East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan Annual Report 2019

East Contra Costa County Habitat Conservancy

August 2020

Cover Photograph: View of Briones Valley

Photo credit: Stephen Joseph

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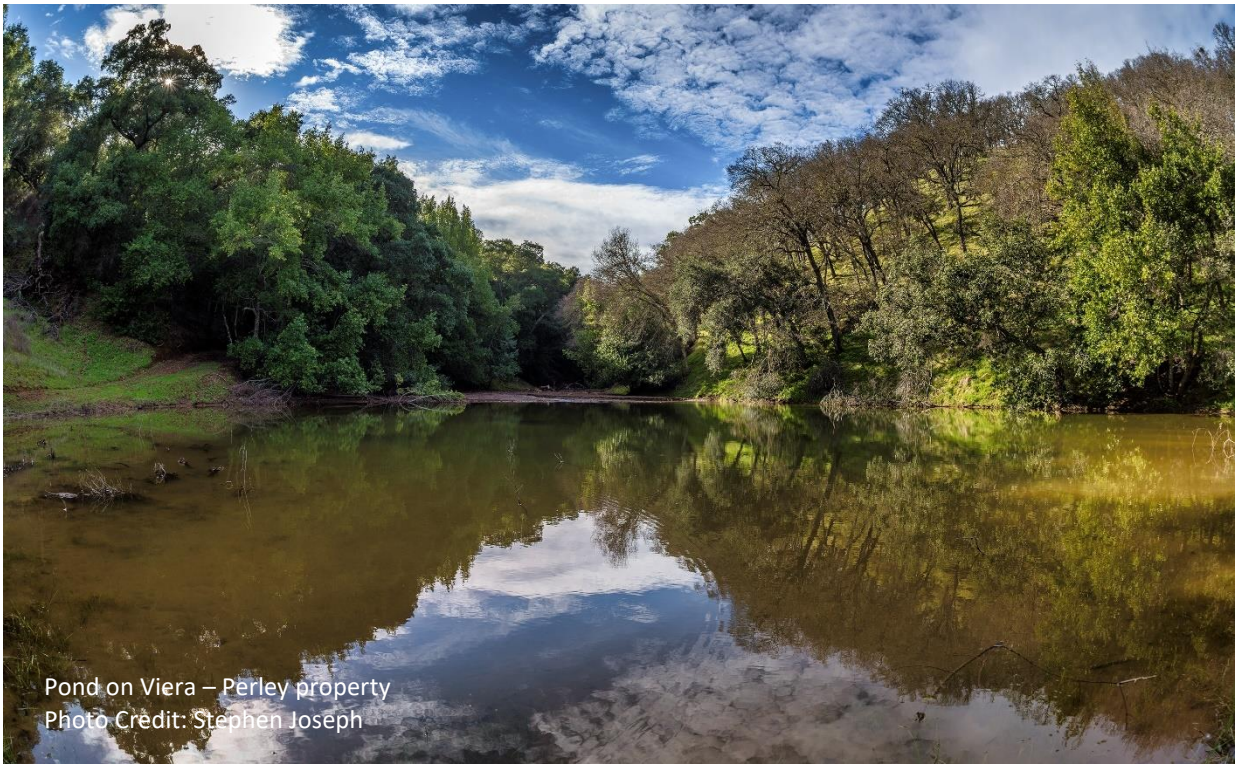
Acronyms and Abbreviations

2013 Fee Report	*East Contra Costa County HCP/NCCP Mitigation Fee Audit and Nexus Study, Final Report*
APWRA	Altamont Pass Wind Resource Area
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
Conservancy	East Contra Costa County Habitat Conservancy
Corps	U.S. Army Corps of Engineers
County	Contra Costa County
EBRPD	East Bay Regional Park District
GIS	geographic information system
GPS	global positioning system
HCP	Habitat Conservation Plan
HCP/NCCP	*East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan*
ILF	In-Lieu Fee
Mitigation Rule	*Compensatory Mitigation for Losses of Aquatic Resources*
NCCP	Natural Community Conservation Plan
Plan	*East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan*
Regional Water Board	Regional Water Quality Control Board
RGP	Regional General Permit
SFSU	San Francisco State University
SMD	Save Mount Diablo
State Water Board	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY



Pond on Viera – Perley property
Photo Credit: Stephen Joseph

This is the eleventh Annual Report for the *East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan* (HCP/NCCP or Plan) prepared by the East Contra Costa County Habitat Conservancy (Conservancy). This Annual Report summarizes implementation activities undertaken between January 1, 2019 and December 31, 2019, per the conditions of the Plan and Implementing Agreement.

The HCP/NCCP proactively addresses the region's long-term conservation needs by strengthening local control over land use and providing greater flexibility in meeting other needs such as housing, transportation, and economic growth. It provides a framework for regional conservation and development. The plan provides for the protection of natural resources while streamlining the permitting process for take coverage of state and federally listed species and for mitigating impacts on sensitive habitats and resources. Permits issued by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) in 2007 allow the Permittees[1] to comply with the federal Endangered Species Act and California's Endangered Species Act. Over the 30-year permit term, impacts from urban development and rural

[1] The Permittees are Contra Costa County; the cities of Brentwood, Clayton, Oakley, and Pittsburg; the East Contra Costa County Habitat Conservancy; the Contra Costa County Flood Control and Water Conservation District; and the East Bay Regional Park District.

infrastructure projects will be offset by the creation of a Preserve System managed for the benefit of 28 covered species, as well as the natural communities that they—and hundreds of other species—depend on for habitat.

Covered Activities

In 2019, 15 projects received permits through the HCP/NCCP. The projects include residential and commercial development, utility infrastructure, rural infrastructure projects, and rural infrastructure operations and maintenance, providing a range of benefits for the communities of eastern Contra Costa County. Highlights of these approved covered activities include the following.

Residential: The City of Oakley permitted the Vines at Oakley project which included the subdivision of a 10+/- acre property into 64 lots. The proposed project includes 62 single-family residential houses, a community parking lot, and landscaping.

Commercial: The City of Pittsburg permitted a development by Praxair Inc. to construct a secure cylinder storage facility. The project entailed construction of a 0.16 acre storage facility and associated utility infrastructure. The facility was required to expand Praxair's capability to provide local custumers with timely deliveries. The new facility will be used to store palletized cylinders and to load and unload these pallets from shipping containers.

Utility Infrastructure: Pacific Gas & Electric Company upgraded its gas transmission pipeline L-191-1 to allow for future in-line inspection as a method of threat assessment by rebuilding the existing SP3/L191 Meter Station in the City of Pittsburg, and installing equipment which will allow inspection technologies to navigate through the station. The Project included the excavation and modification of the existing facilities at the station over a two-year period.

Land Acquisition and Stay-Ahead Provision

During the first 12 years of implementation, the Conservancy made significant progress toward the Plan's acquisition goals (see Figures ES-1 through ES-4). By the end of year 12, 39 properties had been acquired for the Preserve System, totaling over 14,221 acres. All but one of the acquisitions have been completed in partnership with the EBRPD. EBRPD owns these properties and, together with the Conservancy, manages the Preserve System lands.

In the reporting year (year 12) of implementation, one property, Olesen/Duke, was added to the Preserve System. The property is located adjacent to existing Preserve System properties and protects approximately 115 acres of land within the inventory area.

The Conservancy remains in compliance with the Plan's Stay-Ahead Provision. The Conservancy has made substantial progress in 12 years of implementation toward many of the Plan's 30-year conservation requirements. Conservation of all land cover types is ahead of impacts incurred (see Figures ES-1 through ES-4). The Stay-Ahead Provision only reflects land cover requirements and does not reflect geographical requirements intended to ensure Preserve System connectivity.

The Conservancy is aware of both the qualitative and quantitative goals of the Plan. Figure ES-4 illustrates that the Conservancy is ahead of the average pace necessary to assemble the 30,300-acre Preserve System estimated to be required by Year 30 under the maximum impact scenario.

Habitat Restoration and Creation

The Plan requires stream, wetland and pond restoration and creation to compensate for impacts by development activities covered by the Plan. Over the 30-year life of the Plan, the Conservancy anticipates restoring or creating up to 500 acres of wetlands and ponds and 6 miles of streams (this figure represents the maximum impact scenario; the ultimate impacts and restoration/creation requirements may be much less).

No new restoration projects occurred in 2019. To date, 11 restoration projects have been constructed. Three of the projects have met success criteria and are no longer monitored annually against their restoration success criteria. The remaining projects continue to be monitored and adaptively managed to ensure success criteria are met. In 2019, the projects monitored were: Upper Hess Creek Watershed Habitat Restoration Project, Vaquero Farms Seasonal Wetland Creation Project (Seasonal Wetlands 1 and 2), Hess Creek Channel Restoration Project, Vaquero Farms Seasonal Wetland 3 Creation, Ang Riparian Restoration Project, and Horse Valley Creek and Wetland Restoration Project.

Coordinated Wetland Permitting

The HCP/NCCP was designed not only to conserve endangered species, but also wetlands and waters that provide habitat for these species and support other natural resource functions and values. This conservation approach was intended, in part, to enable permit streamlining to extend beyond endangered species and to include regional permitting under state and federal laws for impacts on jurisdictional wetlands and waters. The interest in integrating federal and state wetland permitting into the HCP/NCCP process is the same as the articulated purpose of the Plan—to benefit streams and wetlands by conserving these resources in a more coordinated and comprehensive fashion on a regional scale and to provide an integrated, coordinated approach to permitting in lieu of the often inefficient and costly project-by-project approach.

Discussion with U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency, State Water Resources Control Board (State Water Board), the Regional Water Quality Control Boards (Regional Water Boards), CDFW, and USFWS regarding this parallel approach to compliance with wetlands regulations started in 2002 during the early stages of developing the HCP/NCCP. Coordinating wetlands regulation with HCPs is difficult in part because there is no precedent.

Important milestones reached to date are summarized below.

On May 4, 2012, the Corps issued a Regional General Permit (RGP) related to the HCP/NCCP. The RGP is designed to streamline wetland permitting in the HCP/NCCP inventory area by coordinating the avoidance, minimization, and mitigation measures in the Plan with the Corps'

wetland permitting requirements. Currently, the RGP only relates to Clean Water Act Section 404 permits, but discussions are ongoing with the State Water Board and Regional Water Boards to coordinate their requirements with the RGP and HCP/NCCP.

On April 30, 2012, USFWS issued a Biological Opinion for the RGP. The Biological Opinion relies on the HCP/NCCP for mitigation measures and eliminates the need for the Corps to consult individually with USFWS for each project covered by the RGP. The term of the Biological Opinion corresponds with the 30-year term of the HCP/NCCP.

The Conservancy is seeking to establish an In-Lieu Fee (ILF) program to comply with the *Compensatory Mitigation for Losses of Aquatic Resources* (Mitigation Rule; Code of Federal Regulations [CFR], Title 33, Part 332). The proposed ILF program would be implemented in conjunction with requirements of the RGP and HCP/NCCP. The ILF program would sanction payment of HCP/NCCP fees as suitable mitigation under Corps permits. The Conservancy is working with the Corps to develop the ILF program agreement.

Until the ILF program is in place, the interim approach is *permittee-responsible compensatory mitigation*, an option defined in Mitigation Rule 33 CFR Part 332. Under this approach, until the ILF is approved, the Conservancy will designate a portion of its existing wetland restoration sites as compensatory mitigation for an applicant's project, and this will fulfill the applicant's Section 404 compensatory mitigation requirements under the RGP. The Corps initially approved using this interim strategy for up to 1 year, at which time the interim strategy would be replaced by the ILF program. In 2013, the Corps approved extending the interim strategy while it continues to work on the ILF program.

The Corps issued the first RGP in 2012 for a 5-year period and an expiration date of May 4, 2017. On June 6, 2017, the Corps re-issued RGP 1 with a new expiration date of June 6, 2022. There was a 1-month gap in RGP coverage. During that time, there were three pending permit applications: one Conservancy restoration project and two Contra Costa County Public Works projects. The schedules for these projects were not affected by the month-long gap in RGP coverage.

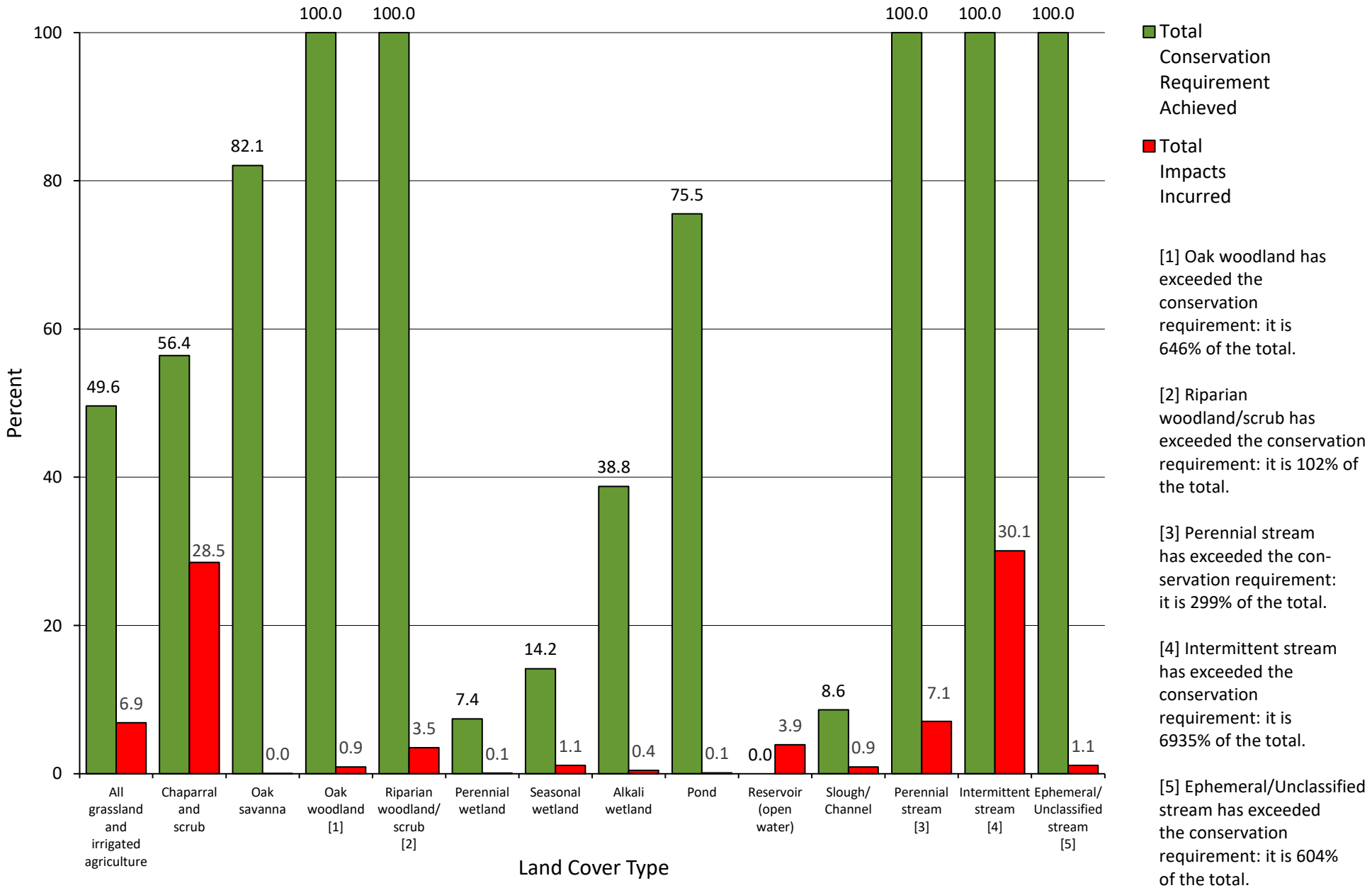
To date, 17 covered projects and two Conservancy restoration projects have received permit coverage through the RGP.

Funding

In 2019, the Conservancy's expenditures totaled $2,432,557 on implementation of the ECCC HCP/NCCP. This includes grant funds that were spent on land acquisitions, restoration projects, and preserve management activities. The Conservancy remained under the approved 2019 Budget. The Conservancy continued to pursue and secure grants during the 2019 reporting period. Various federal and state sources granted $837,892 toward land acquisitions, restoration projects and preserve management activities. Mitigation fees and other payments from project proponents of 2019 permitted projects totaled $705,227. In total, the Conservancy received $1,682,774 in revenue (interest included). Local matching funds, which include grants awarded to local partners, totaled $517,797.

Figure ES-1. Stay Ahead Compliance

This is a graphical representation of data in Table 14.
The chart compares conservation achieved to impacts incurred according to the specific guidelines set forth in the Stay Ahead Provision.
The green bars display the percent of the land cover acquired as a percent of the conservation required.
The red bars display the percent of land cover impact incurred as a percent of the impact limits.
To comply with the Stay Ahead Provision, for terrestrial land covers the green bars need to be not more that 5% below the red bars.
With the extensive conservation effort to date, progress toward conservation goals have met, exceeded or vastly exceeded Stay Ahead Provision requirements.



[1] Oak woodland has exceeded the conservation requirement: it is 646% of the total.

[2] Riparian woodland/scrub has exceeded the conservation requirement: it is 102% of the total.

[3] Perennial stream has exceeded the conservation requirement: it is 299% of the total.

[4] Intermittent stream has exceeded the conservation requirement: it is 6935% of the total.

[5] Ephemeral/Unclassified stream has exceeded the conservation requirement: it is 604% of the total.

Figure ES-2a. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Terrestrial Land Cover Types

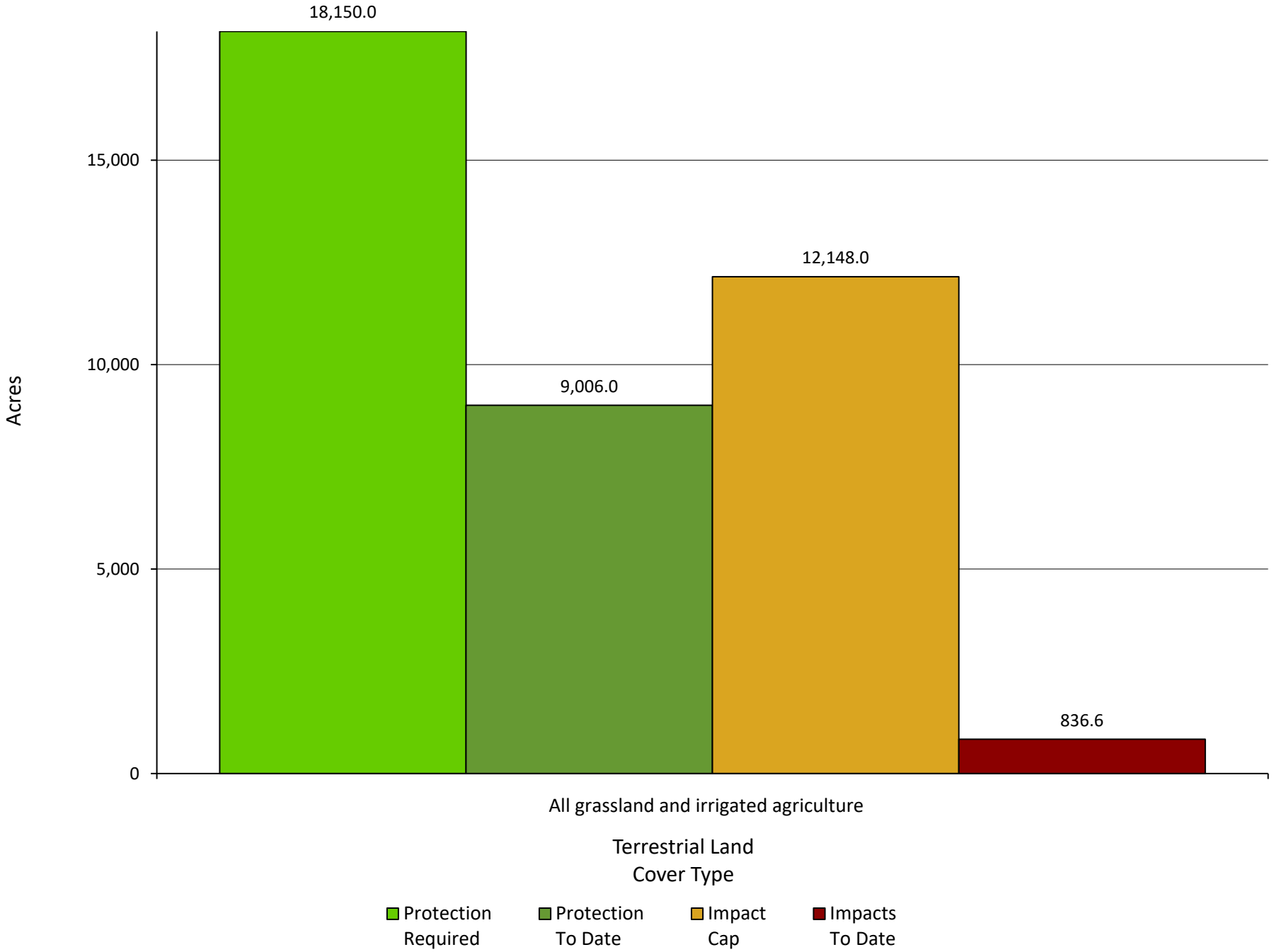


Figure ES-2b. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Terrestrial Land Cover Types

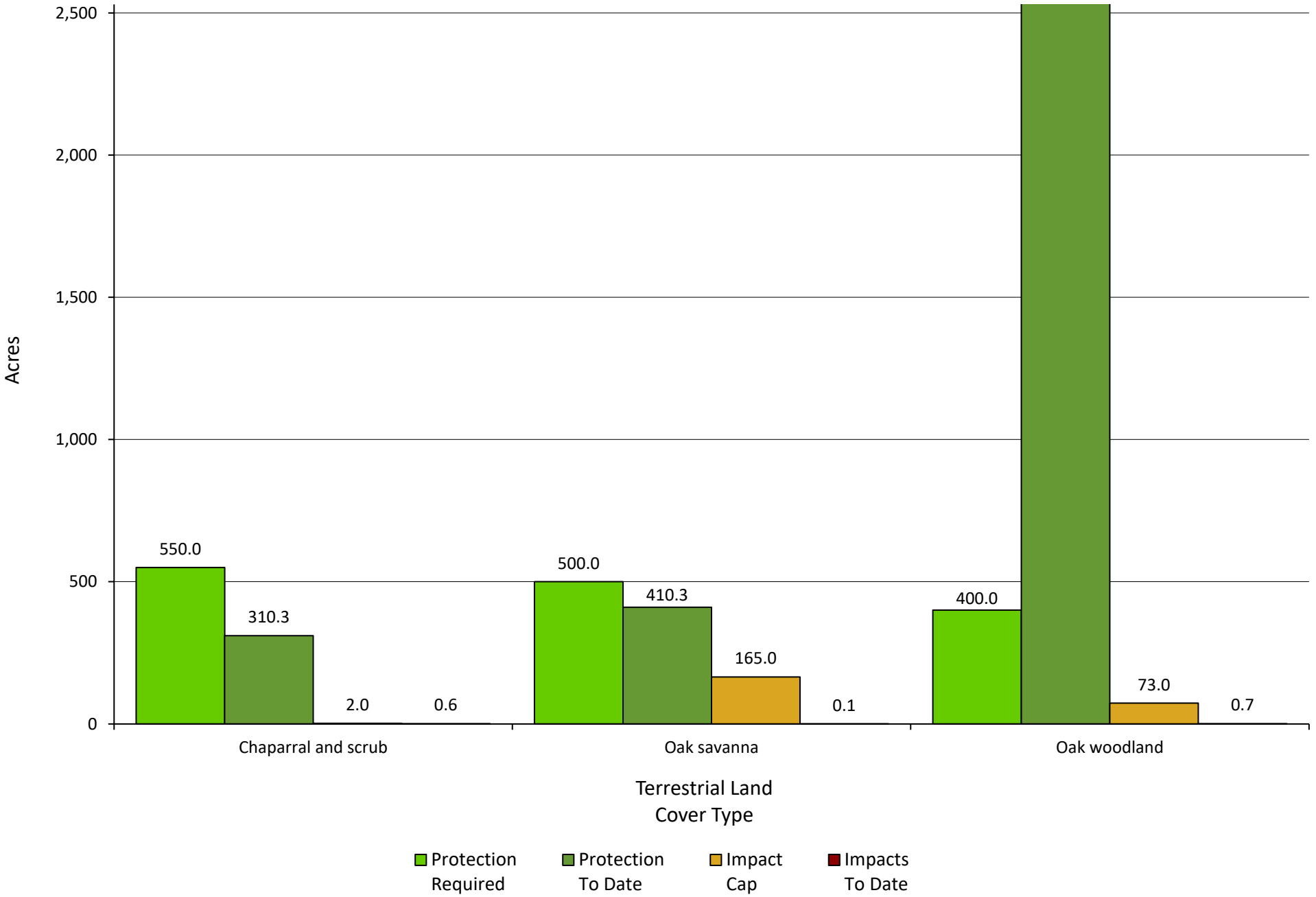


Figure ES-3a. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Aquatic Land Cover

Note: Aquatic land cover requirements are linked to mitigation ratios rather than absolute acreage figures.
The caps and requirements shown here are based on the maximum estimated impacts.

