach and early results from the USGS analyses. In addition to the USFWS, CDFW, and the USGS, the meeting participants included representatives from the San Bernardino Valley Municipal Water District, San Bernardino County Flood Control, Bureau of Land Management, San Diego Zoo, Western Riverside MSHCP, and Cajon Creek Conservation Bank. In total, there were 31 people in attendance at the meeting, representing 100% participation of all of those invited. The information shared at the meeting was well-received suggesting there might be opportunities for regional collaboration on monitoring of SBKR moving forward.</p> <p>District and USGS met with USFWS to discuss expansion of the SBKR monitoring program to allow for integration with a regional monitoring effort for the species on June 9. District partnered with USGS on June 14 in submitting an abstract for a presentation on the SBKR monitoring program to be given during the National Habitat Conservation Plan Coalition Annual Meeting in Austin, Texas in October.</p>
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. Literature Review - Review data and reports provided by SBVWCD as well as other scientific and/or unpublished literature available to USGS that may inform development of monitoring program for SBKR – <i>Completed</i></li> <li>2. GIS Review - Review GIS data provided by SBVWCD for the Wash Plan and Plunge Creek Conservation Project as well as other GIS data available to USGS that may inform development of monitoring program for SBKR – <i>Completed</i></li> <li>3. Site Visit - Visit Wash Plan Preserve with SBVWCD staff – <i>Completed</i></li> <li>4. Monitoring Protocol Development - Develop protocol for SBKR monitoring using a percent area occupied methodology for areas within the Wash Plan Preserve (within the Upper Santa Ana River Wash) that complies with the goals of the Wash Plan – <i>Completed</i></li> <li>5. Power Analysis for Monitoring Program – Run power analyses to determine appropriate locations and number of monitoring sites to 1) evaluate the effects of the Plunge Creek Conservation Project on SBKR within the project area, 2) inform management actions for SBKR within the Wash Plan Preserve, and 3) allow SBVWCD to meet the Wash Plan monitoring goals for SBKR – <i>Completed</i></li> <li>6. Monitoring Protocol Manual - Prepare an SBKR monitoring protocol manual for the Wash Plan, including a component for the Plunge Creek Conservation Project – <i>Completed</i></li> <li>7. SBKR Trapping Assistance - Assist permitted biologist hired by SBVWCD with SBKR surveys – <i>Completed</i></li> <li>8. Habitat Survey Protocol – Prepare survey protocol for habitat surveys and assist SBVWCD staff with training allowing for standardization of associated habitat surveys – <i>Completed</i></li> <li>9. Presentation of Draft Protocol - Present the draft protocol to SBVWCD staff, species experts, and regulatory agency staff for discussion and feedback – <i>Completed</i></li> <li>10. Final Protocol Manual - Revise draft protocol to incorporate feedback and comments where appropriate – <i>In development; estimated to be completed in January 2023</i></li> </ol>

Key Findings	First estimates of the density or abundance of SBKR across the Wash Plan Preserve were created through implementation of the monitoring protocol. Using repeat captures to estimate abundance, the USGS estimated total number of San Bernardino kangaroo rats estimated within the Wash Preserve is 2,851, with 90% Confidence Limit extending from 2,355 to 3,292 kangaroo rats.
Notes	Although the monitoring program is in its early years of implementation and focuses exclusively on the Wash Preserve, the program was developed with the potential for serving as a program model for monitoring trends in SBKR populations over a broader geographic scale, allowing for range-wide trends in spatial distribution and relative density to be assessed. The Conservation District is well positioned to complete a second year of trapping in the fall of 2022, allowing for refinement of the initial estimates of SBKR occupancy and abundance within the Wash Plan Preserve. Future analysis of trapping data can be linked to the new vegetation map for the Wash Plan Preserve developed by AECOM in 2022 to improve inference of the density of SBKR by different major vegetation types within the Wash.

### SBKR Trapping and Habitat Surveys

Project ID(s)	2203
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	The purpose of the project is to conduct fall trapping of SBKR to determine occupancy and local abundance of SBKR within the Wash Plan Preserve consistent with the SBKR monitoring program developed by the USGS. The project is also to result in completion of spring habitat surveys to characterize habitat conditions of locations trapped for SBKR to reinforce species-habitat relationships and inform future management actions. Annual trapping activities and habitat surveys are to allow for determination of the status and distribution of SBKR, monitoring of the species long-term trends, and assessment of the effectiveness of management actions in maintaining and increasing the quality of SBKR habitat and population of SBKR in the Wash Plan Preserve consistent with implementation of the Upper Santa Ana River Wash HCP.
Contractor(s)/Researcher	Origin Biological; SBVWCD
Time Period	2021-2022
Total Project Cost	\$39,140 (Origin Biological); 400 hours (SBVWCD Staff)
Amount Budgeted in FY	\$39,140; 400 hours
Fund(s)	Wash Plan Endowment
Matching Contribution(s)	N/A
Landowner Involvement	SBVWCD, BLM
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Monitoring/research
Program Area	Sensitive biological resources

Resource (e.g., Monitoring or Management Target)	SBKR
Wash Plan Conservation Actions	
Species-specific Actions	SBKR Action 7A
Preserve-wide Objectives	Preserve Action 10A
Monitoring Type (if applicable)	Baseline (Inventory) Monitoring, Effectiveness Monitoring, Regional Monitoring
Monitoring Method (if applicable)	Occupancy Monitoring
Specific Threat/Stressor	Human activity (development); Absence of disturbance
Management Treatment	N/A
Intensity of Management	N/A
Available Report(s)	<i>Origin Biological 2022. 2021 Wash HCP San Bernardino Kangaroo Rat Monitoring Results Summary. Unpublished report prepared for San Bernardino Valley Water Conservation District. 9p.</i>
Available Geospatial Product(s)	<i>In development</i>

#### Project Narrative Template

Overview	<p>The monitoring program developed by the USGS is to allow for determination of the status and distribution of SBKR in the Preserve, monitoring of long-term trends, and assessment of the effectiveness of management actions. Implementation of the monitoring program requires trapping of SBKR in the fall and the collection of various habitat covariates in the spring used for habitat modeling to help further understand SBKR and their needs for survival. All habitat characteristics to be measured in the spring at the known fall trapping locations are hypothesized to be important for SBKR habitat suitability and were based on the current SBKR habitat characterization protocol for Woolly-star Preserve Area and lands protected under the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). In 2021, Origin Biological, was hired to work with the USGS and Conservation District in implementing the new protocol with focus on conducting the fall trapping of SBKR within the Wash Plan Preserve. In the spring of 2022, the SBVWCD staff are scheduled to visit all trap locations to characterize local habitat conditions and allow for future analysis of species-habitat relationships.</p>
Progress	<p>Consistent with the new protocol, trapping for SBKR was conducted across 100 sites distributed throughout the Wash Plan Preserve in November and December of 2021. Following QA/QC, data were shared with the USGS for analysis.</p> <p>In April of 2022, SBVWCD initiated implementation of the new habitat monitoring protocol, conducting field surveys of habitat conditions of the 92 permanent survey plots and 9 randomly assigned plots used to trap SBKR in fall of 2021. The work focused on describing local conditions of vegetation and soils at each plot to aid in analysis of the collected data describing patterns of occupancy across the Wash Plan Preserve. All</p>