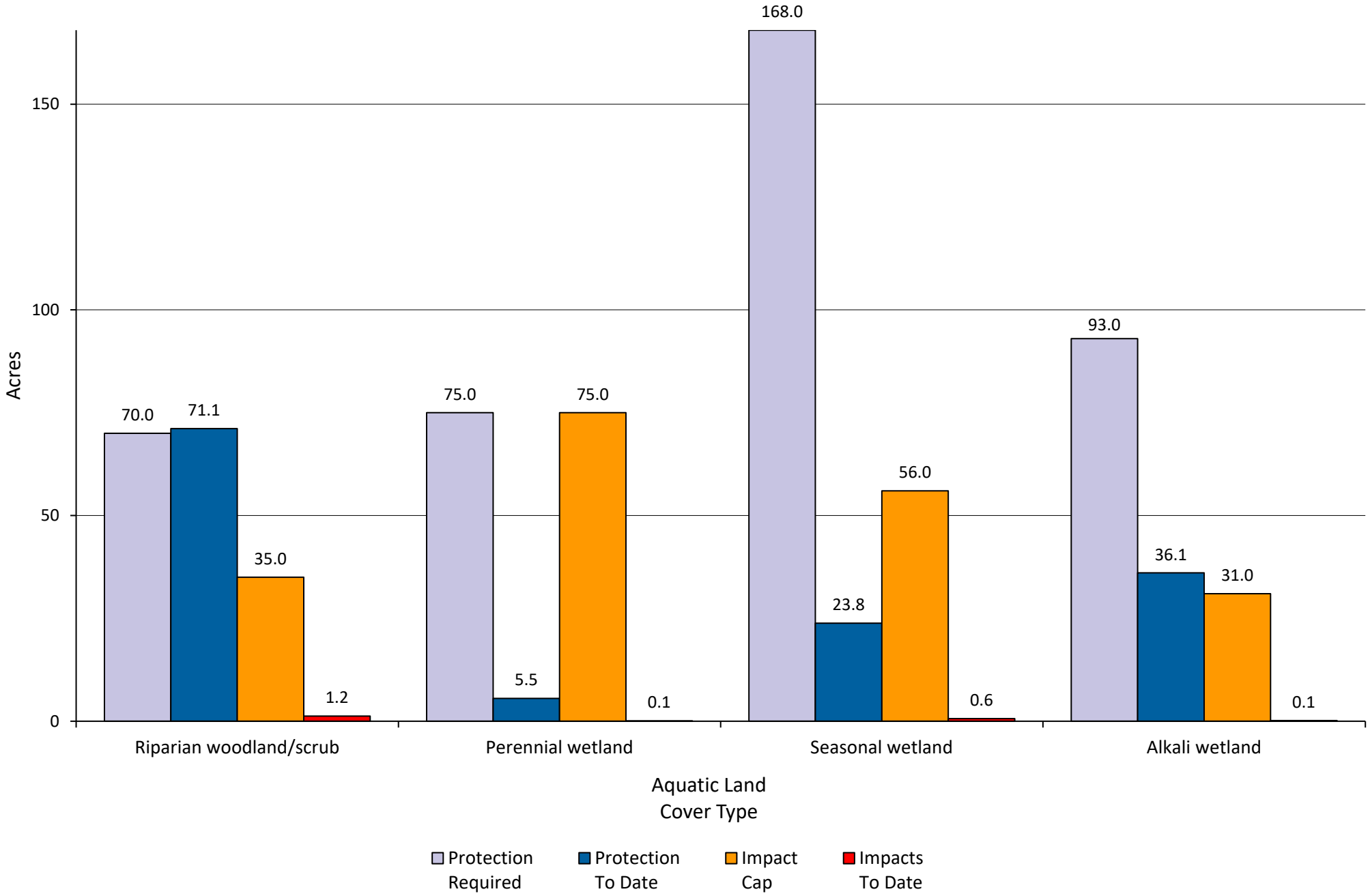


Figure ES-3b. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Aquatic Land Cover

Note: Aquatic land cover requirements are linked to mitigation ratios rather than absolute acreage figures.
The caps and requirements shown here are based on the maximum estimated impacts.

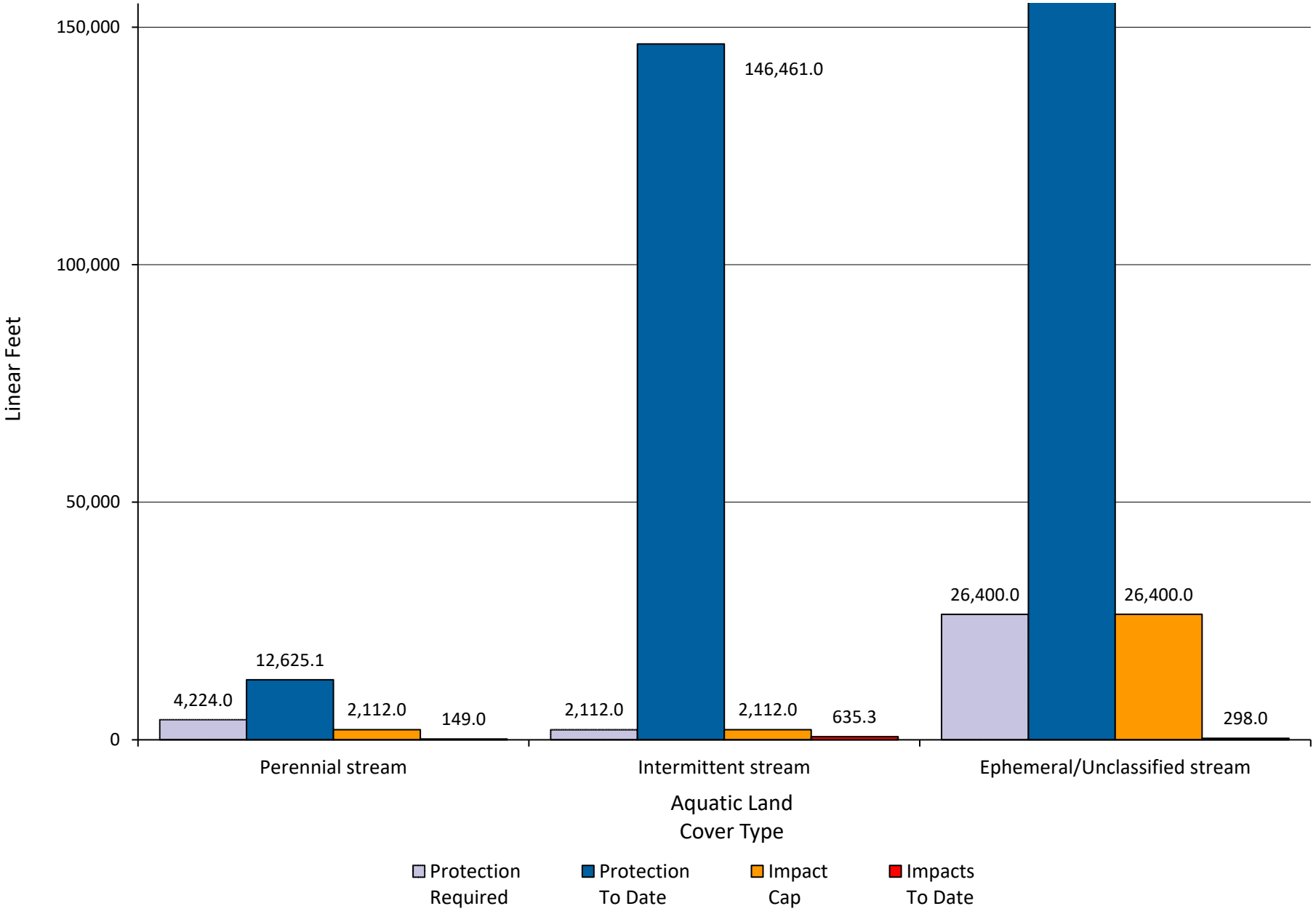
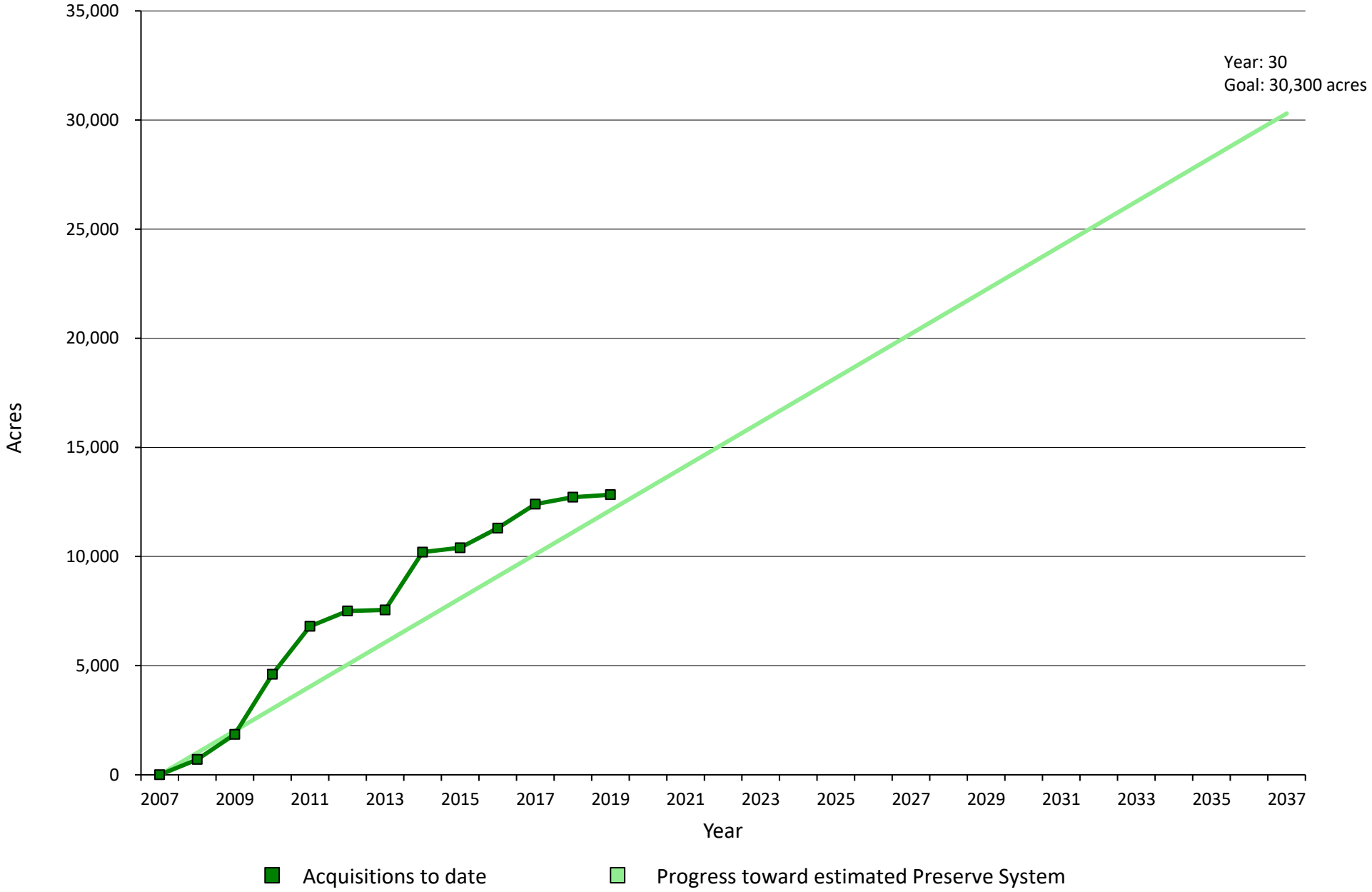


Figure ES-4. Progress Toward Assembling the Preserve System

Note: The HCP/NCCP estimates a maximum of approximately 30,300 acres will be necessary by 2037 (Year 30) to achieve all conservation requirements.



I. INTRODUCTION

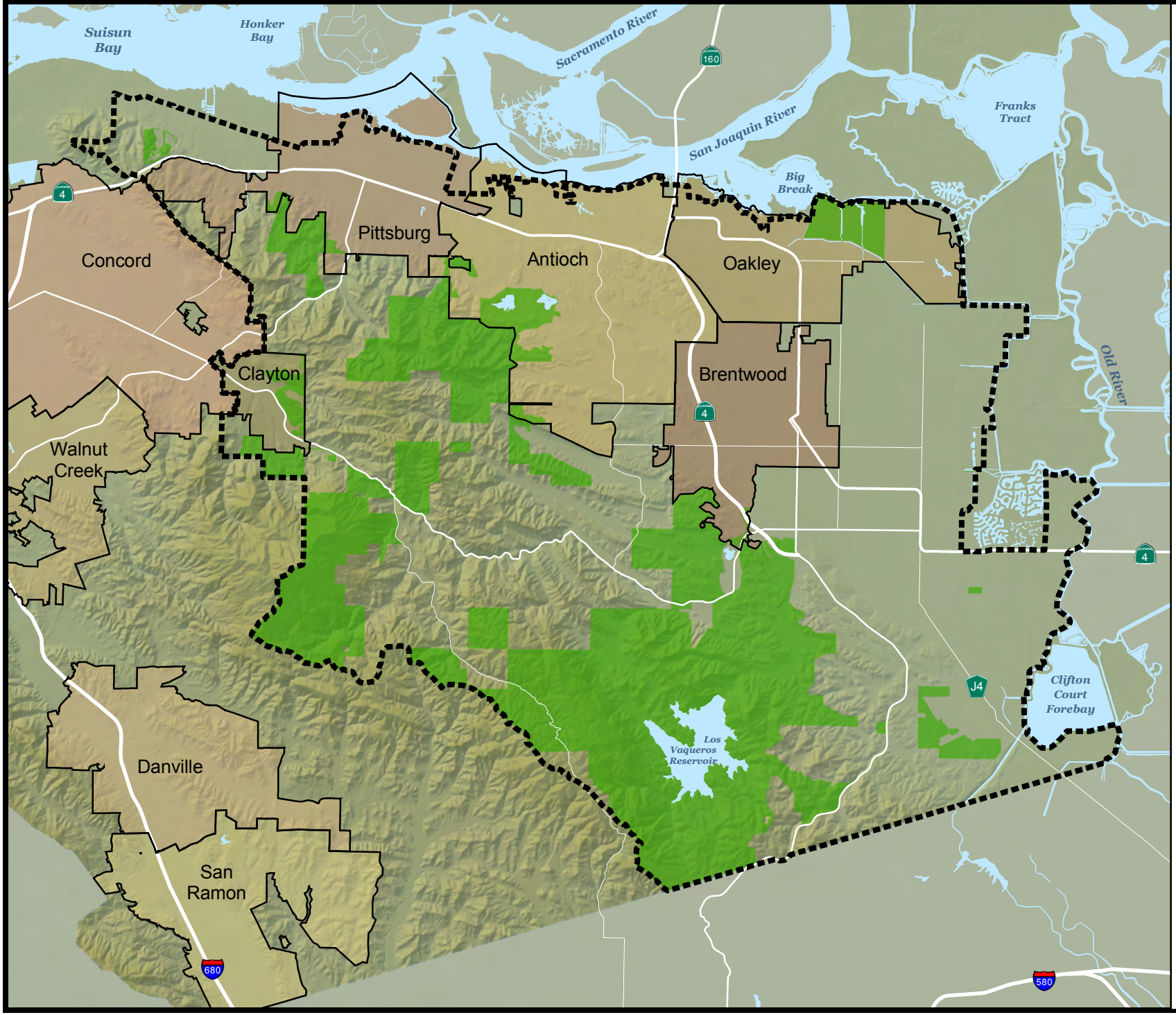
East Contra Costa County HCP/NCCP Background

Eastern Contra Costa County is a unique region where the San Francisco Bay Area, Sacramento–San Joaquin River Delta, and Central Valley meet (Figure 1). Much of the area retains a rural lifestyle supporting housing, farms, and ranches. It features a rich landscape that is home to a number of rare plants and animals. More than 150 rare species occur in the east Contra Costa County area, including the San Joaquin kit fox (*Vulpes macrotus mutica*), California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), western burrowing owl (*Athene cunicularia hypugea*), vernal pool fairy shrimp (*Brachinecta lynchi*), and Diablo helianthella (*Helianthella castanea*). Located east of San Francisco, the area's convenient location, natural beauty, and mild climate have led to rapid population growth. Contra Costa County's population is predicted to grow by 127,000 people between 2007 and 2025, providing important new housing for the San Francisco Bay Area's growing workforce. A significant portion of this growth will occur in east Contra Costa County in habitat that supports state and federally listed species, resulting in a conflict between conservation and development.

Between 2001 and 2006, the East Contra Costa County Habitat Conservation Plan Association developed the *East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan* (HCP/NCCP or Plan) that provides regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for state and federally listed species and wetland regulations. The Plan was approved at the local level in 2006 and 2007, and permits were issued by the California Department of Fish and Wildlife (CDFW, formally the California Department of Fish and Game) and the U.S. Fish and Wildlife Service (USFWS) in 2007. The Plan allows Contra Costa County (County); the Contra Costa County Flood Control and Water Conservation District; the East Bay Regional Park District (EBRPD); the Cities of Brentwood, Clayton, Oakley, and Pittsburg; and the East Contra Costa County Habitat Conservancy (Conservancy)—a group collectively referred to as the *Permittees*—to control endangered species permitting for activities and projects in the region, performed or approved by the Permittees, while providing comprehensive species, wetlands, and ecosystem conservation and contributing to the recovery of endangered species in northern California. The Plan helps to avoid project-by-project permitting, which is generally costly and time consuming for applicants and often results in uncoordinated and biologically ineffective mitigation.

The Plan was developed by a team of scientists and planners led by the East Contra Costa County Habitat Conservation Plan Association with input from independent science reviewers, stakeholders, and regulators. Within the 174,018-acre inventory area, the issued permits provide take authorization under the California Natural Community Conservation Planning Act and federal Endangered Species Act for 8,670–11,853 acres of urban development and 1,126 acres of

Figure 1. East Contra Costa County Habitat Conservation Plan Inventory Area



Legend

- Inventory Area
- Non-urban Parks, Public Watershed Lands, and Deed Restricted Open Space in the Inventory Area
- City Limits

N

Miles

2 1 0 2

Map data is from the HCP/NCCP and based on 2006 data.

East Contra Costa County Habitat Conservancy

rural infrastructure projects. The primary means to offset these impacts is to conserve and restore lands in a Preserve System. The Preserve System will encompass between 23,800–30,300 acres of land that will be managed to benefit the 28 species covered by the Plan as well as the natural communities that they, and hundreds of other species, depend on for habitat.

The Conservancy is the Entity tasked with the implementation of the HCP/NCCP. The Conservancy is a joint exercise of powers authority formed by the participating cities and the County. The Conservancy Governing Board consists of elected officials from participating city councils and the County Board of Supervisors. The Executive Director and the Conservancy Secretary manage day-to-day activities of the Conservancy under the direction of the Governing Board. The Executive Director, in partnership with dedicated staff members, performs a wide range of tasks necessary to implement the Plan. Responsibilities include coordinating real estate activities; assisting, reviewing, and tracking applications for take authorization; coordinating habitat restoration; overseeing monitoring and adaptive management; maintaining the budget; managing consultants; applying for outside funding and administering approved grants; coordinating with external agencies; compiling annual reports to CDFW and USFWS; and supporting the Governing Board and advisory committees.

EBRPD is currently to be the primary landowner and land manager for the Preserve System, and so far, all but one of the land acquisitions have been completed in partnership with EBRPD. EBRPD has more than 80 years of experience managing public open space lands and now owns more than 120,000 acres. HCP/NCCP Preserve System lands acquired by EBRPD will ultimately be available for public access.