	<p>101 of the SBKR plots sampled in fall of 2021 were surveyed for habitat conditions by early June 2022.</p> <p>In summer of 2022, soil samples collected at each plot were shipped to BYU College of Life Sciences Environmental Analytical Lab for composition and texture analysis. On December 28, the results of soil tests were received. Results of the soil composition and sand texture analyses performed by the university are to be treated as additional site covariates that may help to predict SBKR presence and abundance in the Wash when analyses are conducted this winter by the USGS and District.</p>
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. Meetings and Coordination (Origin Biological) - Complete pre-field work tasks necessary to implement the San Bernardino kangaroo rat (SBKR) monitoring protocol for 2021, including participation in the kick-off meeting and coordination with the Conservation District and USGS – <i>Completed</i></li> <li>2. SBKR Trapping (Origin Biological) - Trap for SBKR at 101 grids identified by the USGS during the late summer and fall months, with each grid consisting of 25 traps placed in a 5 by 5 trap configuration with 10-meter spacing, for 2-nights per the monitoring protocol developed by the USGS (see Project 2202) – <i>Completed</i></li> <li>3. Data Review and Letter Report (Origin Biological) - Review data collected for each trapping session as a quality assurance quality control measure; prepare a letter report describing the trapping methods and results, highlighting the locations of SBKR captures – <i>Completed</i></li> <li>4. Habitat Surveys (SBVWCD) - Complete execution of habitat survey protocol covering all trapping plots sampled in fall of 2021 – <i>Completed</i></li> <li>5. Soil Data - Screen collected soil data and ship labeled samples to BYU for analysis (SBVWCD) – <i>Completed</i></li> <li>6. QA/QC - Perform QA/QC on habitat data and transfer clean datasets to USGS for analysis (SBVWCD) – <i>Completed</i></li> <li>7. Receive soil composition and texture analyses from BYU and transfer information to USGS for analysis (SBVWCD) – <i>Scheduled to be completed in January 2023</i></li> </ol>
Key Findings	<p>In total, 180 unique SBKR were captured across 53 of the 101 sampled plots distributed across the Wash Plan Preserve. Across these same plots, a total of 30 unique Dulzura kangaroo rat individuals were captured. The Dulzura kangaroo rat was noted as present in 10 of the 53 plots containing SBKR. The three plots with the greatest number of captures of SBKR, totaling 10 or more unique SBKR captures, were located within a few hundred yards of the Santa Ana River Channel east of Alabama Street and on either side of Orange Street.</p>
Notes	<p>Trapping of SBKR consistent with the monitoring protocol is expected to occur each fall across the Wash Plan Preserve for at least the first 10 years of implementation of the Wash Plan. Per the monitoring protocol, a minimum of 100 plots are to be trapped each year, with an estimated 90 of the 100 plots remaining static, and about 10 plots of the 100 being randomly selected each year. Spring habitat surveys are to be implemented each year in which trapping is to occur.</p>

## California Gnatcatcher Monitoring

Project ID(s)	2101, 2204
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	The purpose of the project is to perform baselines surveys for the California gnatcatcher (CAGN) within the Wash Plan Preserve consistent with the Upper Santa Ana River Wash Habitat Conservation Plan. Surveys are to be completed in the spring and summer months and follow the guidance provided by the USFWS CAGN breeding survey protocol for areas located inside a Habitat Conservation Plan (HCP). Information on the location of breeding pairs of CAGN is to inform management activities and reinforce habitat protection measures taken to minimize human disturbance in high-value natural-resource areas of the Wash.
Contractor(s)/Researcher	Origin Biological
Time Period	2021-2022
Total Estimated Project Cost	\$13,000
Amount Budgeted in FY	\$6,500
Fund(s)	Wash Plan Endowment
Matching Contribution(s)	N/A
Landowner Involvement	SBVWCD, BLM
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Monitoring/research
Program Area	Sensitive biological resources
Resource (e.g., Monitoring or Management Target)	CAGN
Wash Plan Conservation Actions	
Species-specific Actions	CAGN Action 4, 6
Preserve-wide Objectives	
Monitoring Type (if applicable)	Baseline (Inventory) Monitoring
Monitoring Method (if applicable)	Probability Sampling (Visual Encounter Surveys)
Specific Threat/Stressor	Human activity (development and wildfire)
Management Treatment	N/A
Intensity of Management	N/A
Available Report(s)	<p><i>Origin Biological 2021. 2021 Wash HCP Monitoring Results for Breeding California Gnatcatchers, Redlands and Highland, San Bernardino County. Unpublished report prepared for San Bernardino Valley Water Conservation District. 18p.</i></p> <p><i>Origin Biological 2022. 2022 Wash HCP Monitoring Results for Breeding California Gnatcatchers, Redlands and Highland, San Bernardino County. Unpublished report prepared for San Bernardino Valley Water Conservation District. 21p.</i></p>

Available Geospatial Product(s)	<i>GIS shapefiles are available for the following datasets: 2021 CAGN Survey Area; 2022 CAGN Survey Area; 2021 CAGN Locations; 2022 CAGN Locations; 2021 CAGN Territory Boundaries; 2022 CAGN Territory Boundaries; 2021 Special Status Species; 2022 Special Status Species</i>
---------------------------------	--

### Project Narrative Template

Overview	Both in 2021 and 2022, permitted biologist Mikael Romich was contracted to conduct surveys for CAGN consistent with the Wash Plan monitoring program. The survey methodology used for both surveys periods is to be based on the focused protocol breeding surveys for jurisdictions within Natural Communities Conservation Planning interim section 4(d) process, which requires three repeat surveys for every 100 acres within the area to be surveyed (USFWS 1997). The survey area is to be held constant between years and total 300 acres in size. Given the size of the area, a total of nine surveys are required to complete the survey protocol. Surveys are to be performed by slowly traversing each 100-acre survey area between 0600 and 1200 each day of the surveys. Surveys are to be timed so the entirety of the survey area is surveyed once in April, May, and June across years.
Progress	Monitoring surveys for CAGN were conducted in the Wash Plan Preserve in the spring of both 2021 and 2022. Consistent with the focused protocol breeding surveys established by the USFWS in 1997, three rounds of breeding surveys were performed by Mikael Romich in 2021, with a single survey round occurring in April, May, and June. Each individual survey covered 100 acres, and a total of three days of surveys were completed to cover the 300-acre survey area surveyed each month. In 2022, Mikael implemented the focused protocol breeding surveys in the same survey area during the same months of April, May, and June. Results of the completed annual breeding bird surveys were reported in August of 2021 and 2022.
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. CAGN Surveys – Walk meandering transects within suitable habitat performing call playbacks when needed to document CAGN presence; for positive occurrences, map movements of individual birds to ascertain approximate use areas or breeding territories; record and track nests found during implementation of survey protocol – <i>Completed in both 2021 and 2022</i></li> <li>2. Review Data - Perform QA/QC on collected data prior to finalizing the dataset and transferring information to SBVWCD – <i>Completed in both 2021 and 2022</i></li> <li>3. Reporting – Complete a letter report summarizing the methods and results of the survey and data collection; report is to provide maps and a database of all positive CAGN occurrences and nests with a discussion of the estimated number of individual territories detected; positive occurrences of all other special-status species detected during the survey are to be included in the shared database – <i>Completed in both 2021 and 2022</i></li> </ol>
Key Findings	Surveys performed in 2021 and 2022 confirmed successful breeding is occurring within the Wash even though both years are recognized as experiencing a relatively low amount of precipitation which often leads to limited productivity in the species. Noted similar levels of reproductive activity between years suggests stability within the

	population. The estimated number of pairs/territories of CAGN observed within the survey area during the survey period equaled nine territories in 2022 and 8 breeding territories in 2021. The estimated number of pairs with active nests/fledged young equaled five in 2022, with three pairs confirmed with double clutches, and two others suspected. In 2021, six pairs with successful nests were confirmed. In both years, nesting substrates included brittlebush ( <i>Encelia farinose</i> ), scalebroom ( <i>Lepidospartum squamatum</i> ), and California juniper ( <i>Juniperus californica</i> ). In 2021, individual breeding territory size was estimated at 9.1 acres.
Notes	When evaluating information from additional studies of CAGN breeding in addition to the information captured from the 2021 and 2022 monitoring efforts, nesting substrate selection by CAGN was consistently strongly associated with brittlebush. The leafy structure of brittlebush is hypothesized to provide high levels of cover and concealment for CAGN nests. Based on field observations, nesting activity is hypothesized to occur both earlier (i.e., March) and later (i.e., July) in the season beyond what is captured when conducting the surveys during the months of April, May, and June.

### Slender-horned Spineflower Monitoring Protocol and Monitoring

Project ID(s)	2102, 2205
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	Project is to result in development and implementation of a standardized survey methodology and monitoring protocol for locating and measuring trends in the status of slender-horned spineflower ( <i>Dodecahema leptoceras</i> ; SHSF) populations present in the Wash Plan Preserve through time. Prior efforts to monitor known populations of SHSF are to be evaluated and subsumed into to the new monitoring program.
Contractor(s)/Researcher	Origin Biological (2102); Dudek (2205); SBVWCD
Time Period	2021-2022
Total Estimated Project Cost	\$2,920 (Origin Biological); \$5,000 (Dudek); 120 hours (SBVWCD)
Amount Budgeted in FY	\$5,000 (Dudek); 120 hours (SBVWCD Staff)
Fund(s)	Wash Plan Endowment; Conservation District Funds
Matching Contribution(s)	N/A
Landowner Involvement	SBVWCD, BLM
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Monitoring/research
Program Area	Sensitive biological resources
Resource (e.g., Monitoring or Management Target)	SHSF
Wash Plan Conservation Actions	
Species-specific Actions	SHSF Action 9, 10A, 10B
Preserve-wide Objectives	N/A



Monitoring Type (if applicable)	Baseline (Inventory) Monitoring, Targeted Monitoring
Monitoring Method (if applicable)	Full census/total counts
Specific Threat/Stressor	Human activity (development and nitrogen deposition); Invasive grasses
Management Treatment	N/A
Intensity of Management	N/A
Available Report(s)	<i>Origin Biological 2021. Slender-horned Spineflower Results of 2021 Monitoring. Unpublished report prepared for San Bernardino Valley Water Conservation District. 41p.</i>
Available Geospatial Product(s)	<i>GIS Data, Environmental Data associated with completion of Survey 123 Forms</i>

### Project Narrative Template

Overview	<p>In 2021, the Conservation District employed Dudek to develop and implement a comprehensive survey methodology and monitoring protocol for SHSF across the Wash Plan Preserve. The monitoring protocol and complementary surveys were to be developed and implemented with assistance provided by SBVWCD. Fieldwork was to be initiated in the spring of 2022 and continue through 2023. Depending on weather conditions, with emphasis on the amount of winter precipitation, a single comprehensive survey for SHSF populations was to be implemented in either 2022 or 2023. The comprehensive survey is to result in determination of the location and extent of suitable habitat in the Wash Plan Preserve and definition of the extent and location of discovered SHSF populations. Development of the monitoring program is to build upon previous monitoring efforts implemented by Origin Biological and other entities including the Science Applications International Corporation (SAIC) and ELMT Consulting.</p>
Progress	<p>The SHSF Patch Database prepared in June 2021 was reviewed in March 2022 by Dudek and SBVWCD to assess the conditions and observed trends of historic SHSF populations present within the Wash Plan Preserve. Results of monitoring efforts completed in 2021 by Origin Biological were also reviewed by Dudek and SBVWCD and used to inform baseline conditions of known populations and the establishment of the 17 formally recognized populations of SHSF defined as to anchor the monitoring program for the next several years.</p> <p>On March 16 SBVWCD held a remote project kickoff meeting with the team from Dudek to get acquainted with one another and discuss project logistics. This was followed by a field meeting on April 6 to determine what, within the defined project scope, can be accomplished in 2022 and what was best pushed to next year due to the continued drought and exceptionally dry January and February months. After the field visit, the collective team decided to go forward with monitoring of the known colonies in spring of 2022, initiating the work in May, while pushing the comprehensive Preserve-wide surveys for new populations to 2022.</p>

	<p>Following the field visit, Dudek, working with SBVWCD, developed the Parch Monitoring Survey Protocol to be implemented during monitoring surveys using the Survey 123 platform. SBVWCD, working with Dudek, completed surveys for SHSF across the 17 recognized populations of SHSF on May 18, 19, and 24.</p> <p>Prospective micro-meteorological monitoring stations used to collect critical data on site conditions at known and/or prospective SHSF population locations were identified in June 2022 with installation initiated in September 2022.</p>
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. Literature Review – Conduct a comprehensive review of existing literature pertaining to SHSF and the results of SHSF Working Group meetings; existing reports highlighting the results of recent monitoring efforts implemented by SBVWCD were to be included in the review (Dudek) – <i>Completed</i></li> <li>2. Develop Monitoring Protocol – Establish information to be collected during monitoring of known SHSF patches; formalize patch monitoring data collection form and monitoring methodologies, including methods for collecting spatial information highlighting patch location, size, and shape, completing population counts and population description, collecting covariate data describing conditions in and adjacent to the sampled patches (Dudek/SBVWCD) – <i>Completed</i></li> <li>3. Monitor Known Populations - Perform monitoring of known populations implementing the new protocol (Dudek/SBVWCD) – <i>Completed</i></li> <li>4. Comprehensive Survey of the Wash Plan Preserve - Conduct a focused survey for SHSF within the Wash Plan Preserve; through the use of walking transects botanists and biologists are to survey the full extent of suitable habitat with special attention paid to areas associated with historic locations of SHSF (Dudek/SBVWCD) – <i>Scheduled to be completed in spring 2023</i></li> <li>5. Environmental Monitoring – Setup and implement a micro-meteorological monitoring program measuring air temperature, relative humidity, soil moisture, soil temperature, and soil electrical conductivity adjacent to occupied patches of SHSF (Dudek/SBVWCD) – <i>Ongoing; monitoring stations are scheduled to be fully functional at three locations spanning the extent of SHSF communities in the Wash by spring 2023</i></li> <li>6. Letter Report - Results of the comprehensive survey, focused surveys, environmental data collected at the monitoring stations, and finalized survey methodology are to be highlighted and memorialized in a brief memorandum (Dudek/SBVWCD) – <i>Scheduled to be completed in fall of 2023</i></li> </ol>
Key Findings	<p>Seventeen known populations were sampled across the Wash Plan Preserve in 2022. Spineflower was detected at seven populations, with population No. 13 being the largest with 1,423 individuals. No other population had more than 100 individuals. A total of 1,739 individuals were counted in 2022. Each of the populations (or colonies) surveyed in 2022 were known and surveyed by various entities in previous years. The only two exceptions are Populations 1A and 1C which were discovered just beyond the established Population 1B (previously identified as Population 1). In the newly developed survey protocol, the team established a 5-meter rule used to distinguish separate populations when boundaries of newly discovered populations are otherwise close to known populations. Following this protocol, Dudek and SBVWCD defined the two new populations as 1A and 1C.</p>

	<p>Recognizing there was little rain that fell in January, February, and March, seemingly important months for precipitation events for successful germination and growth in the species, the team expected the number of seeds in the seed bank at each of the known populations that attempted to germinate this year to be on the low side. The one exception may be Population 13, which again saw a sizeable number of seeds successfully germinate as recognized by the high number and typically larger size of counted individuals.</p> <p>The lack of observations of SHSF at populations numbered 6 through 11 and 14 through 17 did not come as a surprise. Mikael Romich (Origin Biological), conducting surveys on behalf of the Conservation District in 2021, equally found no individual plants at populations 6 through 11 and 14 through 17 and has noted downward trends with regards to observed numbers in these same populations over the last several years.</p>
Notes	<p>Seeds were collected from six of the extant populations by the California Botanic Garden in support of the seed-bulking activities. With successful implementation of the new monitoring protocol in 2022, SBVWCD expects the protocol to remain largely unchanged and continuously implemented on an annual basis for the next decade or more.</p>

### California Wildlife Species of Special Concern

Although the species highlighted in this section are not covered by the Wash Plan, each of the profiled species is recognized as a California Wildlife Species of Special Concern and was identified as present within the Wash Plan Preserve during implementation of the Wash Plan management and monitoring activities. Noting the occurrence of these species in the Wash Plan Preserve by citing observations within the Annual Report provides the Wildlife Agencies with assurances the species are present and reinforces the position held by the Conservation District to recognize and manage for all sensitive species present on the conserved lands.

#### FY22 Updates:

**Coast horned lizard** (CA Designation: S3, S4) – Information pertaining to coast horned lizard (*Phrynosoma blainvillii*) observations made during spring 2022 follows.

All sightings occurred in the Santa Ana River Wash near the mainstem of the Santa Ana River on either side of State Route 210. Sightings were made by chance and occurred when walking to established monitoring/trapping locations for San Bernardino kangaroo rat for the purposes of completing habitat surveys. The area covered when walking extended, approximately, west to east, from Alabama Street to Orange Street. Native harvester ants were present in the immediate areas of all three sightings of the horned lizards.

The first horned lizard was found about 300 meters east of Alabama Street (on May 3 at 2:30 PM) on a sandy terrace on the south side of the Santa Ana River south of the bridge. The second discovery was made on May 25 just before 10:00 AM. The lizard fled into a large-scale broom (*Lepidospartum squamatum*) when taking flight and was not captured. Its movement gave away its location and allowed for the discovery, but also the escape. The third discovery was made on May 31 at 4:10 PM. The female lizard's camouflage was very effective. She was discovered by chance observation and did not move but

remained still on a small granite cobble until the moment of capture. Harvester ants were in the immediate vicinity.

With three captures of horned lizards in this general area of the Wash this last spring, the Land Resources Team from SBVWCD is gaining confidence this area of the Santa Ana River Wash is a valuable location for the species. Increased attention and management efforts with regards to addressing human trespass in the area is warranted.

Details tied to incidental observations made by District staff in 2019 and 2022 are in the process of being shared with the USGS for publication.