Annual Report

The purpose of this Annual Report is to provide the Governing Board, USFWS, CDFW, and the general public the opportunity to review the Conservancy's actions and progress made toward implementing the Plan. These entities can use the Annual Report to assess the success of the Plan and provide recommendations to the Plan's Governing Board and the Conservancy staff for Plan implementation in subsequent years. The goals of the Annual Report are as follows:

Providing the information and data necessary for the Permittees to demonstrate to CDFW and USFWS that implementation is proceeding according to the Plan, the Implementing Agreement, and the take permits;

Disclosing and documenting issues with Plan implementation that require consultation and resolution with CDFW, USFWS, and/or the Permittees; and

Identifying administrative or minor changes to Plan components implemented in the last calendar year that were adopted to improve the success of the Plan.

The Annual Report is focused on implementation actions taken during the reporting period of January 1, 2019, through December 31, 2019. The required elements of the Annual Report as defined by the Plan are listed below.

Covered Activities and Impacts

Land Acquisition

Habitat Restoration and Creation

Preserve Management

Monitoring, Research, and Adaptive Management

Stay-Ahead Provision

Changed Circumstances and Remedial Measures

Finances

Program Administration

Covered Activities and Impacts

Section II of this Annual Report describes all projects and activities for which incidental take authorization was approved (covered activities) during the reporting period, including an accounting of the acreage of impact by project, activity type, and land cover type. Conditions on covered activities applied to each project are identified, and impacts on riparian and wetland land cover types are reported by watershed.

Land Acquisition

Section III describes the land acquisitions that occurred during the reporting period, including a summary of land acquisition funding from local, state, and federal sources. Each land acquisition property is identified, and a summary of natural communities protected during the reporting period and permit term is provided. In addition, progress toward all acquisition requirements, including land cover types, habitat connectivity, covered plant populations, and wetland and creek protection is assessed.

Habitat Restoration and Creation

Section IV describes natural community creation and restoration conservation measures implemented during the reporting period and summarizes cumulative accomplishments made during the permit term, including riparian and wetland restoration by watershed.

Preserve Management

Section V describes all land management activities undertaken on Preserve System properties and discusses the management issues facing the Conservancy at each preserve unit. Habitat enhancement measures implemented are also identified.

Monitoring, Research, and Adaptive Management

Section VI summarizes the monitoring, research, and adaptive management activities that were conducted by the Conservancy and partners during the reporting period. These actions are summarized at the landscape level, natural community level, and species level.

Stay-Ahead Provision

Section VII assesses compliance with the Stay-Ahead Provision, a set of requirements to ensure that progress toward acquisition of Preserve System lands precedes impacts associated with covered activities. This assessment includes a cumulative summary of impacts and conservation for all land cover types.

Changed Circumstances and Remedial Measures

Section VIII describes actions taken or anticipated regarding changed circumstances, including remedial actions.

Finances

Section IX includes accounting of revenue received by type (e.g., development fees, wetland fees, grants), an overview of the Conservancy's budget and expenditures during the reporting period, and mitigation fee act annual reporting.

Program Administration

Section X summarizes administrative changes, minor modifications, or major amendments proposed or approved during the reporting year. Policy clarifications and early implementation tasks that occurred during the reporting period are described in subsections.

II. COVERED ACTIVITIES AND IMPACTS

This section describes the activities and projects within the inventory area that were approved for take authorization pursuant to the Plan (covered activities) during the reporting period. The Plan requires covered activities to compensate, avoid, and minimize impacts on covered species through a variety of conservation measures. The Plan allows incidental take coverage for the following four activities (Figure 2).

Urban Development Area Projects: All activities and projects associated with urban growth within the urban development area as defined by the Plan.

Rural Infrastructure Projects: Transportation projects, flood protection projects, and utility projects occurring outside the urban limit line that support urban development.

Rural Infrastructure Operation and Maintenance Activities: Road, flood protection facility, and utility line or facility operation and maintenance projects that occur outside the urban development area and urban limit line.

Preserve System Activities: Management and recreational facilities; habitat enhancement, restoration, and creation; species surveys, monitoring, and research; emergency activities; and utility construction and maintenance that occur within the Preserve System; and neighboring landowner activities.

Covered Activities Receiving Take Coverage

A total of seventeen (15) projects received take coverage under the Plan during the reporting period (Table 1 and Figures 3a and 3b). Covered activities include the following.

Six (6) urban development area projects

Three (3) rural infrastructure projects

Four (4) rural infrastructure operation and maintenance projects

Two (2) Preserve System activities

All covered activities mitigated impacts through the payment of HCP/NCCP fees. In 2019, mitigation fees and contribution to recovery charges from covered projects totaled $705,227. See Section IX for more details.

Conditions on Covered Activities

The purpose of conditions on covered activities is to meet regulatory standards to avoid and minimize potential impacts on covered species (payment of fees or provision of land in lieu of fees satisfies mitigation requirements). Conditions also reduce and minimize impacts on important natural communities. Conditions on covered activities include completion of

preconstruction surveys, minimization of development footprints that are adjacent to preserves, establishment of stream setbacks and fuel management buffers, management of the urban-wildland interface, maintenance of hydrologic conditions, avoidance of direct impacts on extremely rare plants and fully protected wildlife species and covered migratory birds, best management practices for flood control, and design requirements for roads outside the urban development area. Each condition is described in detail in Chapter 6 of the Plan under Section 6.4, *Specific Conditions on Covered Activities*.

Specific project circumstances determine which conditions apply to each project. For example, Condition 1.12 *Implement Best Management Practices for Rural Road Maintenance* only applies to rural road maintenance projects. Compliance with the conditions on covered activities is an important part of the conservation strategy.

As shown in Tables 2 and 3, landscape, natural community, and species level conditions were applied to all 17 covered activities implemented during the 2019 reporting period.

Impacts on Land Cover Types and Covered Plants

Covered activity impacts are tracked by land cover type (Table 4), covered plant occurrences (Table 5), and aquatic habitat and stream by watershed (Table 6). During the reporting period there were a total of 39.5 acres of permanent impacts and 22.5 acres of temporary impacts (Table 4). There were 8.0 linear feet of permanent impacts and 236.0 linear feet of temporary impacts on streams during the reporting period. No covered plants were removed by covered projects in the reporting period (Table 5). Impacts on aquatic land cover types during the reporting period occurred in four watersheds: Brushy, Lower Marsh, Upper Marsh and West Antioch (Table 6).

Figure 2. Initial Urban Development Area and Specific Rural Infrastructure Projects that may be Covered

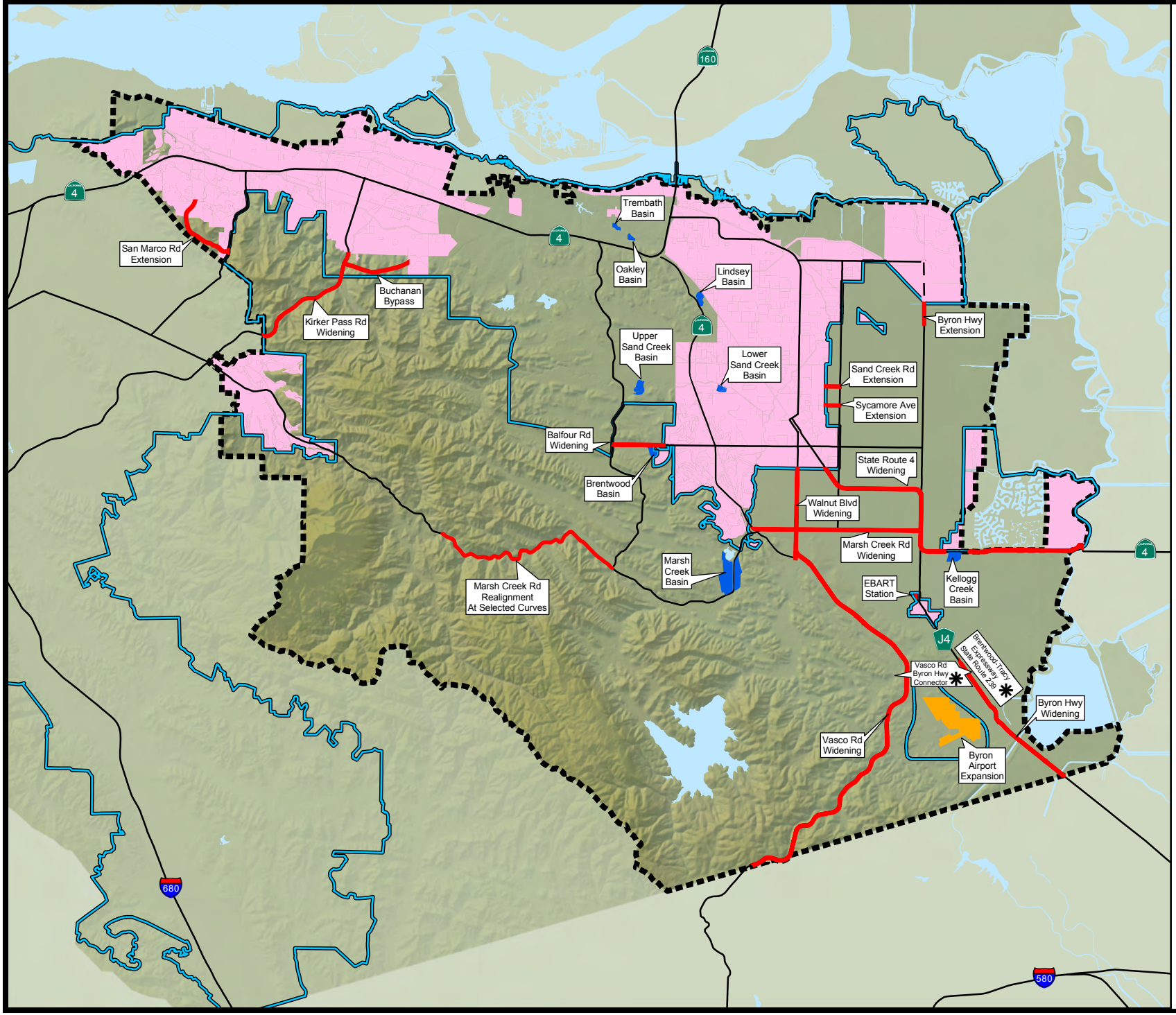


Figure 3a. Location and Impact Acreage for Projects that Received Coverage in 2019

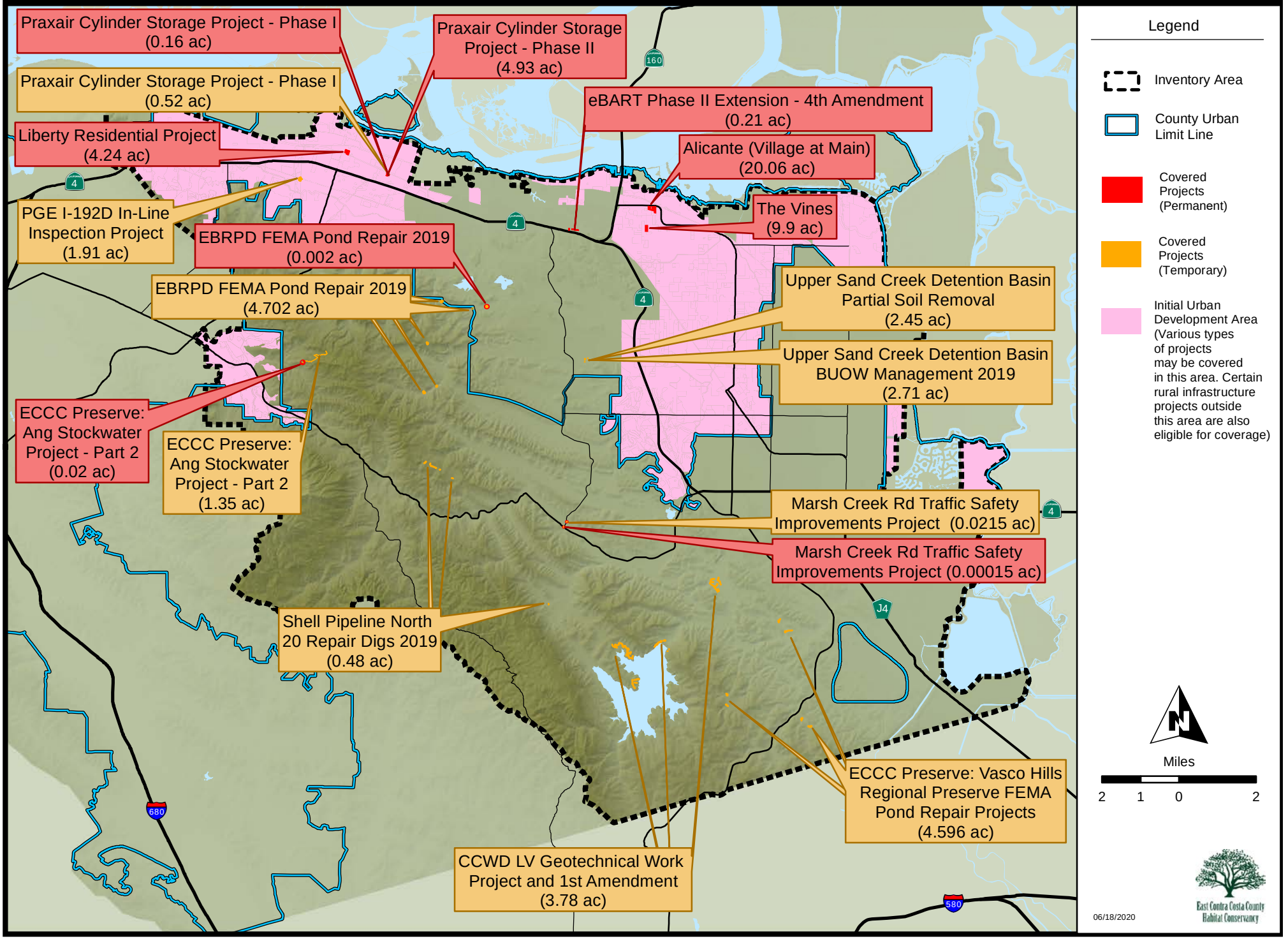
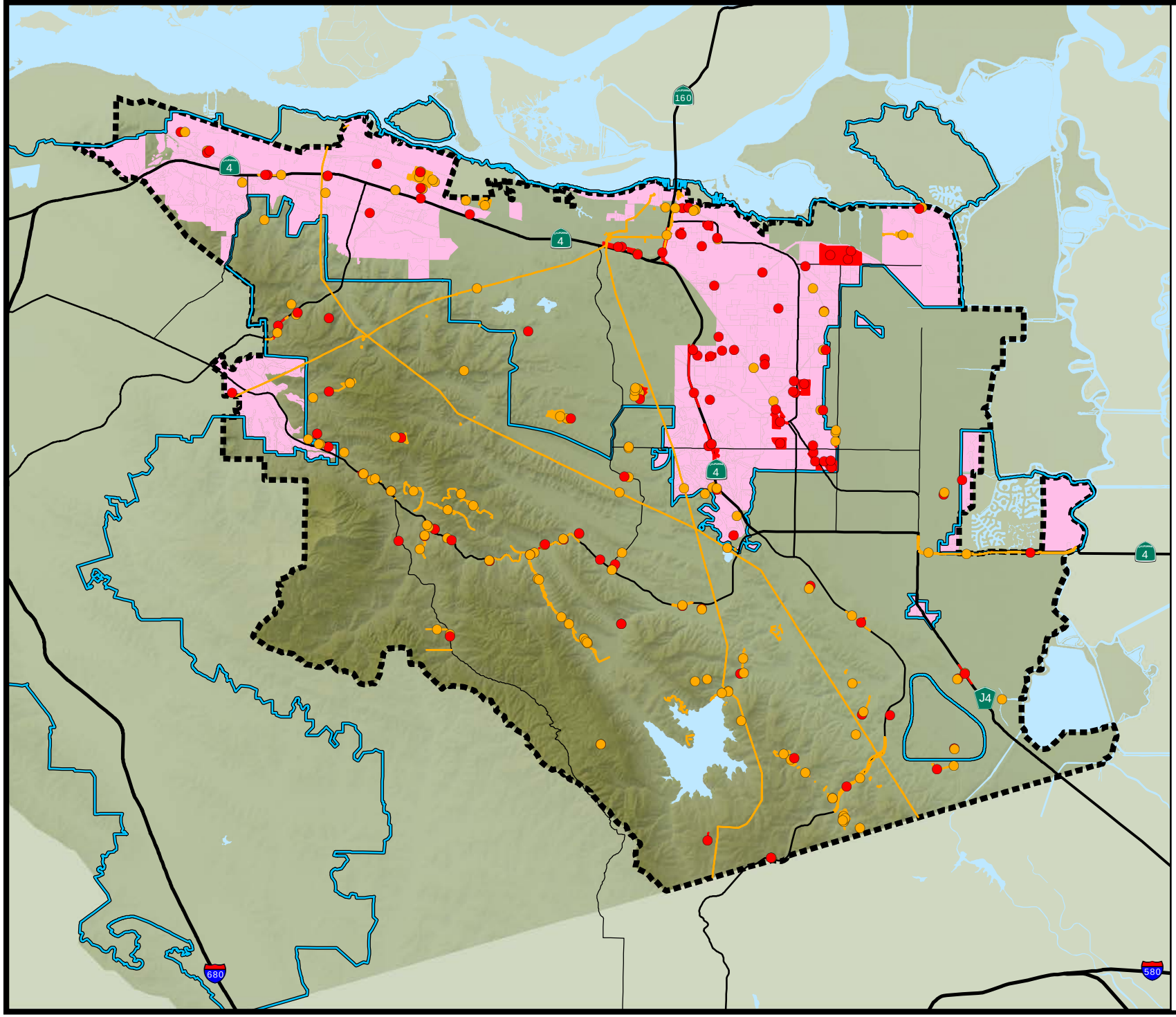


Figure 3b. Location of Covered Projects to Date (2008-2019)



Legend

Inventory Area

County Urban Limit Line

Symbol	Covered Project Type
	Permanent
	Temporary

Initial Urban Development Area (Various types of projects may be covered in this area. Certain rural infrastructure projects outside this area are also eligible for coverage)

N

Miles

2 1 0 2

06/18/2020

East Contra Costa County Habitat Conservancy

Table 1. Reporting Summary of Covered Activities for 2019

Project Name	Activity Type	Covered By	Location	Description
Activities within the Urban Development Area				
PG&E I-192D In Line Inspection Project	Utility	ECCC Habitat Conservancy	Access from Golf Club Rd, Pittsburg, CA 94565	Upgrading of PG&E's gas transmission pipeline L-191-1 to allow for future in-line inspection as a method of threat assessment by rebuilding the existing SP3/L191 Meter Station and installing equipment which will allow inspection technologies to navigate through the station. The project includes the excavation and modification of the existing facilities at the station over a two-year period.
Praxair Pittsburg Cylinder Storage Facility - Phase 1	Commercial	City of Pittsburg	1931 Loveridge Road, Pittsburg, CA 94565	The construction of an approximately 0.16-acre cylinder storage facility consisting of a double-tiered bulk storage area, covered canopy cylinder storage area, and a paved area between the two facilities.
Praxair Pittsburg Cylinder Storage Facility - Phase 2	Commercial	City of Pittsburg	1930 Loveridge Road, Pittsburg, CA 94565	Expansion of cylinder storage west of an existing facility that was constructed in 2018. The new facility will be used to store palletized cylinders and to load and unload these pallets from shipping containers.
Liberty Residential Subdivision	Residential	City of Pittsburg	Near 350 Central Ave, Pittsburg, CA	Dvelopment of a vacant 5-acre property, consisting of 57 medium-density homes, a park, landscaping, parking, and motor courts and one new road.
The Vines at Oakley	Residential	City of Oakley	South side of Oakley Road, approximately 3/4 of a mile east of Hwy 160 in the City of Oakley, CA	Subdivision of a 10-acre property into 64 lots and construction of 62 homes, a community parking lot, and landscaping.
Alicante (The Village at Main)	Residential	City of Oakley	South side of Main Street, approximately 1 mile east of Interstate 160 in the City of Oakley, CA	Subdivision of a 21-acre property into 158 lots and construction of 153 homes and a large community park.

Project Name	Activity Type	Covered By	Location	Description
Rural Infrastructure Projects				
CCWD Los Vaqueros Geotechnical Investigations Project and First Amendment	Other	ECCC Habitat Conservancy	Los Vaqueros Watershed	Geotechnical investigations within the boundaries of the Los Vaqueros Watershed in the vicinity of the proposed raised dam, dam core borrow area, and dam shell borrow area to support the Division of Safety of Dam's permitting process associated with the Phase 2 Los Vaqueros Reservoir Expansion Project.
eBART Phase II Extension - 4th Amendment	Transportation	ECCC Habitat Conservancy	Slatten Ranch Road, Antioch, CA	The amendment addresses one proposed change in the project description for the use of 0.21 acres of undeveloped property as additional parking area for the BART Antioch Station Parking Expansion Project.
Marsh Creek Road Traffic Safety Improvements Project	Transportation	Contra Costa County Public Works Department	Marsh Creek Road, from Pine Lane in the city of Clayton eastward to the city limits of Brentwood, in eastern Contra Costa County.	Improvements to driver safety along a 14-mile segment of Marsh Creek Road by installing rumble strips, new streetlights and flashing caution signs, new utility poles and pole replacement or relocation, and improved visibility of existing regulatory and warning signs.
Rural Infrastructure O&M Activities				
Upper Sand Creek Basin Project - Partial Soil Stockpile Removal 2019	Flood Control	Contra Costa County Flood Control District	6100 Deer Valley Road, Antioch	CCC Flood Control District's removal of approximately 100,000 CY of soil from the large stockpile.
Upper Sand Creek Detention Basin Project - Burrowing Owl Burrow Management 2019	Flood Control	Contra Costa County Flood Control District	6101 Deer Valley Road, Antioch	Western burrowing owl management on the soil stockpile at Upper Sand Creek Detention Basin Project.
EBRPD FEMA-Funded Projects 2019	Other	East Bay Regional Park District	Black Diamond Mines Regional Preserve, 5175 Somersville Rd, Antioch, CA 94509	Three FEMA-funded projects to repair five ponds and one culvert within the Black Diamond Mines Regional Preserve, Contra Loma Regional Park, and Clayton Ranch Regional Preserve, which failed during storms during the 2016-2017 wet-season.