**Red-diamond rattlesnake** (CA Designation: S3) – The red diamond rattlesnake (*Crotalus ruber*) was observed in two locations in spring. Both locations were within the Riversidean alluvial fan sage scrub habitat associated with the Santa Ana River. One observation fell within the Wash Plan Preserve in the location of the “1969 Breakout” east of D-Dike and the other just south of the Greenspot Levee and west of Greenspot Road. Continued conservation and management actions benefiting the species is recommended.

**Western spadefoot** (CA Designation: S3) – Although not identified on SBVWCD property during formal surveys conducted by the USGS in 2022, the larvae of western spadefoot (*Spea hammondi*) was suspected as being present within temporary pools located on SBVWCD property east of SR 210 and west of Orange Street currently leased for mining operations. Although confirmation of the detection is still waiting validation by the USGS, the suspected observation is consistent with historic observations of adults of the species along Orange Street (personal communication, James Gannon). The compatibility of species presence with sand and gravel extraction and groundwater recharge operations is being explored by SBVWCD staff.

## Management Projects

The Wash represents a highly altered alluvial system. Existing or baseline conditions throughout the Wash are a combination of natural conditions existing in a varied state of disturbance due to past and present fluvial processes and areas undergoing active, albeit it limited, management.

One of the identified biological objectives of the Wash Plan addresses the need for the permit holder to develop a plan for the management of the Wash Plan Preserve (Section 5.1.2 of HCP; Preserve Objective 3). Consistent with this objective, a draft comprehensive natural resource management plan is to be prepared within two years of the permit issuance and finalized within three years.

Specific actions to be covered within the management plan, including the steps needed to improve habitat conditions and 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 (See Section 5.3 and 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 of the HCP. As the ITP holder for the Wash Plan, and consistent with the requirements of the HCP, the District is developing the resource management plan for implementation within the Wash Plan Preserve. The resource management plan is meant to be a living

document. Once the initial draft is approved by the Wildlife Agencies, updates to the plan are expected to be brought forward for review and consideration by the Wildlife Agencies every five years.

Consistent with the Wash Plan, the primary habitat management approach to be highlighted in the resource management plan and employed by the Preserve Manager, working with the Conservation District and other partners, focuses 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 slender-horned spineflower and woolly-star populations. Equally, opportunities to improve habitat conditions for San Bernardino kangaroo rat are to be pursued and implemented. Collectively, the activities implemented in support of these goals are detailed in this section.

#### **FY22 Updates:**

Principal management projects implemented in FY22 include the following:

- Slender-horned Spineflower Management (SHSF Action 2, 5, 6A, 6B)
- Slender-horned Spineflower Restoration Program (SHSF Action 3, 4)

#### **Slender-horned Spineflower Management**

Project ID(s)	2206
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	Purpose of the project is to implement specific management activities consistent with the Wash Plan focused on reducing invasive plant cover in areas of the Wash Plan Preserve recognized as suitable slender-horned spineflower ( <i>Dodecahema leptoceras</i> ; SHSF) habitat.
Contractor(s)/Researcher	IERCD
Time Period	2021-2022
Total Estimated Project Cost	\$45,000
Amount Budgeted in FY	\$22,500
Fund(s)	Wash Plan Endowment
Matching Contribution(s)	N/A
Landowner Involvement	SBVWCD, BLM
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Land Management
Program Area	Sensitive biological resources
Resource (e.g., Monitoring or Management Target)	SHSF
Wash Plan Conservation Actions	
Species-specific Actions	SHSF Action 2, 5, 6A, 6B
Preserve-wide Objectives	N/A
Monitoring Type (if applicable)	N/A

Monitoring Method (if applicable)	N/A
Specific Threat/Stressor	Human activity (climate change and nitrogen deposition)
Management Treatment	Use of herbicides; manual and/or mechanical removal
Intensity of Management	Partial
Available Report(s)	<i>IERCD 2022. Slender-horned Spineflower Habitat Enhancement Completed Work Summary 2022. Unpublished report prepared for San Bernardino Valley Water Conservation District. 15p.</i>  <i>IERCD 2021. Slender-horned Spineflower Habitat Enhancement Completed Work Summary 2021. Unpublished report prepared for San Bernardino Valley Water Conservation District. 6p.</i>
Available Geospatial Product(s)	<i>Available GIS data is to be transferred from IERCD to SBVWCD</i>

### Project Narrative Template

Overview	Consistent with the Memorandum of Understanding between SBVWCD and the Inland Empire Resource Conservation District (IERCD) executed in 2019, specific Task Orders were developed by SBVWCD which dedicated funds for IERCD to assist with implementing elements of the Wash Plan focused on enhancement of slender-horned spineflower habitat in 2021 and 2022. Enhancement activities focused on the treatment and removal of non-native grasses and broadleaf weeds from areas of the Wash Plan Preserve known to support SHSF. Treatment activities focus on enhancing the immediate vicinity surrounding populations of SHSF.
Progress	<p>In 2021 enhancement areas were delineated and broadleaf weeds and non-native grasses were manually removed. Approximately, fifteen 42-gallon trash bags were filled and removed from the area over the course of four days in March.</p> <p>From January through May of 2022, IERCD completed selective removals of nonnative grasses through herbicide applications utilizing a grass specific herbicide within the enhancement areas. Broadleaf weeds, including short-pod mustard and Saharan mustard were removed manually and hauled offsite.</p> <p>Annual monitoring data and photo collections were performed in 2021 and 2022 across eight fixed 1X1 meter monitoring plots established within SHSF enhancement areas adjacent to four known SHSF populations.</p>
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. Perform invasive species treatments within 15 meters of known extant, historic, and newly observed SHSF populations to achieve less than or equal to 3% invasive species cover – <i>Completed in 2022</i></li> <li>2. Perform invasive species treatments within an additional 15-meter buffer immediately outside of the aforementioned 15-meter buffer of known extant, historic, and newly observed SHSF populations to achieve less than or equal to 15% invasive species cover – <i>Completed in 2022</i></li> <li>3. Create GPS polygons of work locations with attributes including date, action, etc. – <i>Completed</i></li> </ol>

	<ol style="list-style-type: none"> <li>4. Capture established GPS photo points over select SHSF populations – <i>Completed in 2021 and 2022</i></li> <li>5. Prepare success criteria monitoring in designated monitoring plots to document invasive species cover reductions – <i>Completed in 2022</i></li> <li>6. Create summary reports detailing work and monitoring results – <i>Completed in 2021 and 2022</i></li> </ol>
Key Findings	Visible reductions in nonnative plant density have been observed across the enhancement areas between 2021 and 2022. Increasing bare ground cover was also noted between 2021 and 2022, with an almost doubling of the measured area between years.
Notes	The exceptionally dry months of January, February, and March 2022 are expected to have contributed to these measured declines in non-native cover and increase in observed bare ground cover making it difficult to determine the effect of management actions alone.

#### Slender-horned Spineflower Restoration Program

Project ID(s)	2207
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	Project is to result in development and implementation of a restoration program for the slender-horned spineflower ( <i>Dodecahema leptoceras</i> ; SHSF) to be implemented across the Wash Plan Preserve. The restoration program is to be informed by monitoring of known populations of the species and existing knowledge of local conditions considered suitable for supporting establishment of new colonies.
Contractor(s)/Researcher	Dudek; California Botanic Garden; SBVWCD
Time Period	2021-2022
Total Estimated Project Cost	\$286,550; 112 hours (SBVWCD Staff)
Amount Budgeted in FY	\$286,550; 112 hours (SBVWCD Staff)
Fund(s)	Wash Plan Endowment
Matching Contribution(s)	N/A
Landowner Involvement	SBVWCD, BLM
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Land Management
Program Area	Sensitive biological resources
Resource (e.g., Monitoring or Management Target)	SHSF
Wash Plan Conservation Actions	
Species-specific Actions	SHSF Action 3, 4
Preserve-wide Objectives	N/A
Monitoring Type (if applicable)	N/A



Monitoring Method (if applicable)	N/A
Specific Threat/Stressor	Human activity (development and nitrogen deposition); Invasive grasses
Management Treatment	Seed bulking; seeding
Intensity of Management	Full treatment (at local level)
Available Report(s)	<i>In development</i>
Available Geospatial Product(s)	<i>GIS Data, Environmental Data associated with completion of Survey 123 Forms</i>