Table 1. Continued

Project Name	Activity Type	Covered By	Location	Description
Shell Pipeline North 20 Repair Digs 2019	Utility	ECCC Habitat Conservancy	Three repair digs are located 6 miles apart between the Cities of Clayton and Byron	Repair digs on Shell Pipeline's existing 20-inch crude oil pipeline at five locations on private property and East Bay Regional Park District property.
Activities within the HCP/NCCP Preserve System				
Ang Stockwater Part II Project	Other	ECCC Habitat Conservancy	Ang Property	Installation of approximately 1,000 feet of water pipeline and a 500-gallon water trough on the Ang property, a Preserve System property managed by the ECCC Habitat Conservancy and East Bay Regional Park District. This project was implemented to improve water sources for cattle to allow for more appropriate grazing management of the property. The initial Ang Stockwater project was completed in 2018, which installed approximately 4,400 feet of water pipeline and a well, pump, water tank, and two water troughs on the Ang property. This second project added an additional pipeline and another water trough to the initial project.
Vasco Hills Regional Preserve FEMA Pond Repairs	Other	ECCC Habitat Conservancy	Vasco Hills Regional Preserve	Repair of three ponds in the Vasco Hills Regional Preserve. These ponds were damaged during the winter of 2016-2017. These ponds provide special-status species habitat. Remedial work occurred in fall 2018 to avoid additional damage in winter 2018-2019. Remedial repairs included repairing damaged outlet spillways (Ponds 1, 2, and 3).

Table 2. Reporting Period Summary of Natural Community and Landscape-level Conditions on Covered Activities by Project

	Natural Community		Landscape								
Project Name	2.11 Enhance Cultivated Agricultural Lands to Benefit Covered Species	2.12 Wetland, Pond, and Stream Avoidance and Minimization Measures	1.6 Minimize Development Footprint Adjacent to Open Space	1.7 Establish Stream Setbacks	1.8 Establish Fuel Management Buffer to Protect Preserves and Property	1.9 Urban-Wildland Interface Design Elements	1.10 Maintain and Improve Hydrologic Conditions and Minimize Erosion	1.11 Avoid Direct Impacts on Extremely Rare Plants or Fully Protected Wildlife Species	1.12 Implement Best Management Practices for Rural Road Maintenance	1.13 Implement Best Management Practices for Flood Control Facility Operations and Maintenance	1.14 Design Requirements for Covered Roads outside UDA
Marsh Creek Road Traffic Safety Improvements Project		✓						✓			✓
Alicante (The Village at Main)							✓	✓			
The Vines at Oakley							✓	✓			
Liberty Residential Subdivision							✓	✓			
Praxair Pittsburg Cylinder Storage Facility - Phase 1		✓					✓	✓			
Praxair Pittsburg Cylinder Storage Facility - Phase 2		✓					✓	✓			
eBART Phase II Extension - 4th Amendment							✓	✓			
PG&E I-192D In Line Inspection Project		✓						✓			
Shell Pipeline North 20 Repair Digs 2019		✓						✓			
CCWD Los Vaqueros Geotechnical Investigations Project and First Amendment		✓						✓			
EBRPD FEMA Pond Repair Projects 2019		✓						✓			
Vasco Hills Regional Preserve FEMA Pond Repairs		✓						✓			
Ang Stockwater Part II Project								✓			
Upper Sand Creek Detention Basin Project - Burrowing Owl Burrow Management 2019								✓			
Upper Sand Creek Basin Project - Partial Soil Stockpile Removal 2019								✓			

Table 3. Reporting Period Summary of Species-Level Conditions on Covered Activities by Project

	Species-Level Measures[1]																							
	Townsend's Big-Eared Bat				San Joaquin Kit Fox				Golden Eagle				Western Burrowing Owl				Swainson's Hawk				Giant Garter Snake			
	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring
Marsh Creek Road Traffic Safety Improvements Project						X	X			X	X			X	X			X	X					
Alicante (The Village at Main)										X	X			X	X			X	X					
The Vines at Oakley										X	X			X	X			X	X					
Liberty Residential Subdivision														X	X									
Praxair Pittsburg Cylinder Storage Facility - Phase 1										X	X			X	X			X	X					
Praxair Pittsburg Cylinder Storage Facility - Phase 2										X	X			X	X			X	X					
eBART Phase II Extension - 4th Amendment														X	X			X	X	X				
PG&E I-192D In Line Inspection Project										X	X			X	X									
Shell Pipeline North 20 Repair Digs 2019						X	X			X	X			X	X									
CCWD Los Vaqueros Geotechnical Investigations Project and First Amendment						X	X							X	X									
EBRPD FEMA-Funded Projects 2019						X	X			X	X			X	X									
Vasco Hills Regional Preserve FEMA Pond Repairs						X	X			X	X			X	X									
Ang Stockwater Part II Project						X	X			X	X			X	X									
Upper Sand Creek Detention Basin Project - Burrowing Owl Burrow Management 2019														X	X	X	X							
Upper Sand Creek Basin Project - Partial Soil Stockpile Removal 2019														X	X									

[1] The implementation of these condtions and their results can be found in the planning survey reports and are avaiable upon request from the Conservancy.

Table 3. Reporting Period Summary of Species-Level Conditions on Covered Activities by Project

	Species-Level Measures[1]																							
	CA Tiger Salamander				CA Red-Legged Frog				Covered Shrimp				Alkali milkvetch				Big Tarplant				Brewers dwarf flax			
	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring
Marsh Creek Road Traffic Safety Improvements Project																								
Alicante (The Village at Main)																								
The Vines at Oakley																								
Liberty Residential Subdivision																								
Praxair Pittsburg Cylinder Storage Facility - Phase 1																								
Praxair Pittsburg Cylinder Storage Facility - Phase 2																								
eBART Phase II Extension - 4th Amendment																								
PG&E I-192D In Line Inspection Project		X				X								X	X			X	X			X	X	
Shell Pipeline North 20 Repair Digs 2019		X				X								X	X			X	X			X	X	
CCWD Los Vaqueros Geotechnical Investigations Project and First Amendment		X				X								X	X			X	X			X	X	
EBRPD FEMA-Funded Projects 2019		X	X			X	X							X	X			X	X			X	X	
Vasco Hills Regional Preserve FEMA Pond Repairs		X				X								X	X			X	X					
Ang Stockwater Part II Project														X	X			X	X			X	X	
Upper Sand Creek Detention Basin Project - Burrowing Owl Burrow Management 2019																								
Upper Sand Creek Basin Project - Partial Soil Stockpile Removal 2019																								

[1] The implementation of these condtions and their results can be found in the planning survey reports and are avaiable upon request from the Conservancy

Table 3. Reporting Period Summary of Species-Level Conditions on Covered Activities by Project

	Species-Level Measures[1]																			
	Contra Costa goldfields				Diamond-petaled poppy				Large-flowered fiddleneck				Mount Diablo buckwheat				Round-leaved filaree			
	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring
Marsh Creek Road Traffic Safety Improvements Project																				
Alicante (The Village at Main)																				
The Vines at Oakley																				
Liberty Residential Subdivision																				
Praxair Pittsburg Cylinder Storage Facility - Phase 1																				
Praxair Pittsburg Cylinder Storage Facility - Phase 2																				
eBART Phase II Extension - 4th Amendment																				
PG&E I-192D In Line Inspection Project		X	X			X	X			X	X			X	X			X	X	
Shell Pipeline North 20 Repair Digs 2019		X	X			X	X			X	X							X	X	
CCWD Los Vaqueros Geotechnical Investigations Project and First Amendment		X	X			X	X			X	X			X	X			X	X	
EBRPD FEMA-Funded Projects 2019						X	X			X	X							X	X	
Vasco Hills Regional Preserve FEMA Pond Repairs						X	X			X	X							X	X	
Ang Stockwater Part II Project		X	X			X	X			X	X			X	X			X	X	
Upper Sand Creek Detention Basin Project - Burrowing Owl Burrow Management 2019																				
Upper Sand Creek Basin Project - Partial Soil Stockpile Removal 2019																				

[1] The implementation of these condtions and their results can be found in the planning survey reports and are avaiable upon request from the Conservancy

Table 3. Reporting Period Summary of Species-Level Conditions on Covered Activities by Project

	Species-Level Measures[1]																			
	Showy madia				Adobe navarretia				Brittlescale				San Joaquin Spearscale				Diablo Helianthella			
	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring
Marsh Creek Road Traffic Safety Improvements Project																				
Alicante (The Village at Main)																				
The Vines at Oakley																				
Liberty Residential Subdivision																				
Praxair Pittsburg Cylinder Storage Facility - Phase 1																				
Praxair Pittsburg Cylinder Storage Facility - Phase 2																				
eBART Phase II Extension - 4th Amendment																				
PG&E I-192D In Line Inspection Project		X	X			X	X													
Shell Pipeline North 20 Repair Digs 2019		X	X			X	X											X	X	
CCWD Los Vaqueros Geotechnical Investigations Project and First Amendment		X	X											X	X					
EBRPD FEMA-Funded Projects 2019		X	X			X	X											X	X	
Vasco Hills Regional Preserve FEMA Pond Repairs		X	X			X	X			X	X			X	X					
Ang Stockwater Part II Project		X	X			X	X											X	X	
Upper Sand Creek Detention Basin Project - Burrowing Owl Burrow Management 2019																				
Upper Sand Creek Basin Project - Partial Soil Stockpile Removal 2019																				

[1] The implementation of these condtions and their results can be found in the planning survey reports and are avaiable upon request from the Conservancy

Table 3. Reporting Period Summary of Species-Level Conditions on Covered Activities by Project

	Species-Level Measures[1]															
	Caper Fruited Tropidocarpum				Mount Diablo Fairy-Lantern				Mount Diablo Manzanita				Recurved larkspur			
	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring
Marsh Creek Road Traffic Safety Improvements Project																
Alicante (The Village at Main)																
The Vines at Oakley																
Liberty Residential Subdivision																
Praxair Pittsburg Cylinder Storage Facility - Phase 1																
Praxair Pittsburg Cylinder Storage Facility - Phase 2																
eBART Phase II Extension - 4th Amendment																
PG&E I-192D In Line Inspection Project						X	X									
Shell Pipeline North 20 Repair Digs 2019						X	X									
CCWD Los Vaqueros Geotechnical Investigations Project and First Amendment		X	X			X	X							X	X	
EBRPD FEMA-Funded Projects 2019						X	X									
Vasco Hills Regional Preserve FEMA Pond Repairs		X	X											X	X	
Ang Stockwater Part II Project						X	X									
Upper Sand Creek Detention Basin Project - Burrowing Owl Burrow Management 2019																
Upper Sand Creek Basin Project - Partial Soil Stockpile Removal 2019																

[1] The implementation of these condtions and their results can be found in the planning survey reports and are avaiable upon request from the Conservancy

Table 4. Reporting Period and Cumulative Impacts on Land Cover Types from Covered Activities and Conservation Measure Implementation

	Reporting Period Impacts (acres, unless otherwise noted)		Cumulative[3] Impacts (acres, unless otherwise noted)	
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Terrestrial				
Annual grassland	0.02	7.92	101.73	212.04
Alkali grassland	--	0.99	0.78	2.75
Ruderal	23.39	13.34	555.37	294.57
Chaparral and scrub	--	--	0.57	1.60
Oak savanna	--	--	0.06	2.07
Oak woodland	--	0.24	0.66	1.81
Subtotal terrestrial	*23.41*	*22.49*	*659.17*	*514.84*
Aquatic				
Riparian woodland/scrub	--	--	1.23	2.00
Perennial wetland[1]	--	--	0.07	0.69
Seasonal wetland	--	--	0.63	2.41
Alkali wetland	--	--	0.14	0.87
Pond	--	--	0.01	0.08
Reservoir (open water)[2]	--	--	0.47	4.14
Slough/Channel (includes stream)	--	--	0.65	0.15
Subtotal aquatic	*0.00*	*0.00*	*3.19*	*10.34*
Stream (length in linear feet)				
Total stream length	8.00	236.00	1082.31	6208.70
Stream length by width category				
$\leq$ 25 feet wide	8.00	236.00	685.00	5484.50
> 25 feet wide	--	--	397.31	724.20
Stream length by type and order				
Perennial	--	--	149.00	684.50
Intermittent	8.00	65.00	635.31	4320.20
Ephemeral, 3rd or higher order	--	131.00	0.00	131.00
Ephemeral, 1st or 2nd order		40.00	298.00	1073.00
Subtotal stream length	*8.00*	*236.00*	*1,082.31*	*6,208.70*
Irrigated agriculture				
Cropland	--	--	128.09	32.38
Pasture	--	--	0.15	1.80
Orchard	--	--	10.27	0.21
Vineyard	16.11	--	40.19	7.20
Subtotal irrigated agricultural	*16.11*	*--*	*178.70*	*41.59*
Other				
Nonnative woodland	--	--	1.05	1.91
Wind turbines	--	--	--	0.57
Subtotal other	*--*	*--*	*1.05*	*2.48*

Table 4. Reporting Period and Cumulative Impacts on Land Cover Types from Covered Activities and Conservation Measure Implementation

	Reporting Period Impacts (acres, unless otherwise noted)		Cumulative[3] Impacts (acres, unless otherwise noted)	
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Uncommon Vegetation Types (subtypes of above land cover types)				
Purple needlegrass grassland	--	--	0.02	0.38
Wildrye grassland	--	--	0.03	0.02
Wildflower fields	--	--	--	--
Squirreltail grassland	--	--	--	--
One-sided bluegrass grassland	--	--	--	--
Serpentine grassland	--	--	--	--
Saltgrass grassland (alkali grassland)	--	--	0.20	0.53
Alkali sacaton bunchgrass grassland	--	--	--	--
Other uncommon vegetation types	--	--	0.06	--
Subtotal uncommon vegetation types	--	--	*0.31*	*0.93*
Uncommon Landscape Features or Habitat Elements				
Rock outcrop	--	--	0.15	0.13
Cave	--	--	--	--
Springs/seeps	--	--	--	--
Scalds	--	--	--	0.00
Sand deposits	--	--	--	--
Turf	--	--	0.50	5.70
Buildings - Bat Roosts (number)	--	--	--	--
Mines (number)	--	--	--	--
Buildings (number)	--	--	--	--
Potential nest sites (number)	--	--	--	--
Subtotal uncommon landscape features (acres)	--	--	*0.65*	*5.84*
Subtotal uncommon landscape features (number)	--	--	--	--
Totals (excludes subtypes)				
Acres	39.5	22.5	842.1	569.2
Linear feet	8.0	236.0	1,082.3	6,208.7

[1] Perennial wetlands are equivalent permanent wetlands.

[2] Reservoir (open water) is equivalent to aquatic.

[3] Cumulative impact acreages and linear feet may differ slightly from previous years as refinements to the data tracking system have occurred.

Table 5. Reporting Period and Cumulative Impacts on Covered Plants

Common Name	Scientific Name	Known Occurrences that May Be Removed by Covered Activities[1]	Impacts (occurrences)	
			Reporting Period	Cumulative
Mount Diablo manzanita	*Arctostaphylos auriculata*	0	--	0
Brittlescale	*Atriplex depressa*	1	--	0
San Joaquin spearscale[2]	*Atriplex joanquiniana*	0	--	1
Big tarplant	*Blepharizonia plumosa*	1	--	0
Mount Diablo fairy lantern	*Calochortus pulchellus*	0	--	0
Recurved larkspur	*Delphinium recurvatum*	1	--	0
Round-leaved filaree	*Erodium macrophyllum*	2	--	[see note[3]]
Diablo helianthella	*Helianthella castanea*	0	--	0
Brewer's dwarf flax	*Hesperolinon breweri*	0	--	0
Showy madia	*Madia radiata*	0	--	0
Adobe navarretia	*Navarretia nigelliformis* ssp. *nigelliformis*	1	--	0
Total		**6**	**0**	**1**

[1] This column provides the limit of impacts, by number of occurrences, on plant species allowable under the HCP/NCCP per HCP/NCCP Table 4-6.

[2] Vasco Road Safety Phase 1 Project population was translocated to Souza II property in 2011, however the population did not survive. This table has been updated to account for the accurate cumulative impact to San Joaquin spearscale (Atriplex joaquiniana).

[3] Temporary impacts occurred to round-leaved filaree as part of the PG&E Contra Costa Las Positas Project (2009). The soil was protected from disturbance, the site was returned to pre-project connections, seeds collected on site were propagated, and monitoring reports document that round-leaved filaree persists on site and is as abundant as before the project.

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Brushy	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.01	0.12
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.01	0.60
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.01
	Subtotal aquatic	*0.00*	*0.00*	*0.01*	*0.74*
	Stream (linear feet)				
	Total stream length	0.00	0.00	132.00	368.50
	Stream length by width category				
	≤ 25 feet wide	0.00	131.00	110.00	381.50
	> 25 feet wide	0.00	0.00	22.00	118.00
	Stream length by type and order				
	Perennial	0.00	0.00	56.00	282.50
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	131.00	0.00	131.00
	Ephemeral, 1st or 2nd order	0.00	0.00	76.00	86.00
	Subtotal stream length	*0.00*	*131.00*	*132.00*	*499.50*
Clifton Court Forebay	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	47.00	112.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	0.00
	> 25 feet wide	0.00	0.00	47.00	112.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	47.00	112.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*47.00*	*112.00*

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Deer	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	12.00	43.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	15.00
	> 25 feet wide	0.00	0.00	12.00	28.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	12.00	43.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*12.00*	*43.00*
East County Delta	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.42	0.20
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.25	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.34	3.35
	Slough/Channel[3] (includes stream)	0.00	0.00	0.58	0.00
	Subtotal aquatic	*0.00*	*0.00*	*1.59*	*3.55*
	Stream (linear feet)				
	Total stream length	0.00	0.00	0.00	0.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	0.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*0.00*	*0.00*

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Kellogg	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.05	0.31
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.29	0.01
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.07	0.14
	Subtotal aquatic	*0.00*	*0.00*	*0.41*	*0.46*
	Stream (linear feet)				
	Total stream length	0.00	0.00	6.00	42.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	42.00
	> 25 feet wide	0.00	0.00	6.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	6.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	42.00
	Subtotal stream length	*0.00*	*0.00*	*6.00*	*42.00*
Kirker	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.05	0.09
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.05*	*0.09*
	Stream (linear feet)				
	Total stream length	0.00	0.00	0.00	35.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	35.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	0.00	35.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*0.00*	*35.00*

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Lower Marsh	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.04
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.13	0.24
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.13	0.79
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.26*	*1.07*
	Stream (linear feet)				
	Total stream length	0.00	55.00	33.31	410.70
	Stream length by width category				
	≤ 25 feet wide	0.00	55.00	0.00	337.00
	> 25 feet wide	0.00	0.00	33.31	73.70
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	211.00
	Intermittent	0.00	55.00	33.31	199.70
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*55.00*	*33.31*	*410.70*
Lower Mt. Diablo	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	193.00	0.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	193.00	0.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	193.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*193.00*	*0.00*

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Sand	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.30	0.73
	Perennial wetland[1]	0.00	0.00	0.04	0.57
	Seasonal wetland	0.00	0.00	0.02	2.37
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.36*	*3.67*
	Stream (linear feet)				
	Total stream length	0.00	0.00	295.00	3,639.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	295.00	3,639.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	295.00	3,639.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*295.00*	*3,639.00*
Upper Marsh	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.34	0.61
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.06	0.03
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.01	0.08
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.41*	*0.72*
	Stream (linear feet)				
	Total stream length	0.00	0.00	299.00	1,297.50
	Stream length by width category				
	≤ 25 feet wide	0.00	40.00	58.00	978.00
	> 25 feet wide	0.00	0.00	241.00	359.50
	Stream length by type and order				
	Perennial	0.00	0.00	93.00	191.00
	Intermittent	0.00	0.00	177.00	242.50
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	40.00	29.00	904.00
	Subtotal stream length	*0.00*	*40.00*	*299.00*	*1,337.50*

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Upper Mt. Diablo	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	0.00	41.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	41.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	41.00
	Subtotal stream length	*0.00*	*0.00*	*0.00*	*41.00*
West Antioch	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	0.00	0.00
	Stream length by width category				
	≤ 25 feet wide	8.00	10.00	8.00	10.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	8.00	10.00	8.00	10.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*8.00*	*10.00*	*8.00*	*10.00*
Willow	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.08	0.02
	Perennial wetland[1]	0.00	0.00	0.02	0.00
	Seasonal wetland	0.00	0.00	0.01	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
	Subtotal aquatic	*0.00*	*0.00*	*0.10*	*0.02*
	Stream (linear feet)				
	Total stream length	0.00	0.00	57.00	39.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	21.00	6.00
	> 25 feet wide	0.00	0.00	36.00	33.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	57.00	39.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*57.00*	*39.00*

Table 6. Impacts to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[3]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Total	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	1.23	2.00
	Perennial wetland[1]	0.00	0.00	0.07	0.69
	Seasonal wetland	0.00	0.00	0.63	2.41
	Alkali wetland	0.00	0.00	0.14	0.84
	Pond	0.00	0.00	0.01	0.08
	Reservoir (open water)[2]	0.00	0.00	0.47	4.14
	Slough/Channel[3] (includes stream)	0.00	0.00	0.65	0.15
	Total aquatic	0.00	0.00	3.19	10.31
	Stream (linear feet)				
	Total stream length	0.00	55.00	1,074.31	6,027.70
	Stream length by width category				
	≤ 25 feet wide	8.00	236.00	685.00	5,484.50
	> 25 feet wide	0.00	0.00	397.31	724.20
	Stream length by type and order				
	Perennial	0.00	0.00	149.00	684.50
	Intermittent	8.00	65.00	635.31	4,320.20
	Ephemeral, 3rd or higher order	0.00	131.00	0.00	131.00
	Ephemeral, 1st or 2nd order	0.00	40.00	298.00	1,073.00
	Total stream length	8.00	236.00	1,082.31	6,208.70

[1] Perennial wetlands are equivalent permanent wetlands.

[2] Reservoir (open water) is equivalent to aquatic.

[3]Cumulative impact acreages and linear feet may differ slightly from previous years as refinements to the data tracking system have occurred.

III. LAND ACQUISITION

Preserve System

The Conservancy is required to establish a Preserve System through acquisition of land in fee title, conservation easement, mitigation banking, or land dedication. Land acquired as part of the Preserve System will be for the benefit of covered species, natural communities, biological diversity, and overall ecosystem function. The following principles guide the development of the Preserve System.