### Project Narrative Template

Overview	<p>In 2021, the Conservation District employed Dudek to develop a restoration program for SHSF to be implemented across the Wash Plan Preserve. The restoration program was to be developed and implemented with assistance provided by SBVWCD. Development of the restoration plan is to be timed to follow initiation of fieldwork tied to a comprehensive Preserve-wide survey and monitoring of known SHSF populations. The comprehensive survey is to result in the mapping and description of the extent of potentially suitable habitat for SHSF in the Wash Plan Preserve and documentation of any discovered SHSF populations. Development of the restoration program is to build upon previous research involving the species and the knowledge shared by members of the SHSF Working Group.</p> <p>In support of the restoration program, the principal activity to be implemented in fall/winter of 2022 involves establishment of an onsite seed bulking practice in which the restoration team, operating under the guidance of Dudek and the California Botanic Garden, are to initiate growing of collected seeds in a controlled nursery setting prior to transferring young plants to an onsite location in the Wash where individual plants can be continually watered and managed throughout the growing season to increase size and flowering output. Plants are to be grown in the Wash following initial germination and establishment to allow them the chance to take advantage of native pollinators.</p> <p>The second principal activity to be implemented under the program involves seeding at one or more out-planting locations in the Wash Plan Preserve. Planned fieldwork associated with the San Bernardino kangaroo rat monitoring program and the Preserve-wide surveys planned for SHSF will provide SBVWCD and Dudek the chance to walk much of the Wash in the spring of 2022 and 2023 surveying vegetation and soils. During these outings the restoration team maps several locations with the potential to support the establishment of new spineflower populations. In at least one of these locations in the fall, out-planting trials are to be initiated prior to the onset of the new rain year. Out-planting trial activities are likely to be focused on a few plots and involve no more than a couple of hundred seeds per plot. Once seeded, SBVWCD is to initiate monitoring of the trials throughout the remainder of the growing season with the potential to revisit and re-seed the same areas again in subsequent years.</p>
Progress	In 2022, seeds were collected on June 6 from monitored populations of SHSF located within the Wash Plan Preserve. Collected seeds were collected and processed (that is, cleaned and counted) by the California Botanic Garden (CalBG). Of the total of 4,014

	<p>seeds collected from 390 plants in spring, 500 to 750 will be made available for bulking and direct seeding activities in the fall/winter of 2022.</p> <p>On June 29, SBVWCD met with Dudek to discuss the next steps tied to advancing seed bulking and direct seeding activities planned for fall.</p> <p>District staff toured prospective direct seeding sites for slender-horned spineflower on BLM property with the BLM state botanist on November 18. As a precursor to bringing in seed to the federal property, BLM is proposing to work with the District and California Botanic Garden to conduct genetic testing on monitored extant populations within the Wash to better understand the relatedness among populations and identify potential opportunities and constraints for mixing seed from different colonies in the restoration efforts.</p> <p>District staff submitted a 2081(a)-research permit application to conduct seed bulking and direct seeding activities for review and approval by CDFW's Native Plant Program on October 7. Questions concerning the application were received from CDFW on October 28. Responses to questions were provided by the District to CDFW on November 2. A fully executed copy of the Scientific, Educational, or Management Permit (2081(a)-22-008-RP) was received on November 22, allowing planned work tied to bulking activities to move forward in 2022.</p> <p>District staff visited the proposed seed-bulking site located on District property just east of CEMEX operations on December 1. Prior to visiting the site, District staff updated CEMEX and Robertson's of the new permit. Dudek is actively coordinating initiation of the bulking program with California Botanic Garden.</p> <p>Dudek has been actively coordinating initiation of the bulking program with California Botanic Garden. Enough seeds were sown to propagate 500 plants at the botanical garden on December 2, with evidence of successful germination occurring as of December 13. Plants will be grown in 2-inch containers and then transferred to 4-inch containers prior to being planted in the field in March.</p> <p>On December 20, District staff assisted Dudek Geologist with installation of Microclimate data stations and loggers at 3 sites. The first site is located just east of CEMEX operations, where one of the largest spineflower populations is known to exist, and near where plants established from the germination trials are expected to be transplanted (seed bulking plot). The second site is on BLM property off Railroad Line Road, where no spineflower have been observed but the area could prove to be a suitable location for future direct seeding efforts. And the last site, is an area on BLM property just west of Orange Street that is known to support spineflower populations. The microclimate data to be collected includes air temperature, relative humidity, soil moisture, soil temperature and soil electrical conductivity. Efforts support the 2081(a) and development of the spineflower restoration plan consistent with the Wash Plan.</p>
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. Seed Collection - California Botanic Garden (CalBG) is to collect SHSF seeds from 5–10 patches following flowering/seed set during at least two growing seasons to capture the full genetic diversity of the seed bank; additional collection locations may be prioritized in areas that will be disturbed by Covered Activities in consultation with the Wildlife Agencies (CalBG/Dudek) – <i>Initiated in spring of 2022</i></li> </ol>

	<ol style="list-style-type: none"> <li>2. Germination Testing – Ex-situ germination testing will occur at CalBG in the fall/winter of 2022; germination trials are to be administered on each population collected during the first growing season; a small portion of seeds from each population will be randomly selected along maternal lines for germination trials; results of the trial will be tabulated and analyzed to determine optimal seed germination (CalBG/Dudek) – <i>Completed for seeds collected in 2022</i></li> <li>3. Seed Bulking - Propagate SHSF plants in seedling starter trays in a controlled nursery setting prior to transferring and planting them within a field grow plot located within the Wash Plan Preserve; the grow plot is to be established in a location adjacent to extant or historic populations of SHSF (Dudek/SBVWCD) – <i>Work initiated in the winter of 2022</i></li> <li>4. Draft SHSF Restoration Plan - Prepare a draft SHSF restoration plan for the Wash HCP Preserve; the draft restoration plan will include a landscape level analysis of ecological factors within the Wash HCP Preserve area and their probable effects on the success of existing and restored SHSF populations; analysis will lead to descriptions of suitable SHSF habitat and development of a recommended toolkit of methods for enhancement of occupied and unoccupied but potentially suitable habitat (Dudek) – <i>Scheduled to be initiated in fall of 2023</i></li> <li>5. SHSF Working Group - Convene the SHSF Working Group to solicit feedback on the draft SHSF restoration plan within 3 months of review of the draft restoration plan by the Conservation District (Dudek/SBVWCD) – <i>Scheduled to be completed by spring 2024</i></li> <li>6. Final SHSF Restoration Plan - Prepare a final SHSF restoration plan that is to include detailed descriptions of suitable SHSF habitat, recommended methods for enhancement of occupied habitat, prioritized locations for enhancement and out-planting, and protocols for seed germination, seed-bulking, site selection, out-planting, and invasive species treatments in occupied/suitable SHSF habitat (Dudek) – <i>Scheduled to be completed by fall of 2024</i></li> <li>7. Outplanting Trials Site Selection - Analyze and prioritize multiple locations for out-planting within 1 year of initiating of seed bulking activities; selection criteria will be based upon assessment of habitat conditions at occupied locations, informed by literature review and discussion with Wildlife Agencies; criteria is anticipated to include vegetation type, slope, microtopography, soil texture, soil compaction, native forb richness, non-native plant cover, total annual plant cover, total perennial plant cover, presence of biotic soil crust, various soil nutrients (Nitrogen, phosphorus, electrical conductivity, cation exchange capacity), and pH (Dudek/SBVWCD) – <i>Scheduled to be completed by fall of 2023</i></li> <li>8. Outplanting Trials – Utilizing a portion of the bulked seeds, the highest ranking outplanting sites selected will be seeded at the onset of the new rain year; plots are expected to be seeded at the same rate; seeded plots will be monitoring and managed as necessary through the growing season; data collection will include recording of the following variables within each plot: number of SHSF germinated (i.e. early season), number of SHSF at maturity (i.e. late season), cover of SHSF, average longest width of SHSF plants, average height of SHSF plants, average flowers produced by SHSF plants, cover of non-native plant</li> </ol>
--	---

	species, cover of native plant species, native forb richness, average height of herbaceous plant species, cover of bare ground, cover of soil disturbance, cover of biotic soil crust (Dudek/SBVWCD) – <i>Scheduled to be initiated in fall of 2023</i>
Key Findings	<p>Seeds were collected from six of the extant populations (Patch ID: 1C, 2, 3, 5, 12, 13) by the California Botanic Garden in support of the seed-bulking activities in spring of 2022. Of the total of 4,014 seeds collected from 390 plants in spring, 500 to 750 were made available for bulking and direct seeding activities.</p> <p>Multiple potential out-planting locations were identified in spring and summer of 2022. At one of the locations both the leather spineflower (<i>Lastarriaea coriacea</i>) and Parry's spineflower (<i>Chorizanthe parryi parryi</i>) were observed throughout, and many of the conditions of the site resembled habitat elements of what is found in the area supporting the largest known population of SHSF (Population 13). Also of interest, when taking soil samples, the field team noticed the sand still held moisture about 4 inches below the surface at this location. Importantly, this potential outplanting location is located within the Wash Plan Preserve on BLM property lying several hundred meters west of Railroad Line Road and more than a half kilometer north of the main channel of the Santa Ana River.</p>
Notes	Dudek confirmed the California Botanic Garden has 5,288 seeds in cold storage collected in 2010 from a single population located on BLM property in the Wash that may become available for use in bulking and direct seeding activities.