Maximize Size

Preserve the Highest-Quality Natural Communities

Link Acquisitions

Buffer Urban Impacts

Minimize Edge

Fully Represent Environmental Gradients

Consider Watersheds

Consider Full Ecological Diversity within Communities

Consider Management Needs

Reporting year and cumulative Preserve System acquisitions demonstrate implementation of Conservation Measure 1.1, *Acquire Lands for Preserve System.*

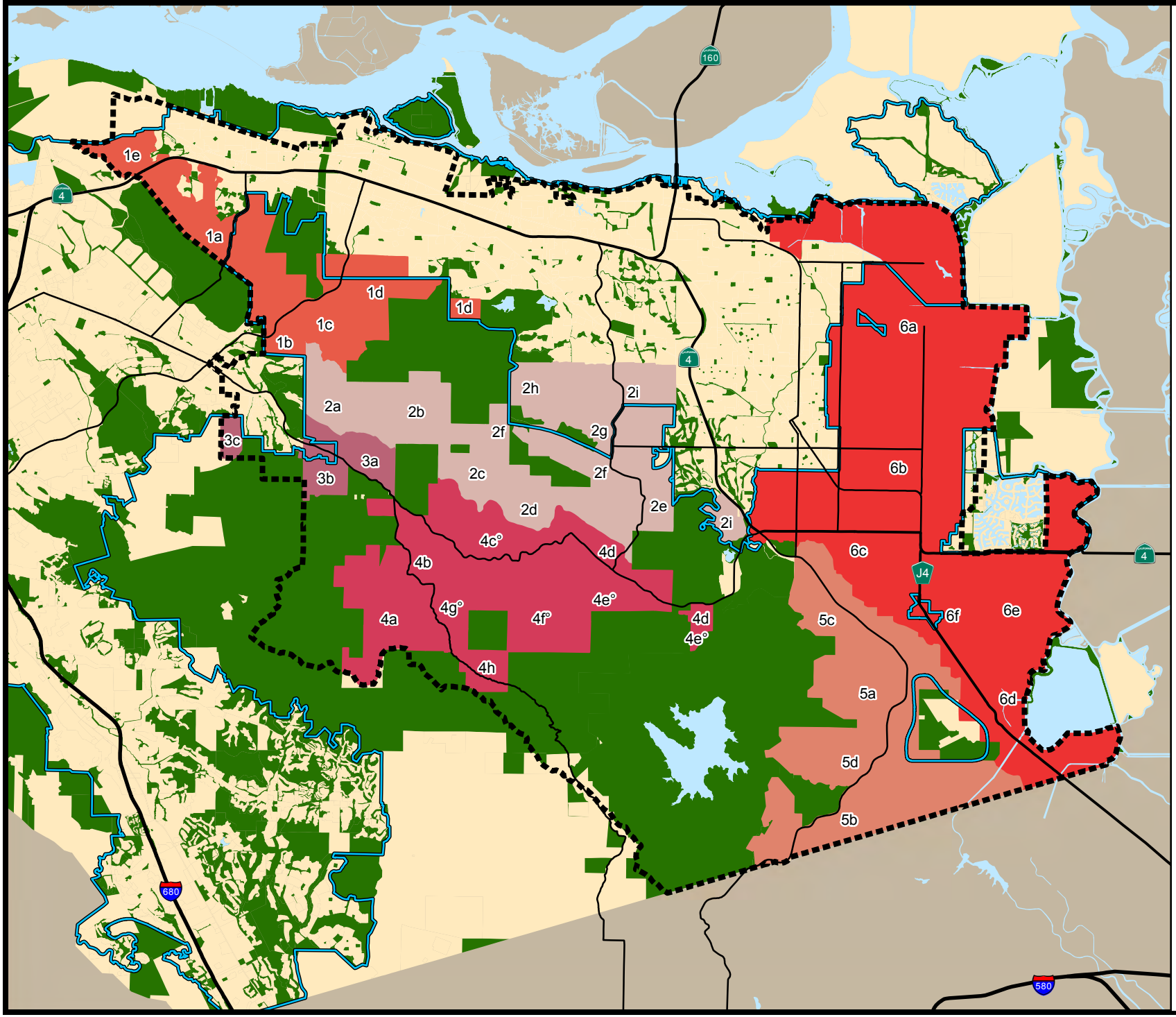
Acquisition Analysis Zones

To develop priorities and identify potential locations for acquisition, the inventory area was subdivided geographically into six Acquisition Analysis Zones (Zones; Figure 4). These Zones were further divided into Subzones to distinguish between important landscape features. Acquisition priorities for each Zone were developed primarily on the basis of the ecological opportunities and constraints for collectively achieving the biological goals and objectives for covered species, natural communities, and landscapes.

Land Acquisition Requirements by Acquisition Zone

To ensure that acquisition occurs in locations that will maximize the benefits to natural communities and covered species, acquisition requirements are defined by Zone and, in some cases, by Subzone. The priorities for land acquisition within the Zones under the Initial Urban Development area are shown in Figure 5. Land acquisition priorities under the Maximum Urban Development Area are shown in Figure 6. The differences between the acquisition priorities for the two urban development areas are in Zones 4, 5, and 6. There are no differences between the acquisition priorities for the two urban development scenarios in Zones 1, 2, and 3.

Figure 4. Acquisition Analysis Zones and Sub-Zones



Legend

Inventory Area

County Urban Limit Line

Parks, Urban Parks, Public Watershed Lands and Open Space (includes deed restricted open space and open space from General Plans.)

Acquisition Analysis Zones

1
2
3
4
5
6

N

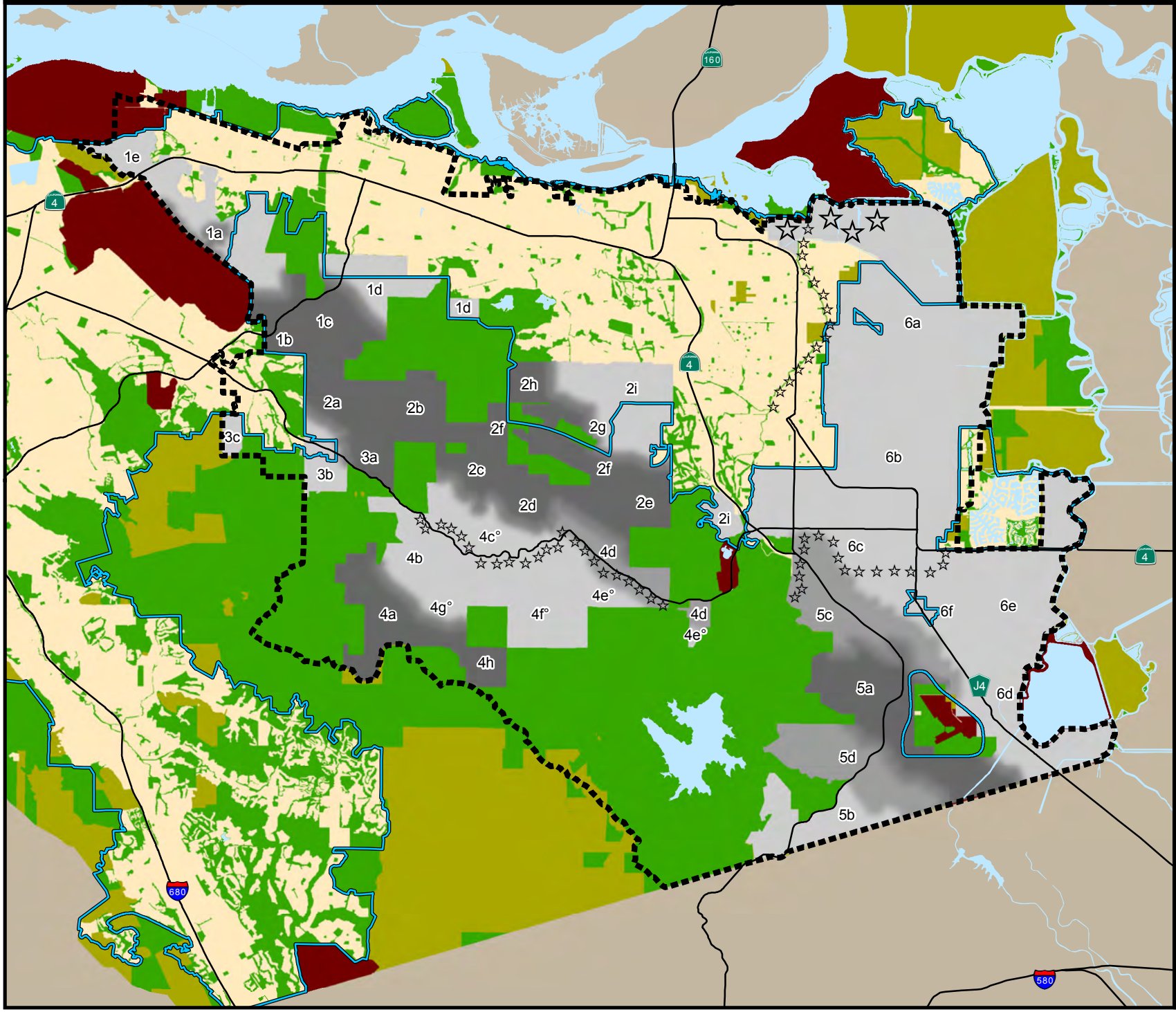
Miles

2 1 0 2

03/13/2018

East Contra Costa County Habitat Conservancy

Figure 5. Acquisition Priorities Under Initial Urban Development Area Scenario



Legend

Inventory Area

County Urban Limit Line

Level of Acquisition Effort

Lower

Medium 1a *Sub-Zone*

Higher

Please see Chapter 5 of the NCCP/HCP for additional information on the purpose of this map.

Land Use Designations Outside Acquisition Analysis Zones

Parks, Urban Parks, Open Space, and Public Watershed

Public Facilities with Undeveloped Land

Agricultural Land Uses

Development Land Uses

☆ Additional key restoration priorities

Extensive restoration is also planned within areas also emphasized for acquisition

○ Some acquisitions in subzones 4c, 4e, 4f, 4g are interchangable

N

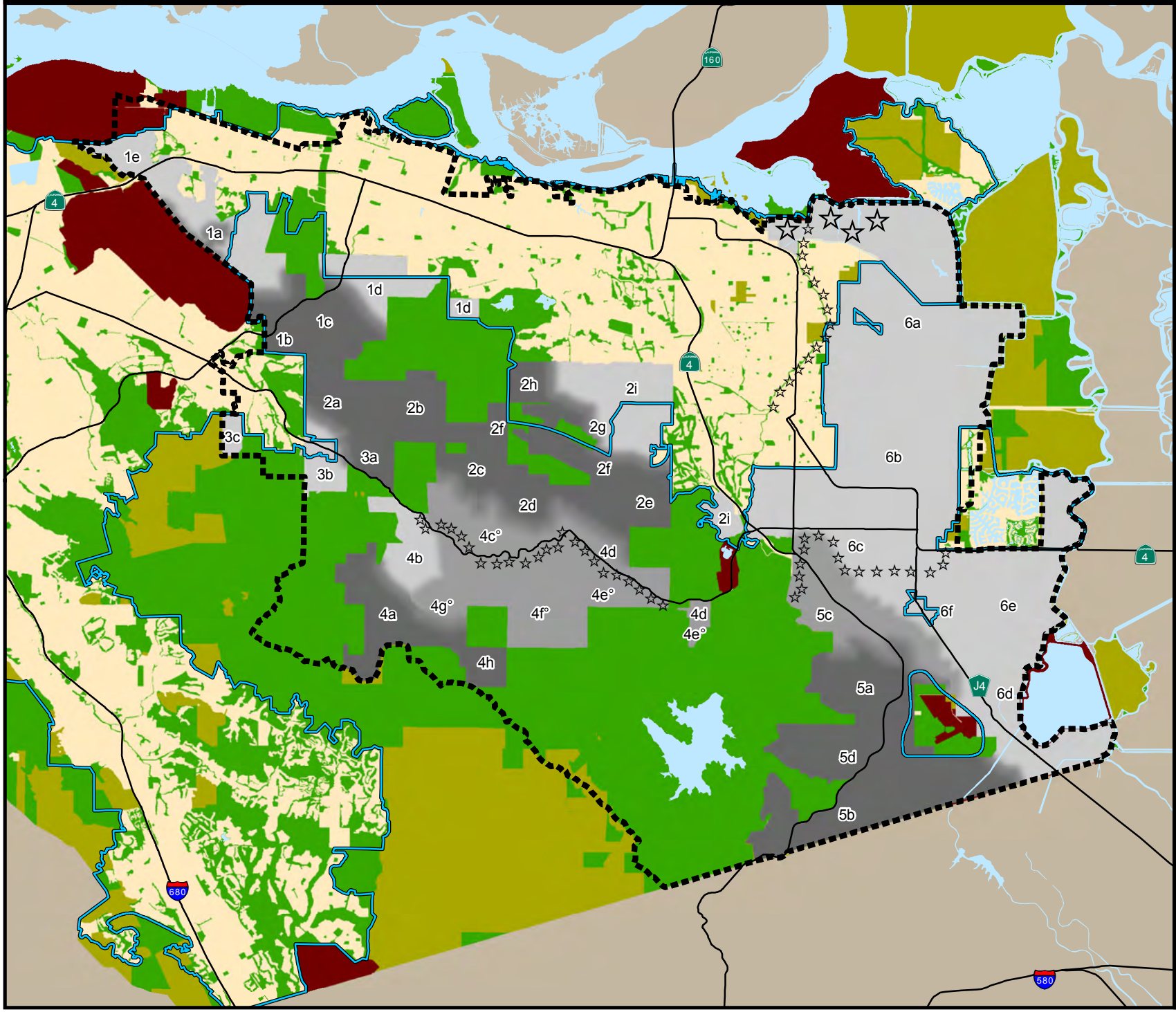
Miles

2 1 0 2

East Contra Costa County Habitat Conservancy

03/13/2018

Figure 6. Acquisition Priorities Under Maximum Urban Development Area Scenario



Legend

Inventory Area

County Urban Limit Line

Level of Acquisition Effort

Lower

Medium 1a *Sub-Zone*

Higher

Please see Chapter 5 of the NCCP/HCP for additional information on the purpose of this map.

Land Use Designations Outside Acquisition Analysis Zones

Parks, Urban Parks, Open Space, and Public Watershed

Public Facilities with Undeveloped Land

Agricultural Land Uses

Development Land Uses

☆ Additional key restoration priorities

Extensive restoration is also planned within areas also emphasized for acquisition

○ Some acquisitions in subzones 4c, 4e, 4f, 4g are interchangable

N

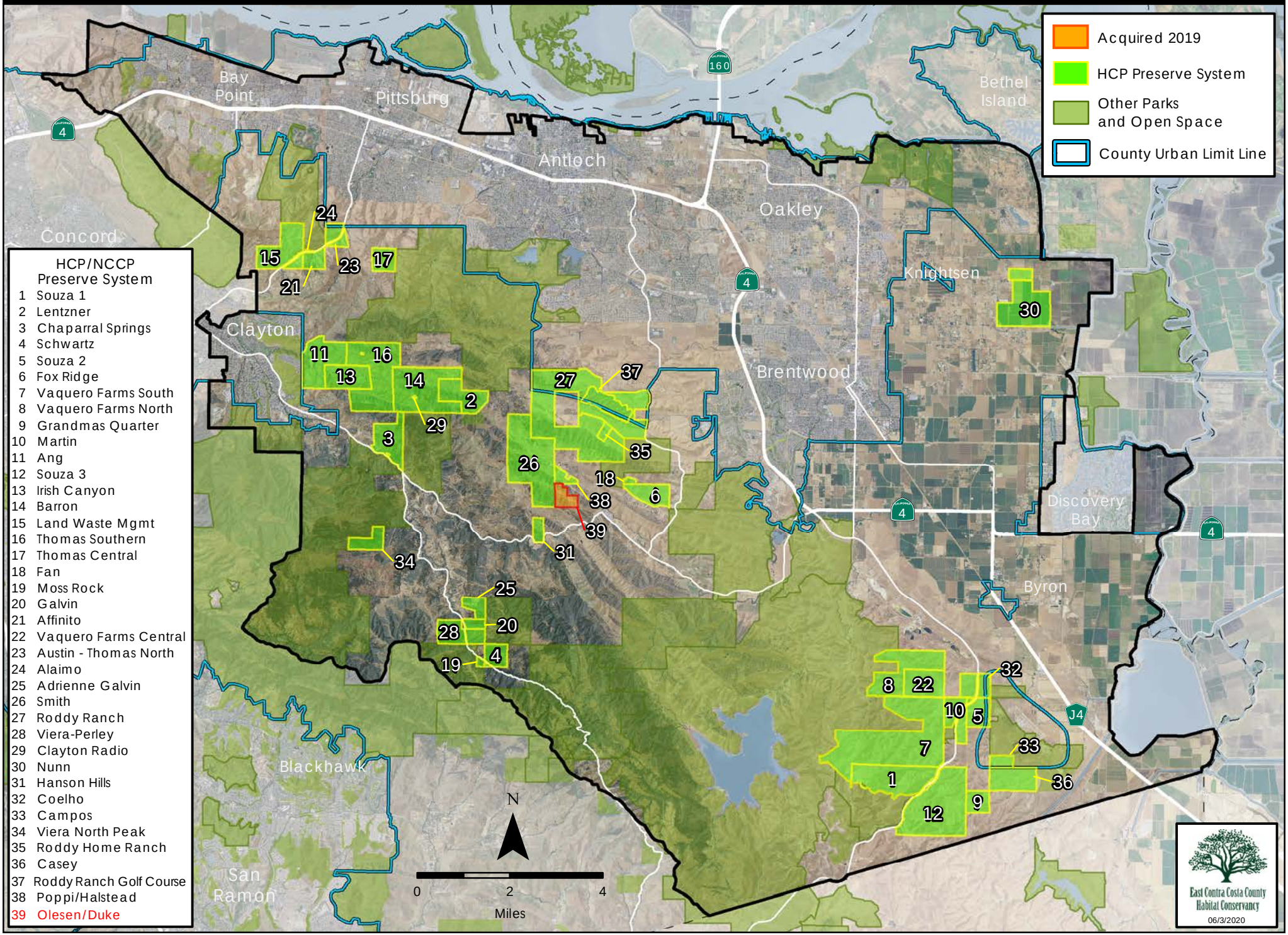
Miles

2 1 0 2

03/13/2018

East Contra Costa County Habitat Conservancy

Figure 7. Acquisitions Completed under HCP/NCCP as of December 31. 2019



In addition to quantitative land acquisition requirements by land cover type and Zone, qualitative land acquisition requirements are also provided for some Zones. For instance, connection to existing public lands or preservation of a certain number of ponds or covered plant populations are required.

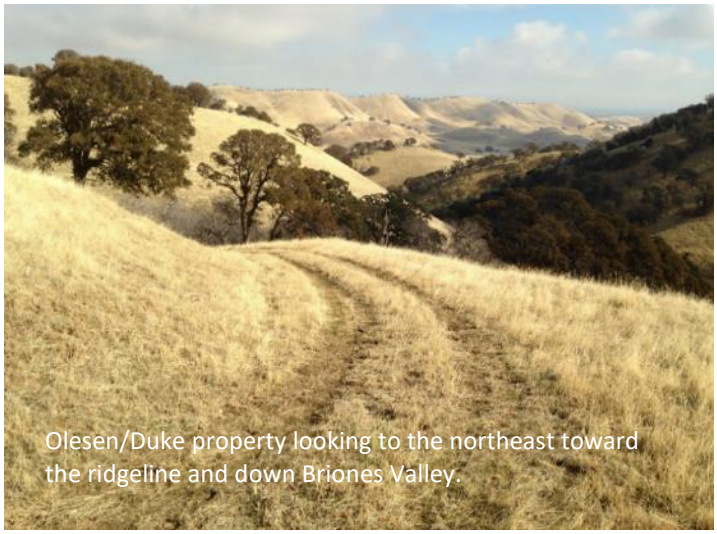
2019 Land Acquisition

The Conservancy acquired one property in 2019 for the Preserve System: the Olesen/Duke property, totaling approximately 115 acres. The Property is shown in Figure 7, with details of the property shown in Figures 8 through 11. Table 7 is the cumulative summary of acquired properties and their funding sources.

Tables 8a, 8b, and 9 details the land cover types protected by the acquisition .

Olesen/Duke Property

The 115-acre Olesen/Duke property is located in Zone 2, Subzone 2d, with a small portion in Zone 4, Subzone 4c. The property is located in Briones Valley, roughly 7 miles west of Brentwood, and approximately 2.2 miles from the Deer Valley Road intersection. The Property is adjacent to the Poppi/Halstead property that was acquired in 2018 to the north, and the Smith property that was acquired for the Preserve System in 2014 to the west.



Olesen/Duke property looking to the northeast toward the ridgeline and down Briones Valley.

The Olesen/Duke property is comprised of three parcels. The parcels have predominately moderate to steep sloping topography. The overall elevation change is from approximately 500 feet to 900 feet, and there are no major improvements.

The Olesen/Duke property is identified in the HCP/NCCP as high priority for acquisition. Briones Valley is identified in the HCP/NCCP as one of the potential movement routes for San Joaquin kit fox. The movement route is approximately 5 miles long, 4.5 miles of which traverses private land (at the time the HCP/NCCP was written). Development of rural ranchettes in lower Briones Valley threatens to fragment grassland habitat within the valley. Suitable core habitat through most of Briones Valley is more than 0.5 miles wide but is discontinuous at one end. At the northwest end of Briones Valley, suitable core habitat narrows to less than 0.1 mile. Briones Valley is an important secondary movement route for kit fox in the HCP/NCCP conservations strategy.

The acquisition protects critical land in the wildlife corridor connecting Black Diamond Mines Regional Preserve to Marsh Creek State Park, Round Valley Regional Preserve, and Los Vaqueros Reservoir watershed lands.

The Property also offers recreational benefits. Acquisition of the Property will support a key goal of EBRPD's Master Plan: creating a park in Deer Valley.

Preservation Requirements Progress

Table 10 summarizes progress toward preservation requirements of covered plant populations.[2] To date, 55 known occurrences of covered plant populations have been protected in the Preserve System. During the reporting period, the Olesen/Duke property was surveyed for covered plants in March, April, May, and June. During plant surveys in 2019 on the Olesen/Duke property, one covered plant species, Brewer's dwarf flax (*Hesperolinon breweri*), was observed.

Hesperolinon brewerii on the Olesen/Duke property
Photo Credit: Nomad Ecology

Table 11 describes land acquisition, species habitat, and covered plant preservation requirements by Zone and/or Subzone. The table shows progress toward land acquisition requirements within all six Zones and their Subzones. Key highlights include the following acquisition achievements to date.

52% of Zone 2 requirement to protect annual grassland and chaparral habitats was met.

50% of Zone 4 requirement to protect chaparral/scrub was met.

19% of Zone 5 requirement to protect alkali grassland was met.

54% of Zone 5 requirement to protect alkali wetland was met.

48% of the estimated minimum overall land acquisition requirement and 37% of the estimated maximum requirement were met.

A Note on Property Acreages

All acreage figures provided in this section were derived from the Conservancy's geographic information system (GIS). GIS measurements typically do not match the acreage stated in deeds and legal descriptions. Because the existing parcel data is not necessarily accurate in rural areas,

[2] The reported covered plant populations include only those occurrences confirmed in annual inventories. As such, plant populations acquired in the current reporting year may not be included if an inventory has not yet been conducted.

the Conservancy uses a variety of techniques to better map the boundaries of the acquired properties. These techniques include aerial photography and descriptions of metes and bounds. Following these refinements, GIS acreage calculations and those reported in deeds may differ. Any remaining discrepancies are probably related to discrepancies in assessor parcel maps, inaccurate fence line placement, and errors made in original and sometimes very old surveys. GIS acreages are used in this section because GIS is the only practical means of reliably measuring the amount of land cover and the other features within each property.

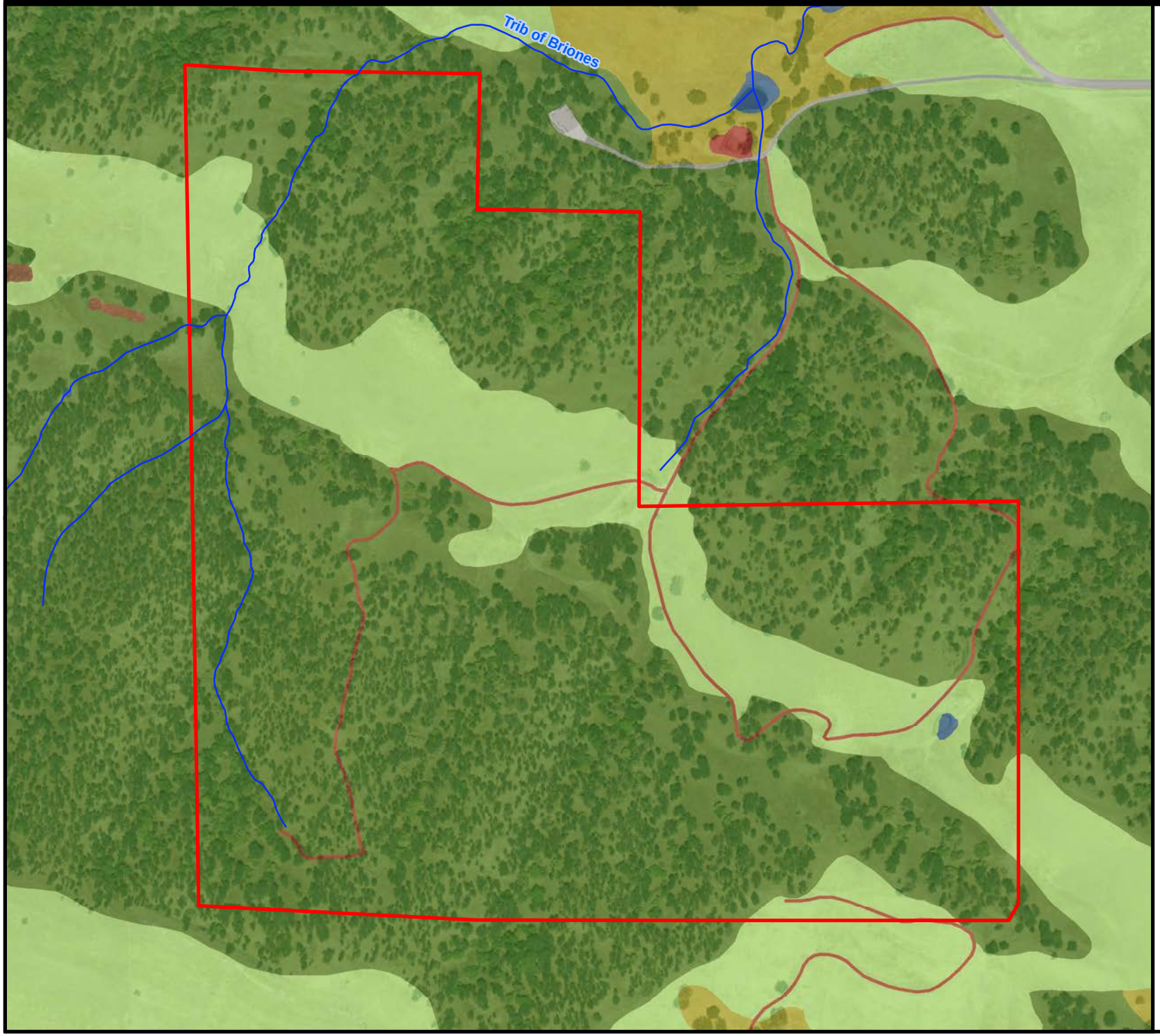
A Note on Land Cover Mapping Refinements and Cumulative Acreages

The Conservancy revises its GIS land cover mapping in the Preserve System as survey and inventory of these lands progress. These revisions can result in changes to cumulative acreages from year to year.

Pre-Existing Conservation Easements

The Plan provides the Conservancy the choice of counting or not counting the areas within conservation easements toward conservation requirements. If they are counted, the impacts associated with the development projects mitigated by these conservation easements must be counted toward impact allocations. Acreages of acquired lands that are not counted as preserved due to existing conservation easements or development restrictions are shown in Table 8a. Additionally, the acreage as mapped in GIS by the Conservancy once a site is acquired is often different from the acreage recorded by the County Assessor. As such, this accounts for differences between deeded acres as presented in Table 7 and GIS acres presented in tables 8a, 8b, 9, 11, and 12. Generally, the acreages presented in the text of this annual report are acres mapped in GIS.

Figure 8. Olesen-Duke Property - Landcover Map



Legend

Property Boundary

Landcover

Grassland

- grassland (22.66 acres)
- alkali grassland
- ruderal (1.2 acres)

Wetland

- permanent wetland
- seasonal wetland
- alkali wetland

Aquatic

- stream (2,887 feet)
- aquatic/open water
- pond (0.09 acres)
- slough/channel
- riparian
- chaparral
- oak savanna
- oak woodland (90.94 acres)
- rock outcrops

Irrigated Agriculture

- pasture
- cropland
- vineyard

Developed

- urban
- aqueduct
- wind turbines

N

06/03/2020

East Contra Costa County Habitat Conservancy

Feet

0 350 700

Figure 9. Olesen-Duke Representative Photographs

Photo 1: View from the Property looking northwest toward across the Property toward the Smith property.

Photo 2: View from the Property looking in a northeast direction toward Briones Valley Road.

Photo 3: Oak trees located on the Property.

Photo 4: Oak trees along the hillside located on the Property.

Photo 5: View of the oak trees on the Property during the springtime.

Table 7. Cumulative Summary of Acquired Properties, Funding Sources, and Calculation for Non-Federal Match for Section 6 Grants

Souza 1

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 12/23/2004
Acres (deed): 616.92
Key land cover: Annual grassland, alkali grassland, seasonal wetland, alkali wetland, pond
Land Cost: $2,961,600

Funding Source	Funding Amount	2009 FMV	Section 6 Match
EBRPD (tax revenues)	$361,600	$339,427	no
Moore Foundation grant	$1,500,000	$1,408,023	yes
EBRPD REP Program	$1,461,600	$1,371,977	no
TOTAL	$2,961,600	$2,780,000	

Section 6 Match: $1,408,023

Lentzner

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 3/4/2005
Key land cover: Annual grassland, oak savanna, oak woodland, chaparral, alkali grassland, seasonal wetland, alkali wetland, pond
Acres (deed): 320
Land Cost: $960,000

Funding Source	Funding Amount	2009 FMV	Section 6 Match
EBRPD	$270,402	$377,436	yes
Prop 40 Per capita	$273,000	$381,063	yes
EBRPD REP Program	$416,598	$581,501	no
TOTAL	$960,000	$1,340,000	

Section 6 Match from this acq: $758,499
Cumulative Remaining Match: $2,166,521

Chaparral Spring

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 12/23/2008
Key land cover: Annual grassland, oak savanna, oak woodland, chaparral, seasonal wetland, pond
Acres (deed): 333
Land Cost: $1,400,000

Funding Source	Funding Amount	2009 FMV	Section 6 Match
California Coastal Conservancy	$1,400,000	$1,400,000	yes
TOTAL	$1,400,000	$1,400,000	

Section 6 Match from this acq: $1,400,000
Cumulative Remaining Match: $3,566,521

Schwartz

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 6/9/2009
Acres (deed): 152.24
Key land cover: Oak woodland, chaparral, annual grassland, streams and oak savanna
Appraised Value: $803,880
Purchase Price: $803,880

Funding Source	Funding Amount	Percent	Section 6 Match
EBRPD	$127,249	16%	no
US Bur Rec CVPCP Grant	$676,631	84%	no
TOTAL	$803,880	100%	

Cumulative Remaining Match: $3,566,521

Souza 2

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 7/30/2009
Acres (deed): 190.56
Key land cover: Annual grassland, alkali grassland, seasonal wetland
Land Cost: $1,692,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$200,000	12%	yes
Conservancy (mitigation fees)	$730,600	43%	no
US Bur Rec CVPCP Grant	$550,000	33%	no
SWRCB Grant	$211,400	12%	yes
TOTAL	$1,692,000	100%	

Section 6 Match from this acq: $411,400
Cumulative Remaining Match: $3,977,921

Fox Ridge

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 12/30/2009
Acres (deed): 221.13
Key land cover: Annual grassland, seasonal wetland, oak savanna
Appraised Value: $1,960,000
Purchase Price: $1,760,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$250,000	14%	yes
Conservancy (mitigation fees)	$75,000	4%	no
Moore Foundation	$880,000	50%	yes
Section 6 Grant (FY07)	$555,000	32%	no
TOTAL	$1,760,000	100%	

Non-Federal Match Needed: $678,333 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$250,000
Moore Foundation	$880,000
Bargain sale (seller donation)	$200,000
TOTAL	$1,330,000

Excess match from this acq: $651,667

Cumulative Remaining Match: $4,629,588

Vaquero Farms South

Acquired by: EBRPD in partnership with Conservancy

Table 7. Cumulative Summary of Acquired Properties, Funding Sources and Calculation of Non-Federal Match for Section 6 Grants

Date Acquired: 12/31/2009
Acres (deed): 1,644.21
Key land cover: Annual grassland, alkali grassland, seasonal wetland, alkali wetland, pond
Appraised value: $3,160,000
Purchase price: $2,924,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$500,000	17%	yes
Conservancy (mitigation fees)	$250,000	9%	no
Section 6 Grant (FY06)	$2,174,000	74%	no
TOTAL	$2,924,000	100%	

Non-Federal Match Needed: $2,657,111 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*	
EBRPD	$500,000	
Bargain sale (seller donation)	$236,000	
Match from prior acquisitions	$1,921,111	(Souza 1 and Lentzner)
TOTAL	$2,657,111	

Cumulative Remaining Match: $2,708,477

Vaquero Farms North

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 6/29/2010
Acres (deed): 577
Key land cover: Annual grassland, alkali grassland, seasonal wetland, alkali wetland, pond
Appraised value: $2,786,000
Land Cost: $2,770,000

Funding Source	Funding amount	Percent
Section 6 Grant (FY06)	$2,770,000	100%
TOTAL	$2,770,000	100%

Non-Federal Match Needed: $3,385,556 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*	
Bargain sale (seller donation)	$16,000	
SWRCB grant for restoration	$150,000	
DFG Grants for restoration	$150,000	
In-kind match	$361,079	(due diligence and habitat enhancement on Souza 1, Souza 2, Lentzner)
Match from prior acquisitions	$2,708,477	(Souza 1, Souza 2, Chaparral Spring, Fox Ridge)
TOTAL	$3,385,556	

Cumulative Remaining Match: $0

Martin

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 7/16/2010
Acres (deed): 232.41
Key land cover: Annual grassland, seasonal wetland, permanent wetland, creek
Appraised Value: $2,745,395
Purchase Price: $2,745,395

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$1,629,816	59%	yes
Section 6 Grant (FY06)	$1,115,579	41%	no
TOTAL	$2,745,395	100%	

Non-Federal Match Needed: $1,363,485 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$1,629,816
TOTAL	$1,629,816

Excess match from this acq: $266,331

Grandma's Quarter

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 7/16/2010
Acres (deed): 157
Key land cover: Annual grassland, alkali grassland, pond, seasonal wetland, creek
Appraised Value: $1,036,200
Purchase Price: $1,036,200

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$564,725	54%	yes
Section 6 Grant (FY06)	$471,475	46%	no
TOTAL	$1,036,200	100%	

Non-Federal Match Needed: $576,247 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
Match from prior acquisitions	$11,522
EBRPD	$564,725
TOTAL	$576,247

Cumulative Remaining Match: $254,808

Ang

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 8/9/2010
Acres: 460.64
Key land cover: Annual grassland, oak savanna, oak woodland, pond, riparian, creek
Appraised Value: $2,856,000
Purchase Price: $2,763,840

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$1,520,115	55%	yes
Section 6 Grant (FY07)	$1,243,725	45%	no
TOTAL	$2,763,840	100%	

Non-Federal Match Needed: $1,520,108 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$1,520,115
Bargain sale (seller donation)	$92,160
TOTAL	$1,612,275

Excess match from this acq: $92,167
Cumulative Remaining Match: $346,975

Souza 3

Acquired by: EBRPD in partnership with Conservancy (EBRPD purchased CE area solely)
Date acquired: 10/22/2010
Acres: 1,021.34
Non-CE Acres: 910.84
CE Acres: 110.50
Key land cover: Annual grassland, seasonal wetland, permanent wetland, creek
Appraised Value: $5,300,400
Non-CE value: $5,224,425
CE area value: $75,975
Purchase Price: $5,300,400

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$915,220	18%	yes
Moore Foundation	$2,000,000	38%	yes
Section 6 Grant (FY07)	$2,385,180	46%	no
TOTAL	$5,300,400	101%	

Non-Federal Match Needed: $2,915,220 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
Moore Foundation	$2,000,000
EBRPD	$915,220
TOTAL	$2,915,220

Non-Easement

Funding Source	Funding amount
EBRPD	$839,245
Moore Foundation	$2,000,000
Section 6 Grant (FY07)	$2,385,180
TOTAL	$5,224,425

Souza 3 Conservation Easement Area

Funding Source	Funding amount
EBRPD	$75,975

Cumulative Remaining Match: $346,975

Irish Canyon - Chopra

Acquired by: EBRPD in partnership with Conservancy

Date acquired: 11/24/2010
Acres: 320
Key land cover: Annual grassland, oak savanna, oak woodland, pond, riparian, creek
Appraised Value: $1,760,000
Purchase Price: $842,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$50,000	3%	yes
Section 6 Grant (FY07)	$792,000	45%	no
TOTAL	$842,000	100%	

Non-Federal Match Needed: $968,000 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
Bargain sale (seller donation)	$918,000
EBRPD	$50,000
TOTAL	$968,000

Cumulative Remaining Match: $346,975

Barron

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 3/30/2011
Acres: 798
Key land cover: Annual grassland, oak woodlands, oak savanna, chaparral/scrub, ponds, seasonal wetlands and streams
Appraised Value: $2,952,600
Purchase Price: $2,952,600

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$650,000	22%	yes
WCB Proposition 84	$973,930	33%	yes
Section 6 Grant (FY07)	$1,328,670	45%	no
TOTAL	$2,952,600	100%	

Non-Federal Match Needed: $1,623,930 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 84	$973,930
EBRPD	$650,000
TOTAL	$1,623,930

Cumulative Remaining Match: $346,975

Land Waste Management

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/26/2011
Acres (deed): 469.41
Key land cover: Annual grassland, alkali grassland, oak savanna, oak woodland, alkali wetland, permanent and seasonal wetland, ponds, riparian areas, and streams
Appraised Value: $3,050,000
Purchase Price: $3,050,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$1,177,500	39%	yes
IRWMP Grant from SWRCB	$500,000	16%	yes
Section 6 Grant (FY08)	$1,372,500	45%	no
TOTAL	$3,050,000	110%	

Non-Federal Match Needed: $1,677,500 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$1,177,500
IRWMP Grant from SWRCB	$500,000
TOTAL	$1,677,500

Cumulative Remaining Match: $346,975

Thomas Southern/Austin 1

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 9/27/2011; lease 3/31/10
Acres (deed): 852.33
Key land cover: Annual grassland, oak woodland, chaparral, oak savanna, ponds, and streams
Appraised Value: $3,240,000
Purchase Price: $3,240,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$324,000	10%	yes
WCB Proposition 84	$1,562,166	48%	yes
Section 6 Grant (FY07)	$695,425	21%	no
Section 6 Grant (FY08)	$658,409	20%	no
TOTAL	$3,240,000	100%	

Non-Federal Match Needed: $1,654,686 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$324,000
WCB Proposition 84	$1,562,166
TOTAL	$1,886,166

Excess match from this acq: $231,480
Cumulative Remaining Match: $578,455

Thomas Southern/Austin 1 - PG&E lease revenue

Appraised Value: $530,000
Purchase Price: $530,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$53,000	10%	yes
Section 6 Grant (FY08)	$477,000	90%	no
TOTAL	$530,000	100%	

Non-Federal Match Needed: $583,000 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*	
EBRPD (tax revenues)	$53,000	
Match from prior acquisitions	$530,000	(Thomas Southern/Austin 1, Ang, Martin)
TOTAL	$583,000	

Thomas Central/Austin 2

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 9/27/2011; lease 3/31/10
Acres (deed): 160
Key land cover: Annual grassland, ponds, wetlands, and streams
Appraised Value: $624,000
Purchase Price: $624,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$62,400	10%	yes
WCB Proposition 84	$280,800	45%	yes
Section 6 Grant (FY08)	$280,800	45%	no
TOTAL	$624,000	100%	

Non-Federal Match Needed: $343,200 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$62,400
WCB Proposition 84	$280,800
TOTAL	$343,200

Affinito

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 2/24/2012
Acres (deed): 116.49
Key land cover: Annual grassland, oak savanna, oak woodland, chaparral, pond, creek
Appraised Value: $2,235,000
Purchase Price: $2,235,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$223,500	10%	yes
WCB Proposition 84	$1,005,750	45%	yes
Section 6 Grant (FY08)	$1,005,750	45%	no
TOTAL	$2,235,000	100%	

Non-Federal Match Needed: $1,229,250 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$223,500
WCB Proposition 84	$1,005,750
TOTAL	$1,229,250

Vaquero Farms Central

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 3/5/2012
Acres (deed): 319.93
Key land cover: Annual grassland, alkali grassland, alkali wetland, pond
Appraised Value: $2,464,000
Purchase Price: $2,400,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$240,000	10%	yes
G&B Moore Foundation	$850,000	35%	yes
WCB Proposition 84	$230,000	9%	yes
Section 6 Grant (FY10)	$1,080,000	45%	no
TOTAL	$2,400,000	100%	

Non-Federal Match Needed: $1,320,000 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$240,000
G&B Moore Foundation	$850,000
WCB Proposition 84	$230,000
TOTAL	$1,320,000

Galvin

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 1/30/2012
Acres (deed): 61.68
Key land cover: Annual grassland, chaparral/scrub, oak savanna, oak woodland, creek
Appraised Value: $370,000
Purchase Price: $370,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$37,000	10%	yes
G&B Moore Foundation	$166,500	45%	yes
Section 6 Grant (FY08)	$166,500	45%	no
TOTAL	$370,000	100%	

Non-Federal Match Needed: $203,500 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$37,000
G&B Moore Foundation	$166,500
TOTAL	$203,500

Table 7. Cumulative Summary of Acquired Properties, Funding Sources and Calculation of Non-Federal Match for Section 6 Grants

Moss Rock

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 1/30/2012
Acres (deed): 20.49
Key land cover: Oak woodland, creek
Appraised Value: $410,000
Purchase Price: $410,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$41,000	10%	yes
G&B Moore Foundation	$184,500	45%	yes
Section 6 Grant (FY08)	$184,500	45%	no
TOTAL	$410,000	100%	

Non-Federal Match Needed: $225,500 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$41,000
G&B Moore Foundation	$184,500
TOTAL	$225,500

Fan

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 1/31/2012
Acres (deed): 21
Key land cover: Oak woodland, creek
Appraised Value: $220,000
Purchase Price: $220,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$22,000	10%	yes
G&B Moore Foundation	$99,000	45%	yes
Section 6 Grant (FY08)	$99,000	45%	no
TOTAL	$220,000	100%	

Non-Federal Match Needed: $121,000 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$22,000
G&B Moore Foundation	$99,000
TOTAL	$121,000

Thomas North

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 11/2/2012
Acres (deed): 134.98
Key land cover: Grassland, stream, wetland
Appraised Value: $863,900
Purchase Price: $863,900

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$86,390	10%	yes
WCB Proposition 84	$388,755	45%	yes
Section 6 Grant (FY08)	$388,755	45%	no
TOTAL	$863,900	100%	

Non-Federal Match Needed: $475,145 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*	
WCB Proposition 84	$388,755	
EBRPD	$86,390	
TOTAL	$475,145	

Alaimo

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/15/2013
Acres (deed): 2.31
Key land cover: Stream, Urban (with restoration potential)
Appraised Value: $185,000
Purchase Price: $185,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$18,500	10%	yes
Section 6 Grant (FY08)	$166,500	90%	no
TOTAL	$185,000	100%	

Non-Federal Match Needed: $203,500 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*	
EBRPD	$18,500	
In-kind match	$185,500	(prior due diligence and habitat enhancement)
TOTAL	$204,000	

Adrienne Galvin

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/30/2013
Acres (deed): 111.95
Key land cover: Oak Woodland, grassland
Appraised Value: $1,134,400
Purchase Price: $1,134,400

Proposed Funding Source	Funding amount	Percent	Section 6 Match
Section 6 Grant (FY08)	$1,134,400	100%	no
TOTAL	$1,134,400	100%	

Non-Federal Match Needed: $1,386,489 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*	
In-kind match	$1,386,489	(prior due diligence and habitat enhancement)
TOTAL	$1,386,489	

Smith

Acquired by: EBRPD in partnership with Conservancy

Date acquired: 7/15/2014
Acres (deed): 960
Key land cover: Oak Woodland, grassland
Appraised Value: $5,376,000
Purchase Price: $5,376,000