## Restoration Projects

### Plunge Creek Conservation Project

The Plunge Creek Conservation Project, constructed in August and September 2020 and approved by the USFWS and CDFW through the project-specific Biological Opinion (BO) FWS-SB-19B0182-19F1160-R001, California Endangered Species Safe Harbor Agreement (SHA) No. 2089-2020-002-06, and Notification No. 1600-2017-0203-R6 under Fish and Game Code Section 1600, as well as the US Army Corps of Engineers and Santa Ana Regional Water Quality Control Board through RSPL-2017000784-LRS under CWA Section 404, and SARWQCB WDID #362017-41 under CWA Section 401, has had the effect of directing repeated storm flow events into areas of the Wash otherwise dominated by late-stage alluvial fan sage scrub habitat and disturbed annual grassland.

In being able to create and enhance existing braided distributary channels through water management activities, the District's activity at Plunge Creek has highlighted the ability of the District and other water managers to influence sediment sorting within the Wash, laying shallow sheets of sand and silt over the surface of the Wash in select areas beneficial to San Bernardino kangaroo rat, the Santa Ana River woolly star, and other sensitive species, while coarser sands and gravels are laid down in the main channels where water tends to flow more quickly.

Through the periodic manipulation of flow events, occurring across the spectrum of flow rates acceptable to flood control managers, the District can direct the sedimentation process to different areas of the Wash, influencing the location of sedimentation deposition and scour and, in effect, over time, allowing for increased geographic coverage of disturbed areas within the Wash, lessening the

dependence of the larger system exclusively on the effects brought about by singular severe flooding events.

By influencing the direction of low and moderate flows through the strategic and temporary placement of rock diversions in the Wash, the District can mimic natural processes in which alluvial fan sedimentation, typically restricted to one part of the fan surface called a ‘depositional lobe’, eventually fills in the area with sediment making it more efficient for the sedimentation process to jump or ‘avulse’ to a new area of the fan. The demonstration of this process of manipulating the direction of water movement at Plunge Creek under variable flow rates opens the possibility of applying the same procedures to other areas of the Wash when warranted.

#### FY22 Updates:

Project ID(s)	2208
Project Title(s)	<i>See contract file(s)</i>
Project Purpose	Project is to result in the restoration and enhancement of an approximately 1.05-mile reach of Plunge Creek. The 202.9-acre project area contains a portion of the mainstem Plunge Creek, its existing floodplain, and the historic floodplain of both Plunge Creek and the Santa Ana River. The project implements the Plunge Creek Conservation Project Habitat Maintenance and Monitoring Plan (HMMP), completed in 2018, following construction of the pilot channels and flow diversion and creation of the “as-built” conditions in 2020.
Contractor(s)/Researcher	IERCD, SBVWCD
Time Period	2021-2022
Total Estimated Project Cost	>\$1,275,000, includes the cost of construction and permitting (\$1.2 M) and land management activities (\$75,000, IERCD)
Amount Budgeted in FY	\$31,125 (IERCD)
Fund(s)	Wash Plan Fund; SBVWCD (\$700,000) Santa Ana Watershed Project Authority (Proposition 84 Grant - \$500,000)
Matching Contribution(s)	---
Landowner Involvement	SBVWCD
Project Status	Ongoing
Project Progression	Project is on (or ahead of) schedule [Green]
Program Class	Land Management
Program Area	Habitat Restoration
Resource (e.g., Monitoring or Management Target)	Riversidean Alluvial Fan Sage Scrub, SARWS, SBKR
Wash Plan Conservation Actions	
Species-specific Actions	SARWS Action 2, 5; SBKR Action 2
Preserve-wide Objectives	Jump Start Activities, Preserve Action 9C
Monitoring Type (if applicable)	Effectiveness Monitoring

Monitoring Method (if applicable)	Full census/total counts, quadrats
Specific Threat/Stressor	Human activity (urban development and nitrogen deposition); Invasive grasses
Management Treatment	Mechanical, manual, and chemical treatment of invasive plants
Intensity of Management	Full treatment (at local level)
Available Report(s)	<p><i>ICF 2018. Plunge Creek Conservation Project Habitat Mitigation and Monitoring Report. Report prepared for San Bernardino Valley Water Conservation District. 79p.</i></p> <p><i>Inland Empire Resource Conservation District 2020. Plunge Creek Conservation Project - Habitat Maintenance and Monitoring Plan Amendment and Restoration Implementation Plan. Unpublished report prepared for San Bernardino Valley Water Conservation District. 9p.</i></p> <p><i>Inland Empire Resource Conservation District 2021. Plunge Creek Completed Work Summary 2021. Unpublished report prepared for San Bernardino Valley Water Conservation District. 19p.</i></p> <p><i>Inland Empire Resource Conservation District 2022. Plunge Creek Completed Work Summary 2022. Unpublished report prepared for San Bernardino Valley Water Conservation District. 19p.</i></p>
Available Geospatial Product(s)	<p><i>California Rapid Assessment Method (CRAM) Data (describing conditions of the four principal attributes [Buffer and Landscape Context, Hydrology, Physical Structure, and Biology]) is available for each of the three Assessment Areas (AAs) established in Plunge Creek from 2022. GPS photo point data from locations established in 2021 and 2022 are available.</i></p>

### Project Narrative Template

Overview	<p>As a result of human disturbance and recent land use modifications, including sand and gravel mining, construction of drainage ditches, bridges, pipeline crossings, and flood control levees, floodwaters within the Plunge Creek Conservation Project Area are generally restricted to the mainstem Plunge Creek and its active floodplain, and are precluded from overtopping steepened channel banks and engaging remnant channels located on the historic floodplains of both Plunge Creek and the Santa Ana River. Through implementation of the Plunge Creek Conservation Project flow splitters and pilot channels are constructed to divert a portion of flows from Plunge Creek into the historic floodplain, creating conditions that will enable natural fluvial processes to create new channels and reoccupy old channel remnants. The result of such activity is a more complex channel morphology with a network of distributary channels.</p> <p>The overarching goals of the Plunge Creek Conservation Project include reestablishment of suitable habitat for SBKR and woolly star, reestablishment of U.S. and waters of the state under the jurisdiction of USACE, RWQCB, and CDFW, and enhanced groundwater</p>
----------	--

	<p>recharge. The work consists of constructing channel restoration features along a segment of Plunge Creek to use fluvial processes to provide suitable habitat for SBKR and increased opportunities for groundwater recharge while maintaining the current level of flood protection on adjacent lands. Specifically, the Project includes construction of pilot channels that are designed to direct portions of the Plunge Creek flow southwest across the existing terrace until they connect with existing remnant channels on the floodplain. The Project also includes the construction of splitter mounds to guide the main channel flow into the pilot channels, and a berm along the northern boundary of the quarry made of material from the pilot channel excavation to prevent the flow from leaving the channel at that location.</p> <p>The Plunge Creek Conservation Project serves to satisfy USFWS mitigation requirements for proposed impacts on federally listed species associated with Covered Activities, as well as address the need for the protection and management of Jump Start Acres consistent with the Wash Plan. In addition, the District proposes to utilize the restoration of waters associated with the project to satisfy USACE, SARWQCB, and CDFW mitigation requirements related to proposed impacts to waters associated with Covered Activities implemented by Wash Plan participants, where feasible.</p>
Progress	<p>Constructed in 2020, the project, over the course of a series of three storm events occurring in 2021, engineering of flow dynamics in Plunge Creek by the District resulted in the manipulation of peak flows of 20 cfs, 300 cfs, and 600 cfs and cumulative creation of 3.5 acres, 8.1 acres, and 11.7 acres, respectively, of novel wetted areas in the Wash with substantial erosion and sediment deposition occurring throughout the project footprint allowing for the resetting of conditions favoring the establishment of early successional alluvial fan sage scrub vegetation. Furthermore, estimated amounts of water recharge accomplished through this activity total 30, 100, and 355 acre-feet, respectively.</p> <p>Consistent with the amended HMMP, management of invasive plants within the 203-acre Plunge Creek Conservation Project has been formally implemented by IERCD with work beginning in January 2021. In 2021, invasive grass treatments were applied across a 13-acre area. In 2022, treatments were expanded to cover 56-acres, including retreatment of the original 13 acres, and addressed both grasses and Sahara mustard. Perennial invasive species treatments occurring in the fall and targeting Spanish broom (<i>Spartium junceum</i>), salt cedar (<i>Tamarix ramosissima</i>), and castor bean (<i>Ricinus communis</i>) were mapped in 2021 and continued in 2022. A single 10' by 10' monitoring plot was established within the Phase 1 treatment area in 2021 and a second monitoring plot was established in Phase 2 treatment area in 2022 to measure and track changes in species cover time as invasive species treatments occur.</p> <p>Plunge Creek Restoration Areas, totaling 3.3 acres, were first seeded with SARWS in January 2021. A total of 18.8 lbs of associated RAFSS seed was collected within one mile of the Project Area and mixed with SARWS seed prior to being spread over restoration areas in the fall of 2021. A full census of restoration areas was conducted in 2022.</p> <p>In 2023, invasive plant treatments are to be expanded for a second time and encompass areas located south of the main creek channel. Adaptive management activities, as described in approved permits, are planned for summer 2023. Management and</p>