Source	Funding amount	Percent	Section 6 Match
WCB Proposition 84	$2,260,275	42%	yes
EBRPD	$537,600	10%	yes
Section 6 Grant (FY10)	$2,578,125	48%	no
TOTAL	$5,376,000	100%	

Non-Federal Match Needed: $3,151,042 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 84	$2,260,275
EBRPD	$537,600
Match from Roddy Ranch	$353,167
TOTAL	$3,151,042

Roddy Ranch

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 7/24/2014
Acres (deed): 1,885.20
Key land cover: Oak Woodland, grassland
Appraised Value: $14,245,000
Purchase Price: $14,245,000

Source	Funding amount	Percent	Section 6 Match
WCB Proposition 84	$4,841,875	34%	yes
EBRPD	$3,561,250	25%	yes
G&B Moore Foundation Grant	$1,000,000	7%	yes
Section 6 Grant (FY09)	$2,500,000	17.5%	no
Section 6 Grant (FY10)	$2,341,875	16.5%	no
TOTAL	$14,245,000	100%	

Non-Federal Match Needed: $5,917,847 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 84	$4,841,875
EBRPD	$3,561,250
G&B Moore Foundation Grant	$1,000,000
TOTAL	$9,403,125

Viera/Perley

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/30/2015
Acres (deed): 260.00
Key land cover: Oak woodland, oak savanna
Appraised Value: $1,950,000
Purchase Price: $1,950,000

Source	Funding amount	Percent	Section 6 Match
EBRPD	$195,000	10%	yes
Section 6 Grant (FY11)	$877,500	45%	no
WCB Prop. 84	$877,500	45%	yes
TOTAL	$1,950,000	100%	

Non-Federal Match Needed: $1,072,500 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 84	$877,500
EBRPD	$195,000
TOTAL	$1,072,500

Clayton Radio LLC

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/30/2015
Acres (deed): 2.02
Key land cover: Grassland, oak woodland
Appraised Value: $117,000
Purchase Price: $117,000

Source	Funding amount	Percent
EBRPD	$29,250	25%
Conservancy (mitigation fees)	$87,750	75%
TOTAL	$117,000	100%

Nunn

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 1/29/2016
Acres (deed): 645.95
Key land cover: Cropland/pasture, wetlands
Appraised Value: $6,072,000
Purchase Price: $6,072,000

Source	Funding amount	Percent	Section 6 Match
EBRPD	$607,200	10%	yes
Section 6 Grant (FY11)	$2,732,400	45%	no
WCB Prop. 84	$2,732,400	45%	yes
TOTAL	$6,072,000	100%	

Non-Federal Match Needed: $3,339,600 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 84	$2,732,400
EBRPD	$607,200
TOTAL	$3,339,600

Hanson Hills

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 8/2/2016
Acres (deed): 76.46
Key land cover: Oak woodland, oak savanna
Appraised Value: $730,000
Purchase Price: $730,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD	$182,500	25%	yes
Section 6 Grant (FY11)	$547,500	75%	no
TOTAL	$730,000	100%	

Non-Federal Match Needed: $669,167 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD (tax revenues)	$182,500
Due diligence and closing costs	$147,211
Start-up Management	$339,456
TOTAL	$669,167

Coelho

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 12/20/2016
Acres (deed): 200.20
Key land cover: Annual grassland, alkali grassland
Appraised Value: $1,495,750
Purchase Price: $1,495,750

Source	Funding amount	Percent	Section 6 Match
EBRPD	$147,575	10%	yes
Section 6 Grant (FY11)	$306,536	20%	no
Section 6 Grant (FY12)	$567,400	38%	no
WCB Prop. 84	$454,239	30%	yes
Other	$20,000	1%	no
	$1,495,750	100%	

Non-Federal Match Needed: $752,922 (amount necessary to achieve 55:45 ratio of match (FY11); FY12 is 40:60)

Source	*Amount*
WCB Proposition 84	$454,239
EBRPD (tax revenues)	$147,575
Due diligence and closing costs	$29,633
Start-up Management	$121,475
TOTAL	$752,922

Table 7. Cumulative Summary of Acquired Properties, Funding Sources and Calculation of Non-Federal Match for Section 6 Grants

Campos

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 5/12/2017
Acres (deed): 80.00
Key land cover: Annual Grassland
Appraised Value: $560,000
Purchase Price: $520,000

Source	Funding amount	Percent	Section 6 Match
EBRPD	$52,000	10%	yes
Section 6 Grant (FY14)	$241,800	46.5%	no
WCB Prop. 117	$226,200	43.5%	yes
TOTAL	$520,000	100%	

Non-Federal Match Needed: $295,533 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 117	$52,000
EBRPD	$226,200
Due diligence and closing costs	$42,574
TOTAL	$320,774

Viera North Peak

Acquired by: Conservancy
Date acquired: 7/24/2017
Acres (deed): 165
Key land cover: Chaparral/scrub, oak woodland
Appraised Value: $1,080,000
Purchase Price: $1,080,000

Source	Funding amount	Percent	Section 6 Match
Section 6 Grant (FY12)	$432,600	40%	no
Section 6 Grant (FY15)	$220,400	20%	no
WCB Prop. 84	$427,000	40%	yes
TOTAL	$1,080,000	100%	

Non-Federal Match Needed: $557,778 (amount necessary to achieve 55:45 ratio of match (FY15); FY12 is 40:60)

Source	*Amount*
WCB Proposition 84	$427,000
Due diligence and pre-acq work	$42,557
Start-up mgmt and restoration	$88,221
TOTAL	$557,778

Roddy Home Ranch

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 10/20/2017
Acres (deed): 40
Key land cover: Annual Grassland
Appraised Value: $1,536,000
Purchase Price: $1,536,000

Source	Funding amount	Percent	Section 6 Match
EBRPD	$537,600	35%	yes
Section 6 Grant (FY14)	$680,600	44%	no
Section 6 Grant (FY15)	$10,600	1%	no
WCB Prop. 84	$307,200	20%	yes
TOTAL	$1,536,000	100%	

Non-Federal Match Needed: $844,800 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 84	$307,200
EBRPD	$537,600
TOTAL	$844,800

Casey

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 10/26/2017
Acres: 320.00
Key land cover: Annual Grassland, Alkali Grassland
Appraised Value: $2,480,000
Purchase Price: $2,400,000

Source	Funding amount	Percent	Section 6 Match
EBRPD (Tres Vaqueros)	$240,000	10%	no
Section 6 Grant (FY14)	$1,077,600	45%	no
WCB Prop. 84	$1,055,800	44%	yes
Contra Costa Avian Fund	$26,600	1%	
TOTAL	$2,400,000	100%	

Non-Federal Match Needed: $1,317,067 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
WCB Proposition 84	$1,055,800
Due diligence and closing	$57,760
Start-up mgmt and restoration	$203,507
TOTAL	$1,317,067

Roddy Ranch Golf Course

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/30/2018
Acres: 230
Key land cover: Annual Grassland, Ruderal
Appraised Value: $1,955,000
Purchase Price: $1,955,000

Source	Funding amount	Percent	Section 6 Match
EBRPD	$20,000	1%	yes
Section 6 Grant (FY15)	$879,750	45%	no
WCB Prop. 84	$1,055,250	54%	yes
TOTAL	$1,955,000	100%	

Non-Federal Match Needed: $1,075,250 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	*$20,000*
WCB Proposition 84	$1,055,250
TOTAL	$1,075,250

Poppi/Halstead

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 11/9/2018
Acres: 71.99
Key land cover: Annual Grassland, Ruderal
Appraised Value: $725,000
Purchase Price: $725,000

Source	Funding amount	Percent	Section 6 Match
EBRPD	$348,000	48%	yes
Section 6 Grant (FY15)	$377,000	52%	no
TOTAL	$725,000	100%	

Non-Federal Match Needed: $460,778 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$348,000
Due diligence and closing costs	$29,525
Start-up Management	$83,253
TOTAL	$460,778

Olesen/Duke

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 7/18/2019
Acres: 114.89
Key land cover: Annual Grassland, Oak Woodland, Pond
Appraised Value: $1,080,000
Purchase Price: $1,080,000

Source	Funding amount	Percent	Section 6 Match
EBRPD	$467,750	43%	yes
Section 6 Grant (FY15)	$512,250	47%	no
WCB Prop. 84	$100,000	9%	yes
TOTAL	$1,080,000	100%	

Non-Federal Match Needed: $626,083 (amount necessary to achieve 55:45 ratio of match to Section 6)

Source	*Amount*
EBRPD	$467,750
WCB Proposition 84	$100,000
Due diligence and closing costs	$58,333
TOTAL	$626,083

Table 8a. Summary of Natural Community Protection, Restoration, and Creation by Land-Cover Type

	Land Cover Requirements[3] (acres)			Reporting Period (acres)				Cumulative (acres)				Percent Complete (%)		
Land Cover Type	Protection	Creation	Restoration	Protection	Existing Easement (no credit)	Creation	Restoration	Protection	Existing Easement (no credit)	Creation	Restoration	Protection	Creation	Restoration
Terrestrial														
Annual grassland	16,500	--	--	22.7	--	--	--	7,989.5	1,463.60	--	0.62	48%	--	--
Alkali grassland	1,250	--	--	--	--	--	--	276.8	17.50	--	0.02	22%	--	--
Ruderal	--	--	--	1.2	--	--	--	126.2	25.70	--	--	--	--	--
Chaparral and scrub	550	--	--	--	--	--	--	310.3	--	--	--	56%	--	--
Oak savanna	500	--	165	--	--	--	--	410.3	23.00	--	--	82%	--	0%
Oak woodland	400	--	--	90.9	--	--	--	2,582.5	131.60	--	--	646%	--	--
Subtotal terrestrial	*19,200*	*0.0*	*165*	*114.8*	*0.0*	*0.0*	*0.0*	*11,695.7*	*1,661.4*	*0.0*	*0.6*	*61%*	--	0%
Aquatic														
Riparian woodland/scrub	70	--	55	--	--	--	--	65.7	0.20	--	5.40	94%	--	10%
Perennial wetland[1]	75	--	85	--	--	--	--	5.4	5.80	--	0.16	7%	--	0%
Seasonal wetland	168	--	163	--	--	--	--	13.1	1.40	--	10.70	8%	--	7%
Alkali wetland	93	--	67	--	--	--	--	33.7	4.30	--	2.40	36%	--	4%
Pond	16	16	--	0.09	--	--	--	11.5	2.70	0.61	--	72%	4%	--
Reservoir (open water)[2]	12	6	--	--	--	--	--	0.0	0.00	--	--	0%	0%	--
Slough/Channel	36	--	72	--	--	--	--	3.1	0.00	--	--	9%	--	0%
Subtotal aquatic	*470*	*22*	*442*	*0.09*	*0.00*	*0.00*	*0.00*	*132.42*	*14.40*	*0.61*	*18.66*	*28%*	*3%*	*4%*
Stream (length in linear feet)														
Perennial	4,224	--	2,112	--	--	--	--	12,625.1	889.1	--	--	299%	--	0%
Intermittent	2,112	--	2,112	--	--	--	--	137,982.9	25,242.1	--	8,478.1	6533%	--	401%
Ephemeral[4]	26,400	--	26,400	278.6	--	--	--	67,948.6	877.8	--	0.0	257%	--	0%
Classification pending[4]	--	--	--	2608.4	--	--	--	89,220.2	16,445.3	--	2,267.2	--	--	--
Subtotal stream length	*32,736*	*0.0*	*30,624*	*2,887.0*	*0.0*	*0.0*	*0.0*	*307,776.8*	*43,454.3*	0.0	*10,745.3*	*940%*	--	*35%*
Irrigated agriculture														
Cropland	400	--	--	--	--	--	--	541.4	--	--	--	135%	--	--
Pasture	--	--	--	--	--	--	--	71.3	--	--	--	--	--	--
Orchard	--	--	--	--	--	--	--	0.1	--	--	--	--	--	--
Vineyard	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Subtotal irrigated agricultural	*400*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*612.8*	*0.0*	*0.0*	*0.0*	--	--	--
Other														
Nonnative woodland	--	--	--	--	--	--	--	0.7	--	--	--	--	--	--
Wind turbines	--	--	--	--	--	--	--	20.0	--	--	--	--	--	--
Subtotal other	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*20.7*	*0.0*	*0.0*	*0.0*	--	--	--
Developed														
Urban	--	--	--	--	--	--	--	60.6	0.8	--	--	--	--	--
Aqueduct	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turf	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Landfill	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Subtotal developed	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*60.6*	*0.8*	*0.0*	*0.0*	--	--	--

Table 8a. Summary of Natural Community Protection, Restoration, and Creation by Land-Cover Type

	Land Cover Requirements[3] (acres)			Reporting Period (acres)				Cumulative (acres)				Percent Complete (%)		
Land Cover Type	Protection	Creation	Restoration	Protection	Existing Easement (no credit)	Creation	Restoration	Protection	Existing Easement (no credit)	Creation	Restoration	Protection	Creation	Restoration
Uncommon Vegetation Types (subtypes of above land cover types)														
Purple needlegrass grassland	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wildrye grassland	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wildflower fields	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Squirreltail grassland	--	--	--	--	--	--	--	--	--	--	--	--	--	--
One-sided bluegrass grassland	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Serpentine grassland	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Saltgrass grassland (alkali grassland)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Alkali sacaton bunchgrass grassland	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other uncommon vegetation types	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Subtotal uncommon vegetation types	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	--	--	--
Uncommon Landscape Features or Habitat Elements														
Rock outcrop	--	--	--	--	--	--	--	18.2	4.5	--	--	--	--	--
Cave	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Springs/seeps	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Scalds	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand deposits	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mines (number)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Buildings (number)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potential nest sites (number)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Subtotal uncommon landscape features	--	--	--	*0.0*	*0.0*	*0.0*	*0.0*	*18.2*	*4.5*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Totals (excludes subtypes)														
Acres	--	--	--	114.9	0.0	0.0	0.0	12,540.3	1,681.1	0.6	19.3	--	--	--
Linear feet (Streams)	--	--	--	2,886.99	0.00	0.00	0.00	307,776.79	43,454.30	0.00	10,745.27	--	--	--

[1] Perennial wetlands are equivalent permanent wetlands.

[2] Reservoir (open water) is equivalent to aquatic.

[3] All land cover requirements assume the Maximum Urban Development Area scenario. The requirements for restoration and creation are dependent upon amount of impact. The requirements provided are based on the conservative estimates of wetland impacts provided in the Plan.

[4] Many of the streams identified as "classification pending" will ultimately be classified as ephemeral.

Table 8b. Reporting Period Summary of Natural Community Protection

	Olesen/Duke		Reporting Period Totals	
Land Cover Type	Protection	Existing Easement (No credit)	Protection	Existing Easement (No credit)
Terrestrial				
Annual grassland	22.7	0.0	22.7	0.0
Alkali grassland	0.0	0.0	0.0	0.0
Ruderal	1.2	0.0	1.2	0.0
Chaparral and scrub	0.0	0.0	0.0	0.0
Oak savanna	0.0	0.0	0.0	0.0
Oak woodland	90.9	0.0	90.9	0.0
Subtotal terrestrial	*114.8*	*0.0*	*114.8*	*0.0*
Aquatic				
Riparian woodland/scrub	0.00	0.0	0.00	0.00
Perennial wetland[1]	0.00	0.0	0.00	0.00
Seasonal wetland	0.00	0.0	0.00	0.00
Alkali wetland	0.00	0.0	0.00	0.00
Pond	0.09	0.0	0.09	0.00
Reservoir (open water)[2]	0.00	0.0	0.00	0.00
Slough/Channel	0.00	0.0	0.00	0.00
Subtotal aquatic	*0.09*	*0.00*	*0.09*	*0.00*
Stream (length in linear feet)				
Total stream length	2,887	0	2,887	0
Stream length by width category	0	0	0	0
≤ 25 feet wide	0	0	0	0
> 25 feet wide	0	0	0	0
Stream length by type and order	0	0	0	0
Perennial	0	0	0	0
Intermittent	0	0	0	0
Ephemeral	279	0	279	0
Classification pending	2,608	0	2,608	0
Subtotal stream length	*2,887*	*0*	*2,887*	*0*
Irrigated agriculture				
Cropland	0.0	0.0	0.0	0.0
Pasture	0.0	0.0	0.0	0.0
Orchard	0.0	0.0	0.0	0.0
Vineyard	0.0	0.0	0.0	0.0
Subtotal irrigated agricultural	*0.0*	*0.0*	*0.0*	*0.0*
Other				
Nonnative woodland	0.0	0.0	0.0	0.0
Wind turbines	0.0	0.0	0.0	0.0
Subtotal other	*0.0*	*0.0*	*0.0*	*0.0*
Developed				
Urban	0.0	0.0	0.0	0.0
Aqueduct	0.0	0.0	0.0	0.0
Turf	0.0	0.0	0.0	0.0
Landfill	0.0	0.0	0.0	0.0
Subtotal developed	*0.0*	*0.0*	*0.0*	*0.0*

	Olesen/Duke		Reporting Period Totals	
Land Cover Type	Protection	Existing Easement (No credit)	Protection	Existing Easement (No credit)
Uncommon Vegetation Types (subtypes of above land cover types)				
Purple needlegrass grassland	0.0	0.0	0.0	0.0
Wildrye grassland	0.0	0.0	0.0	0.0
Wildflower fields	0.0	0.0	0.0	0.0
Squirreltail grassland	0.0	0.0	0.0	0.0
One-sided bluegrass grassland	0.0	0.0	0.0	0.0
Serpentine grassland	0.0	0.0	0.0	0.0
Saltgrass grassland (alkali grassland)	0.0	0.0	0.0	0.0
Alkali sacaton bunchgrass grassland	0.0	0.0	0.0	0.0
Other uncommon vegetation types	0.0	0.0	0.0	0.0
Subtotal uncommon vegetation types	*0.0*	*0.0*	*0.0*	*0.0*
Uncommon Landscape Features or Habitat Elements				
Rock outcrop	0.0	0.0	0.0	0.0
Cave	0.0	0.0	0.0	0.0
Springs/seeps	0.0	0.0	0.0	0.0
Scalds	0.0	0.0	0.0	0.0
Sand deposits	0.0	0.0	0.0	0.0
Mines (number)	0.0	0.0	0.0	0.0
Buildings (number)	0.0	0.0	0.0	0.0
Potential nest sites (number)	0.0	0.0	0.0	0.0
Subtotal uncommon landscape features	0.0	0.0	0.0	0.0
Subtotal uncommon habitat elements	*0.0*	*0.0*	*0.0*	*0.0*
Totals (excludes subtypes)				
Acres	114.9	0.0	114.9	0.0
Linear feet	2,886.99	0.00	2,886.99	0.00

[1] Perennial wetlands are equivalent permanent wetlands.

[2] Reservoir (open water) is equivalent to aquatic.

[3] All land cover requirements assume the Maximum Urban Development Area scenario. The requirements for restoration and creation are dependent upon amount of impact. The requirements provided are based on the maximum estimates of wetland impacts provided in the Plan.

Table 9. Cumulative Summary of Progress towards Fulfilling Preservation Requirements for Jurisdictional Wetlands and Waters

Jurisdictional Wetlands and Waters Requirement	Total Requirement[1]	Reporting Period Area Acquired	Cumulative Area Acquired	Percentage of Requirement Met by Acquisition
Preserve-wide Riparian woodland/scrub (acres)	70	0.00	65.71	94%
Preserve-wide Perennial wetland (acres)	75	0.00	5.38	7%
Preserve-wide Seasonal wetland (acres)	168	0.00	13.11	8%
Preserve-wide Alkali wetland (acres)	93	0.00	33.65	36%
Preserve-wide Pond (acres)	16	0.09	11.47	72%
Preserve-wide Reservoir (open water) (acres)	12	0.00	0.00	0%
Preserve-wide Slough/Channel (acres)	36	0.00	3.10	9%
Preserve-wide stream length (feet)	32,736	2,886.99	307,776.79	940%
Stream length by type				
Perennial (feet)	4,224	0.00	12,625.10	299%
Intermittent (feet)	2,112	0.00	137,982.90	6533%
Ephemeral[2] (feet)	26,400	278.58	67,948.58	257%
Classification Pending[2] (feet)	--	2,608.41	89,220.21	--

[1] Requirements are dependent on the amount of impacts. The requirements provided are based on the conservative estimates of wetland impacts provided in the Plan.

[2] Many of the streams identified as "classification pending" are anticipated to be classified as ephemeral.

Table 10. Reporting Period and Cumulative Conservation of Covered Plants

		Number of Occurrences Protected by HCP/NCCP[1]			
Common Name	***Scientific Name***	**Required**	**Reporting Period**	**Cumulative**	**% Complete**
Mount Diablo manzanita	*Arctostaphylos auriculata*	2	0	0	0%
Brittlescale	*Atriplex depressa*	2 (4)[2]	0	3[4]	150%
San Joaquin spearscale	*Atriplex joaquiniana*	0	0	10	--
Big tarplant	*Blepharizonia plumosa*	3	0	12	400%
Mount Diablo fairy lantern	*Calochortus pulchellus*	1	0	6	600%
Recurved larkspur	*Delphinium recurvatum*	2	0	0	0%
Round-leaved filaree	*Erodium macrophyllum*	2	0	5	250%
Diablo helianthella	*Helianthella castanea*	2	0	13	650%
Brewer's dwarf flax	*Hesperolinon breweri*	3	1	6	200%
Showy madia	*Madia radiata*	0	0	0	--
Adobe navarretia[3]	*Navarretia nigelliformis subsp. nigelliformis*	1	0	0	0%
Shining navarretia	*Navarretia nigelliformis subsp. radians*	0	0	(7)	--
Total		18 (20)	1	55	

[1] For the 2015 Annual Report, we began recording sightings confirmed in 2015. Surveys will continue at part of the inventory phase.

[2] With the initial urban development area, at least two occurrences of brittlescale will be preserved. As soon as permitted urban development exceeds this, four occurrences of brittlescale must be preserved.

[3] The species *Navarretia nigelliformis subsp. nigelliformis* is no longer believed to occur within Contra Costa County based on specimen annotations at the University and Jepson Herbaria at the University of California Berkeley, as well as the opinions of experts in the genus. This taxon is now recognized as *Navarretia nigelliformis subsp. radians.* Pending further policy clarification, the Conservancy is continuing to track occurrences of shining navarretia (*Navarretia nigelliformis* subsp. *radians*).