	<p>maintenance activities are to include expanding use of post-storm pathways to increase braiding in future storm events and the bolstering of stockpiled rock at splitter mounds and rock dams in strategic areas of the established channel to encourage both breakouts and the formation of braided conditions.</p>
Key Milestones Schedule	<ol style="list-style-type: none"> <li>1. Construction of the pilot channels and flow diversion - Two pilot channels are to be excavated from the active channel of Plunge Creek, through the historic floodplain, and back to the active channel, Rock splitter mounds – <i>Initiated in spring of 2022</i></li> <li>2. Invasive plant species treatments – Invasive perennial plant species, invasive annual forbs, and invasive annual grasses are to be treated on an annual basis throughout the project using mechanical, manual, and chemical means – <i>Treatments were completed in 2021 and 2022. Treatments of invasive plants are to continue in 2023, 2024, and 2025.</i></li> <li>3. Woolly Star Seeding and Restoration – Utilizing processed and unprocessed Santa Ana River woolly star seed, hand distribute seed in sowing containers and hand broadcast throughout restoration areas together with Riversidean Alluvial Fan Sage Scrub seed mix – <i>Initial seeding completed in January 2021 and full census was conducted in 2022</i></li> <li>4. Photo Points - Establish photo points to document changes in vegetation cover within the project restoration and enhancement areas and grass reduction monitoring plots – <i>Work initiated in 2021 and completed in 2022</i></li> <li>5. California Rapid Assessment Method (CRAM) - CRAM is to be performed to monitor and assess the ecological conditions of the wetlands associated with the project; conditions evaluated based on landscape setting, hydrology, physical and biological structure – <i>CRAM was performed in 2022.</i></li> <li>6. Annual Progress Report - Prepare progress reports on an annual basis through the life of the five-year management period – <i>Progress reports were completed in 2021 and 2022 and are scheduled to be completed in 2023, 2024, and 2025.</i></li> </ol>
Key Findings	<p>Over the course of a series of three storm events occurring in 2021, engineering of flow dynamics in Plunge Creek by the District resulted in the manipulation of peak flows of 20 cfs (2/12/2021), 300 cfs (12/14/2021), and 600 cfs (12/24/2021) and creation of 3.5 acres, 8.1 acres, and 11.7 acres, respectively, of novel wetted areas in the Wash with substantial erosion and sediment deposition occurring throughout the project footprint allowing for the resetting of conditions favoring the establishment of early successional alluvial fan sage scrub vegetation. Furthermore, estimated amounts of water recharge accomplished through this activity total 30, 100, and 355 acre-feet, respectively.</p> <p>At monitoring plots established in areas being treated for annual grasses, absolute native cover was noted as increasing between 2021 and 2022 from 3% to 15%, while absolute non-native bare ground decreased from 82% to 75% and bare ground remaining the same (15%).</p> <p>Following seeding in 2021, a full census was conducted across all restoration areas in 2022 where SARWS seed was distributed in 2021. In total, 2,615 SARWS seedlings and second year plants were documented in spring 2022 within all broadcasted restoration areas.</p>

Notes	Active management of the rock structures (e.g., the splitter mounds and rock dams) is anticipated as being needed to increased braiding and sheet flow across the flood plain connecting the new pilot channel with the main channel of Plunge Creek.
-------	---

## Annual Work Plan

The HCP Implementation Team working with the Preserve Manager is to develop an annual work plan based on the guidelines in the Natural Resource Management Plan and relevant information contained in the HCP to prioritize management and monitoring activities for each year.

Development of the Annual Work Plan is to use the following:

- HCP species specific objectives and habitat management requirements (See Sections 5.1.2 and 5.2.2 of the HCP)
- Data collected during monitoring and reporting activities
- A GIS-based treatment plan developed for the HCP and updated as additional information becomes available (Section 5.2.2.)
- Funds available for habitat management activities
- Additional site-specific information collected over the previous year, including wildfire and other unanticipated impacts
- Information contained in the 5-year work plans (to be detailed in the Natural Resource Management Plan) identifying administrative, management, monitoring, and other tasks required to be implemented during the period, cost estimates for the work in each year, and funding projections for the period

The Annual Work Plan will guide implementation on a yearly basis, specifying specific tasks for the year and a line-item budget. The Preserve Management Committee will complete an initial review and make a recommendation regarding the proposed Annual Work Plan and accompanying budget prior to the Preserve Manager bringing the plan and budget to the Conservation District Board of Directors for their final review and approval.

The Annual Work Plan is recognized to also provide a mechanism to track habitat enhancement beyond what is required as part of the HCP. Throughout the life of the HCP, there may be other activities undertaken in the Wash Plan Preserve for the benefit of Covered Species or other sensitive species. 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, although tracked in the Annual Work Plan, would be reported on separately by the implementing entity.

### **FY22 Updates:**

Principal monitoring and management initiatives planned to be implemented in the Wash Plan Preserve in FY23 are highlighted in the table below.

<b>Monitoring and Management Initiatives</b>	<b>Species Specific/Preserve-Wide Objectives to be Addressed</b>	<b>Proposed Timing of Implementation</b>
Vegetation Classification and Mapping	Preserve Objective 10	Fall/Winter 2022
SBKR Monitoring Program	SBKR Action 7A, 7C	Fall 2022, Spring 2023
California Gnatcatcher Monitoring	CAGN Action 4, 6A	Spring 2023
Slender-horned Spineflower Monitoring	SHSF Action 9, 10A, 10B	Spring/Summer 2023
Slender-horned Spineflower Management	SHSF Action 2, 5, 6A, 6B	Winter 2022, Spring 2023
Slender-horned Spineflower Restoration Program	SHSF Action 3, 4	Winter 2022 through Summer 2023
Plunge Creek Conservation Project	Preserve Action 9C; SARWS Action 2, 5; SBKR Action 2	Winter 2022, Spring/Summer 2023
Management of Trespass, Unauthorized Encampments, and Illegal Dumping	Preserve Action 2A, 2B, 2C, 2D, 2E	Fall/Winter 2022, Spring/Summer 2023

## Information Storage and Management

To aid in addressing the needs for accountability, project-specific information shared in the Wash Plan Annual Report will be linked to contract files, project reports housed in the Wash Plan document library, and information captured in the geospatial database describing management and monitoring activities occurring throughout the term of the HCP.

In assigning a unique project identification number (Project ID) to each major project implemented through the Wash Plan's management and monitoring program, contracts, reports, and spatial data affiliated with the project can be linked together and readily accessible. Furthermore, through capturing information such as keywords, natural resources benefitting from project implementation, general program area and class, interested parties can search the informational database for projects, reports, GIS files, and associated financial information affiliated with projects addressing like resources, initiatives, and approaches.

## Document Library

Consistent with the HCP, and need to address accountability, a digital library of project reports linked to contract files and a geospatial database for management and monitoring activities will be established and maintained for the duration of HCP implementation.

In support of information sharing with stakeholders and members of the public, a running list of project reports generated by work funded under the Wash Plan is provided below. Note, listed reports are organized by the fiscal year in which the work was completed.

FY21

- Inland Empire Resource Conservation District 2021. Slender-horned Spineflower Habitat Enhancement Completed Work Summary 2021. Unpublished report prepared for San Bernardino Valley Water Conservation District. 6p.
- Inland Empire Resource Conservation District 2021. Plunge Creek Completed Work Summary 2021. Unpublished report prepared for San Bernardino Valley Water Conservation District. 19p.
- Origin Biological 2021. Slender-horned Spineflower Results of 2021 Monitoring. Unpublished report prepared for San Bernardino Water Conservation District. 41p.
- Origin Biological 2021. 2021 Wash Plan Monitoring Resulting for Breeding California Gnatcatchers, Redlands and Highland, San Bernardino County. Unpublished report prepared for San Bernardino Valley Water Conservation District. 18p.

## FY22

- AECOM 2022. Vegetation Classification Report for the San Bernardino Valley Water Conservation District – With Vegetation Key & Descriptions. Unpublished report prepared for San Bernardino Valley Water Conservation District. 64p.
- Brehme, CS, SJ Montgomery, B. Miller, M. Romich, and RN Fisher 2022. San Bernardino Merriam’s Kangaroo Rat (*Dipodomys merriami parvus*) Monitoring Protocol for San Bernardino Valley Water Conservation District. DRAFT FINAL Report to San Bernardino Valley Water Conservation District. 75p.
- Inland Empire Resource Conservation District 2022. Plunge Creek Completed Work Summary 2022. Unpublished report prepared for San Bernardino Valley Water Conservation District. 19p.
- Inland Empire Resource Conservation District 2022. Slender-horned Spineflower Habitat Enhancement Completed Work Summary 2022. Unpublished report prepared for San Bernardino Valley Water Conservation District. 15p.
- Origin Biological 2022. 2021 Wash HCP San Bernardino Kangaroo Monitoring Resulting Summary. Unpublished report prepared for San Bernardino Valley Water Conservation District. 9p.
- Origin Biological 2022. 2022 Wash Plan Monitoring Resulting for Breeding California Gnatcatchers, Redlands and Highland, San Bernardino County. Unpublished report prepared for San Bernardino Valley Water Conservation District. 21p.

## Data Entry and Storage

A geospatial database is to be maintained by the Conservation District in support of implementation of the Wash Plan. Lists of available digital copies of monitoring data, including metadata, spatial data, and photo-documentation of project progression is to be included and searchable.

The described geospatial database will be established and maintained for the duration of HCP implementation. The Wildlife Agencies are to have access to the database and associated document library to assist them in monitoring the progress and effectiveness of HCP implementation.

The geospatial database is to include, but not be limited to:

- Property ownership
- Conservation easements

- Utility and road easements and rights of way
- Existing facilities and land uses
- Watershed boundaries
- Plan Area boundaries
- Boundaries of Plan Area subcomponents
- Vegetation types
- Species occurrence records
- Location of monitoring and study plots with links to monitoring results
- Management treatment areas with links to management treatment results
- Areas where habitat has been removed by Covered Activities

**FY22 Update:**

By the close of Calendar Year 2022, the initial stages of creating and organizing the geospatial database were in progress.

## Administrative Corrections

Administrative corrections made to the Wash Plan in FY22:

N/A

## Amendments to the HCP

Amendments made to the HCP since approval of the HCP in 2020 through the close of Calendar Year 2022:

N/A

## Appendix A. Wash Plan Programmatic Permits

Additional obligations beyond what has been described in the HCP and associated ITP issued by the USFWS will be assigned to the Conservation District and Participating Entities consistent with other state and federal regulatory permits required of Covered Activities approved under the Wash Plan.

Such permits include the Regional Water Quality Control Board (RWQCB) Programmatic 401 Certification; U.S. Army Corps of Engineers (USACE) 404 Programmatic Individual Agreement; California Department of Fish and Wildlife (CDFW) 2081 ITP; CDFW Streambed Alteration Agreement (SAA) Construction Agreement; and CDFW – SAA Maintenance Agreement for Conservation District Activities.

Going forward, progress tied to meeting the additional obligations associated with the individual permits may be highlighted.

Through the end of Calendar Year 2022 the following reflects the status of the permitting process:

### **Programmatic Permits Received:**

Clean Water Act Section 401 Water Quality Certification and Order – Certification issued by RWQCB on July 29, 2022

Fish and Game Code Section 1602 Routine Maintenance Agreement (RMA) – RMA issued by CDFW on November 9, 2022

Streambed Alteration Agreement (1602) for Construction Permitting – Construction Agreement issued by CDFW on December 13, 2022

### **Programmatic Permits in Process:**

Clean Water Act Section 404 Programmatic Individual Agreement – Public Notice was provided in July 2022; A draft Environmental Assessment (EA) was completed by AECOM and submitted to USACE in September 2022; District staff and AECOM continue to meet with USACE on a weekly basis in support of completion of the EA.

Fish and Game Code Section 2081 Incidental Take Permit – District submitted a permit application in December 2020; following comments from CDFW a Revised Application was submitted in December 2021 and deemed complete in January 2022; a field meeting with CDFW was conducted in June; received comments and questions have been addressed and the District is awaiting issuance of a draft agreement from the Department for review and comment.

## Appendix B. Project Records Management

Details tied to individual projects are to be captured using the Project Management Table and associated Project Narrative Template for the monitoring and management projects highlighted in the Wash Plan Annual Report.

Populating and updating the Project Management Table provides the opportunity for higher-level analysis of program progression and funding allocation through time. Equally, the Project Narrative Template, designed to be similar to templates associated with grant reporting, is to provide for quick assimilation of the most important project-specific information by an active reader. Both the Project Management Table and Project Narrative Template are designed to be updated through the life of the project, recognizing most conservation projects are expected to be multiyear in duration.

### Project Management Table

Project ID	Unique project identification number (allows project-specific information to be linked to project reports, data, and contracts)
Project Title	Abbreviated project title limited to 31 characters
Project Purpose	Brief description project purpose (limited to 100 words)
Contractor(s)/Researcher	Contractors or researchers associated with the project
Time Period	Year(s) project has been active (can be automated, based off entered project initiation date)
Total Project Cost	Total project costs in dollars and/or staff hours (position indicated) allocated
Amount Budgeted in FY	Dollars and/or hours spent or budgeted for the reporting year (that is, the fiscal year covered by the Annual Report)
Fund(s)	Water Conservation District Fund(s) to which work was or is to be billed
Matching Contribution(s)	Agency and dollar amount of committed funds
Landowner Involvement	Landowner(s) whose land is accessed for purposes of conducting the project
Project Status	Project may be funded but not initiated, ongoing, or complete
Project Progression	Project is on (or ahead of) schedule [Green], project requires additional attention by staff and/or contractors [Yellow], project is in jeopardy of not progressing [Red], project is approved (or funded), but not initiated [White]
Program Class	Identify program class from the following categories: monitoring/research, land management, planning, education/training, database management
Program Area	Identify program area from the following categories: wildland fire, exotic plant control, invasive wildlife control, habitat restoration, human activities (including recreation, illegal dumping, and trespass), sensitive biological resources
Resource (e.g., Monitoring or Management Target)	Principal natural resource expected to benefit from project implementation
Wash Plan Conservation Actions	See below for listing recognized Actions and Objectives



Species-specific Actions	List of Species-specific Action(s) being addressed by the project
Preserve-wide Objectives	List of Preserve-wide Objectives addressed by the project
Monitoring Type (if applicable)	Initial Reconnaissance Monitoring, Baseline (Inventory) Monitoring, Effectiveness Monitoring, Targeted Monitoring, Regional Monitoring
Monitoring Method (if applicable)	Presence/absence, full census/total counts, probability sampling (transects, quadrats, trapping lines, grids, visual encounter surveys), mark-recapture surveys
Specific Threat/Stressor	Principal threat/stressor to be addressed or investigated through the work
Management Treatment	Specific treatment implemented in support of management activities (e.g., sheep grazing, prescribed fire, use of herbicides, mechanical removal, water management, sand spreading)
Intensity of Management	Spot, partial, or full treatment
Available Report(s)	
Available GIS Product(s)	

#### Project Narrative Template

Overview	Project background limited to 1,000 words (description expected to largely remain static between years)
Progress	Progress made to date (includes a description of past-year activities as well as activities to be achieved in the new fiscal year)
Key Milestones Schedule	Project milestones (with due dates identified or dates milestones were achieved listed)
Key Findings	Key findings from the project to be highlighted
Notes	Project-specific notes to be communicated to readers of the Annual Report