[4] There was a mis-idenfication of a brittlescale occurrence in 2009 on the Souza II Property. The cumulative number of conserved plant occurences has been adjusted to reflect the accurate count.

Table 11. Achievement of Zone-Specific Land Acquisition Requirements: Reporting Period and Cumulative Summary

Zone/ Subzone	Requirements[1]	Acres	Min. Acres Required (MUDA)	Acquired Reporting Period	Acquired Cumulative To date	Percent Achieved
Zone 1						
1a	Annual grassland	85	85	0.0	0.0	0%
1b	Annual grassland (1,450 acres combined w/ 1c)	TBD	1,450	0.0	49.5	3%
1c	Annual grassland (1,450 acres combined w/ 1b)	TBD	--	0.0	483.8	--
1d	25% of total area	478	478	0.0	201.5	42%
1e	No specific requirements	--	--	--	--	--
All	Estimated minimum requirement	2,100	2,250	0.0	860.0	38%
All	Estimated maximum requirement	2,850	3,150	0.0	860.0	27%
Zone 2						
2a	At least 60% of subzone	1,104	1,104	0.0	1,414.3	128%
2a	Annual grassland (850 acres)	--	850	0.0	934.9	110%
2a	90% of chaparral in 2a, 2b, and 2c (122 acres total)	--	see below	0.0	0.4	0%
2a	Land to protect Mount Diablo manzanita	--	--	--	--	--
2b	Annual grassland (450 acres)	450	450	0.0	391.3	87%
2b	Connection between Black Diamond R.P. and Clayton Ranch (w/ 2c)		see below	--	--	--
2b	90% of chaparral in 2a, 2b, and 2c (122 acres total)		122	0.0	5.6	5%
2c	Annual grassland (400 acres)	400	400	0.0	146.5	37%
2c	0.5-mile wide connect b/w Black Diamond and Clayton Ranch (w/ 2b)			--	--	--
2c	90% of chaparral in 2a, 2b, and 2c (122 acres total)		122	0.0	3.8	3%
2c	Seven (7) of thirteen (13) ponds for TRBL, CTS, WPT, or CRLF		7	0	0	--
2d	Annual grassland (800 acres)	800	800	22.6	461.8	58%
2d	Known occurrence of round-leaved filaree (#)	1	1	1	1	100%
2e	Annual grassland (800 acres)	800	800	0.0	420.6	53%
2e	See 2e/2f/2h below		see below	--	--	--
2f	Annual grassland (1,000 acres)	1,000	1,000	0.0	452.3	45%
2f	San Joaquin kit fox movement corridor	--	--	--	--	--
2f	Land for SJKF Movement must include 2 occurrence of big tarplant	--	--	--	--	--
2f	Land for SJKF Movement must include 1 occurrence of round-leaved filaree	--	--	--	--	--
2f	Where possible, land for SJKF and plants, should include alkali soils	--	--	--	--	--
2f	See 2e/2f/2h below	--	see below	--	--	--
2g	No specific requirements	--	--	--	--	--
2h	Annual grassland (600 acres)	600	600	0.0	274.7	46%
2h	Two occ. of big tarplant (number)	2	2	0	1	50%
2h	Known occ. of Mt. Diablo manzanita and Brewer's dwarf flax (number)	2	2	0	3	150%
2h	San Joaquin kit fox (75%)			--	--	0%
2h	Silvery legless habitat, if present			--	--	--
2h	See 2e/2f/2h below		see below	--	--	--

Zone/ Subzone	Requirements[1]	Acres	Min. Acres Required (MUDA)	Acquired Reporting Period	Acquired Cumulative To date	Percent Achieved
2i	No specific requirements	--	--	--	--	--
2b/2c	0.5-mile wide connect between Black Diamond and Clayton Ranch	--	--	--	--	--
2a/2b/2c	Chaparral habitat (90%)	112	112	0.0	9.8	8%
2e/2f/2h	Annual grassland, combined	2,400	2,400	0.0	1,147.7	48%
All	Vernal pool invertebrate suitable habitat, wherever possible	--	--	--	--	Yes (not quantified)
All	Estimated minimum requirement	7,500	7,500	114.7	5,007.6	67%
All	Estimated maximum requirement	9,550	9,550	114.7	5,007.6	52%
All	Alternative Stay Ahead Measurement for Zone 2	--	4,900	0.0	0.0	0%
Zone 3						
3a	90% of modeled AWS suitable core habitat	159	159	0.0	94.9	60%
3a	Land to increase linkage from chaparral in zone to Mt. Diablo chaparral	--	--	--	--	--
3b	No specific requirements	--	--	--	--	--
3c	No specific requirements	--	--	--	--	--
All	Estimated minimum requirement	400	400	0.0	292.7	73%
All	Estimated maximum requirement	750	750	0.0	292.7	39%
Zone 4						
4a	75% of natural land cover types	1,700	1,700	0.0	160.0	9%
4a	Known occ. of Diablo helianthella and Brewer's dwarf flax	--	--	--	--	--
4a	See 4a/4h below	--	see below	--	--	--
4b	Known occ. for Mt. Diablo fairy lantern if extant	--	--	--	--	--
4c	See 4c/4e/4f/4g below	--	see below	--	--	--
4d	60% of natural land cover types	953	953	0.0	0.0	0%
4e	See 4c/4e/4f/4g below	--	see below	--	--	--
4f	Known occ. for Brewer's dwarf flax (number)	TBD	TBD	--	--	--
4f	See 4c/4e/4f/4g below	--	see below	--	--	--
4g	See 4c/4e/4f/4g below	--	see below	--	--	--
4h	75% of natural land cover types	791	791	0.0	503.0	64%
4h	Linkage between Morgan Territory Ranch, Morgan Territory RP and Mt. Diablo	--	--	--	--	--
4h	See 4a/4h below	--	see below	--	--	--
4a/4h	90% of modeled AWS suitable core habitat	200	200	0.0	132.5	66%
4c/4e/4f/4g	18%IUDA or 39%MUDA of natural land cover types in 4c, 4e, 4f, 4g	1,400	3,000	0.0	0.0	0%
All	Chaparral/Scrub	270	270	0.0	133.8	50%
All	Estimated minimum requirement	4,900	6,050	884.8	884.8	15%
All	Estimated maximum requirement	6,150	8,350	884.8	884.8	11%

Zone/ Subzone	Requirements[1]	Acres	Min. Acres Required (MUDA)	Acquired Reporting Period	Acquired Cumulative To date	Percent Achieved
Zone 5						
5a	See 5a/5d and 5a/5b/5d below	--	see below	--	--	--
5b	See 5a/5b/5d below	--	see below	--	--	--
5c	Annual Grassland/Suitable foraging habitat for Swainson's hawk/ SJKF core and movement habitat	1,000	1,000	0.0	0.0	0%
5c	Modeled silvery legless lizard habitat, if feasible (for MUDA)	--	--	0.0	0.0	0%
5d	See 5a/5d and 5a/5b/5d below	--	see below	--	--	--
5a/5d	2 (IUDA) or 4 (MUDA) of the occ. of brittlescale		2(4)	--	--	--
5a/5d	At least 2 occurrences of recurved larkspur	--	2	--	--	--
5a/5d	170 acres connected to Byron Airport preserved areas	--	170	--	--	--
5a/5b/5d	Annual grassland	--	7,100	0.0	3,633.6	51%
All	Grassland	5,300	8,100	0.0	3,633.6	45%
All	Alkali grassland	750	900	0.0	175.1	19%
All	Alkali wetland	40	40	0.0	21.5	54%
All	Vernal pool invertebrate suitable habitat, wherever possible	--	--	--	--	Yes (not quantified)
All	Estimated minimum requirement	6,100	9,050	0.0	3,956.4	44%
All	Estimated maximum requirement	7,200	11,450	0.0	3,956.4	35%
Zone 6						
6a	See 6a/6b/6c/6f below	--	see below	--	--	--
6b	See 6a/6b/6c/6f below	--	see below	--	--	--
6c	See 6a/6b/6c/6f below	--	see below	--	--	--
6d	See 6d/6e below	--	see below	--	--	--
6e	See 6d/6e below	--	see below	--	--	--
6f	See 6a/6b/6c/6f below	--	see below	--	--	--
6d/6e	Alkali grassland	100	300	0.0	0.0	0%
6d/6e	Alkali wetland	20	40	0.0	0.0	0%
6a/6b/6c/6f	Cropland or Pasture	250	400	0.0	612.7	153%
All	Estimated minimum requirement	450	800	0.0	639.3	80%
All	Estimated maximum requirement	550	1,100	0.0	639.3	58%
All Zones						
All	Estimated minimum requirement	21,450	26,050	114.9	12,543.3	48%
All	Estimated maximum requirement	27,050	34,350	114.9	12,543.3	37%

[1] The requirements in this table are a summary of the land acquisition requirements in Chapter 5 of the HCP/NCCP; consult that chapter for a complete description of all land acquisition requirements.

TRBL = Tricolored blackbird
CTS = California tiger salamander
SJKF = San Joaquin kit fox
WPT = western pond turtle
CRLF = California red-legged frog
AWS = Alameda whipsnake

IV. HABITAT RESTORATION AND CREATION

Habitat restoration and creation is an integral component of the Plan's conservation strategy. Restoration and creation of specific habitats and land cover types is required in addition to protection of land within the Preserve System. Together, land preservation and restoration/creation provide benefits to covered species, natural communities, biological diversity, hydrologic function, and ecosystem function to compensate for impacts and to contribute to recovery of covered species. Habitat restoration and creation includes several focus areas, as summarized below.

Wetlands and Streams

Wetlands and streams exhibit a high degree of biological, physical, and hydrologic diversity in the inventory area. Consequently, it is important to preserve, enhance, restore, or create the full range of diversity of these land cover types. Restoration of wetlands ensures no net loss of wetlands in the inventory area and replacement of the ecosystem functions lost to covered activities.

Alkali Wetlands

Alkali wetlands are particularly rare in the inventory area, mainly occurring on a 380-acre wetland complex in the southeastern portion of the inventory area south and east of Byron. Land cover mapping indicates that less than 1% of the Plan inventory area contains alkali wetlands (see page 3-18 of the Plan).

Mitigation and Contribution to Recovery

Conservation Measure 2.1 *Enhance, Restore, and Create Land Cover Types and Species Habitat* and Conservation Measure 2.3 *Restore Wetlands and Create Ponds* of the Plan require wetland restoration and pond creation to compensate for future impacts on these land cover types caused by development activities. Additionally, the Plan requires wetland restoration and creation actions over and above mitigation requirements in order to contribute to recovery of covered species. Restoration or creation activities must stay ahead of impacts.

Over the 30-year life of the Plan, the Conservancy may be required to restore or create a large number of acres of various types of wetlands and waters. If impacts on wetlands and waters are substantial during those 30 years, the cumulative total restoration/creation acreage could be as large as 500 acres. Restoration projects that the Conservancy has undertaken since the commencement of plan implementation are shown in Tables 13a and 13b.

Restoration projects that have completed their monitoring requirements, met their success criteria, and were deemed complete in or prior to the reporting year are no longer described in the annual report but are still tracked in Tables 13a and 13b. The Conservancy will continue to

monitor these sites to track ongoing ecological functions. No new restoration projects were constructed in 2019.

In 2019, the Conservancy monitored the following six restoration projects (Figure 12).

- Upper Hess Creek Watershed Habitat Restoration Project (constructed 2011).
- Vaquero Farms Seasonal Wetland Creation Project (Seasonal Wetlands 1 and 2) (constructed 2012).
- Hess Creek Channel Restoration Project (constructed 2014).
- Vaquero Farms Seasonal Wetland 3 Creation (constructed 2015)
- Ang Riparian Restoration Project (constructed 2017)
- Horse Valley Creek and Wetland Restoration Project (constructed 2018)

Project summaries and discussions of monitoring and management actions, if applicable, are included in the sections below. Table 8a summarizes restoration and creation to date by land cover type. Table 12 provides restoration and creation information by watershed.[3] Table 13c through Table 13g contain summaries of the performance criteria for restoration projects.

Monitoring in 2019 demonstrated advancement toward achievement of site-specific restoration objectives. At most locations, rainfall during the monitoring year was average to above average which had a positive effect on the performance of most of the wetland features at the restoration project sites.

Upper Hess Watershed Habitat Restoration Project (2011)

Project Overview

The Upper Hess Restoration Project is located on the 448 acre Land Waste Management property in the Hess Creek subbasin of the Kirker Creek watershed. The project was constructed in 2011. The project included a series of features all along the main stem of Upper Hess Creek. Within the project area, work occurred on approximately 7.4 acres across five restoration sites (H.T. Harvey & Associates 2011).

[3] The restoration summary provided in Table 12 is based on GIS data. It differs slightly from the numbers provided in the text of the Annual Report.

Four habitat types were restored or created across the five restoration sites using existing site features. The five restoration sites are identified as California tiger salamander breeding pond, upper stock pond, channel restoration, main stock ponds, and alluvial valley. All sites were seeded with a native seed mix. Ranch debris including tires, concrete rubble, and metal barrels was removed from the sites. A California tiger salamander breeding pond was created in the western portion of the project area in an upper reach of the central ephemeral drainage (0.06 acre). Wetland (0.005 acre) and channel (109 linear feet) restoration also occurred at this site.


Alluvial Valley Wetlands January 2019
Photo Credit: Monk & Associates

At the channel restoration site, a failing ranch road crossing was removed and the channel restored (117 linear feet). A small alkali wetland was also restored at this site (0.05 acre). Alkali wetlands (0.08 acre) and wetlands (0.002 acre) were restored at the main stock pond. This included removal of debris and fill around the pond, creation of wetland terraces around the edges of the pond, placement of rock perches and coarse woody debris to improve California red-legged frog habitat, and enhancement/stabilization of an existing outlet spillway/swale at a slightly lower elevation than the existing outlet pipe. The largest restoration area was the alluvial valley where 2.16 acres of alkali wetlands were restored. A total of 2.29 acres of alkali wetlands, 0.007 acre of wetlands, 0.06 acres of California tiger salamander breeding pond, and 226 linear feet of channel were restored or created as part of this project. The reporting year represents monitoring Year 8 for the project. The results presented below are summarized from the *Year Eight Created Wetlands Monitoring Report: Upper Hess Creek Restoration Project* (Monk & Associates 2019a).

Monitoring and Adaptive Management

Monitoring at the Upper Hess Watershed Habitat Restoration Project site took place in the reporting year between November 2018 and June 30, 2019. During Year 8 monitoring, not all components of the Upper Hess Watershed Habitat Restoration project met their performance criteria. In the fall of 2017, the Conservancy graded the Alluvial Valley Wetlands which increased the wetland acreage slightly, however this was not sufficient for this valley to meet established success criteria in Year 7 or Year 8. The following is a summary of the performance criteria and monitoring results during Year 8 monitoring.

Fifty percent relative cover of native wetland vegetation in Year 5

Relative vegetation cover was evaluated at the Alluvial Valley Wetlands, main stock pond, channel restoration area, and California tiger salamander pond. At the Alluvial Valley Wetlands, vegetation data gathered over eight transects in the 2018/2019 wet season averaged 18.25%

relative cover of native hydrophytic vegetation. It is possible that the previous dryer than normal year (2017/2018) may have negatively influenced the revegetation of the recently re-graded wetlands. At the main stock pond, ocular estimates of total native hydrophytic vegetation cover were approximately 50%. At the channel restoration area there was 95% relative cover of dense native hydrophytic vegetation. At the California tiger salamander pond, the performance criterion for native hydrophytic plant cover was not met during the reporting year. However, the design objectives for this pond were to provide breeding habitat for California tiger salamander, rather than dense wetland vegetation. Ponds that maintain hydrology through July will start to support emergent vegetation, such as cattails, but those ponds that dry in late May or June often do not. The fifty percent relative cover of wetland vegetation is not an appropriate goal for the California tiger salamander pond, which needs to remain sparsely vegetated to provide habitat for California tiger salamander occupancy.

Reduce erosion along Upper Hess Creek

The erosion that was caused by cattle ingress to Upper Hess Creek during Year 6 has since healed. Vegetation quickly filled in the barren areas where soil sloughed off the banks. No new signs of erosion were observed along the creek in Year 8 as it was 100% vegetated.

Increase wetland and pond capacity and water duration in the project area

This performance criterion was met in Year 8. The Main Stock Pond continues to function well. This pond filled and spilled during the course of the winter and was still spilling in April 2019Remedial grading and soil removal at the Alluvial Valley Wetlands in the summer/fall of 2017 did not improve its hydrologic conditions as much as intended. In past monitoring years the poor performance of this constructed wetland area was attributed to low rainfall during the wet season and resultant reduced available runoff; however, over the past three monitoring years these wetland basins received continuous flows for 5 months from upstream sources and remained inundated in focused locations through the month of May. This flowing water and inundated condition is in line with what the Conservancy first observed when considering restoration opportunities at Upper Hess. Still, even with this increased amount of water, only 0.60 acre of the 2.16 acres of constructed area inundated and functioned as wetland.

Hydrologically reconnect the Upper Hess Creek from lower stock pond to channel at property boundary

During this reporting year water flowed from the Upper Channel to the Main Stock Pond, down through the Alluvial Valley Wetlands and to the Lower Channel. Connectivity from the top to the bottom was demonstrated this past monitoring year.

Total absolute cover of non-native invasive plant species no more than 10% relative cover.

Non-native “invasive” (high rated) plant species represented less than 10% of the relative cover within the project wetlands, therefore the performance criterion was met in Year 8, and has been met in all eight years.

Restore approximately 2.16 acre of alluvial valley wetlands

Only 0.60 acre of the proposed 2.16 acres of constructed/restored Alluvial Valley Wetlands exhibited wetland hydrology during the 2018/2019 wet season. While this area is smaller than the 2.16 acre goal, this represents a 0.02 acre increase in the functioning wetland acreage in the Alluvial Valley and the largest amount of functioning wetlands since they were originally graded in 2012. While the goal for remedial grading work completed in late-summer/fall of 2017 was that the full acreage of the originally graded wetlands would function as wetlands, this objective clearly was not met. Regardless, hydrology was improved in the Alluvial Valley Wetlands and wetland acreage increased, albeit slightly, from 0.58 acre to 0.60 acre of functioning wetlands in the past year.

Create an approximately 0.06-acre California tiger salamander breeding pond

The 2018/2019 rain year started off slowly with no appreciable amount of rain showing up until November 2018 when the Concord area received 2.84 inches of rain. Rainfall continued into December, with 1.56 inches of rain falling, and substantial amounts were recorded through March 2019. The California tiger salamander pond reached 50% of capacity by the end of January 2019, and was fully inundated by mid-March. The California tiger salamander pond held water for greater than 100 days this past winter. The extent of the inundated area was not recorded via global positioning system (GPS) this monitoring season, however based on the previous inundated area recorded at 0.38 acre, and the high water mark in 2018/2019 being observed to be lower than in past years, it was determined that the pond did not meet the 0.06 acre requirement. Therefore, site-specific restoration objective 7 was not met in Year 8.

Restore 226 Linear Feet of Stream Channel and Hydrologically Connect Upper Hess Creek from the Main Stock Pond to Channel at Property Boundary

Upper Hess Creek drains into the Main Stock Pond which in times of high flows/high rainfall overflows into the lower creek channel to the Alluvial Valley Wetlands and down to the Lower Channel at the property's eastern boundary. Due to normal rainfall amounts in the winter of 2018/2019 which recharged groundwater and the area's springs and seeps, direct hydrologic connectivity between all the habitat features (i.e. creek, wetlands, and ponds) in the project area was observed and water flowed throughout the winter and spring. This restoration goal was met in Year 8.

Recommendations

Several of the required performance criteria were not met by the end of monitoring Year 8. As such, the Conservancy will continue to monitor and adaptively manage the project until such time that it does meet success criteria. Recommended remedial grading would likely continue to improve the performance of the Alluvial Valley Wetlands. The following are specific recommendations for the restoration area:

1. Remove soil from the middle to southern end of the Alluvial Valley Wetland basins (essentially lower the elevation in an amount to be determined by laser level work) so that flows extend

through the middle areas of the Alluvial Valley Wetlands and do not bypass the middle by staying on either the upper or the lower ends.

2. Increase elevations along the northern edge of the Alluvial Valley Wetlands to promote greater flow and shallow wetland basins. Defined entrance and exit flow locations should be created as a design objective.

3. The Conservancy should continue to employ a licensed herbicide professional to spray non-native milk and to hand-dig/remove perennial pepperweed and stinkwort from the wetlands/restored features.

4. Fencelines and gates should be reinforced to prevent cattle from entering the restoration area and damaging vegetation.

Vaquero Farms Seasonal Wetlands Creation Project (Seasonal Wetlands 1 and 2) (2012)

Project Overview

The Vaquero Farms South Vernal Pool Creation Project is located on the 1,644 acre Vaquero Farms South property in the Brushy Creek watershed. Two wetland features (0.07 acre and 0.15 acre) were created in what is suspected to be an abandoned road bed, down slope of an existing vernal pool occupied by vernal pool fairy shrimp. The wetland features are intended to function as vernal pools and provide habitat for vernal pool fairy shrimp and other vernal pool species. The reporting year is monitoring Year 7 for the project. The monitoring results are summarized from the *Annual Monitoring Report for Seasonal Wetlands 1 and 2* (Monk & Associates 2019b).

Hydrologic Monitoring

Hydrologic monitoring was conducted between December 2018 and April of 2019. Rainfall in the project area was greater than normal during the 2018/2019 wet season. Between October 1, 2018 and June 1, 2019, 13.54 inches of rain fell (12.88 inches is normal for the area). The first hydrology monitoring visit was conducted on December 11, 2018. On this date, Seasonal Wetland 1 was still dry, Seasonal Wetland 2 held approximately 2-4 inches of water, and the control wetland was dry. By January, Seasonal Wetland 1 was still dry, Seasonal Wetland 2 held approximately 6 inches of water, and the control wetland held 2-3 inches of water. During the month of February, the area received an additional 4.00 inches of rain and all three wetlands were inundated to capacity. By March, Seasonal Wetland 1 held 6 inches of water, Seasonal Wetland 2 was at capacity with 12 inches, and the control wetland was inundated to 5 inches. By April, Seasonal Wetland 1 was dry again, Seasonal Wetland 2 held 2 inches and the control wetland was dry. All pools were dry by May 2019.

In order to meet the Year 5 hydrologic performance criterion, Seasonal Wetlands 1 and 2 must remain inundated to a depth of 1 inch or greater for at least 30 days. This hydrologic performance criterion was met at both Seasonal Wetland 1 and 2. Seasonal Wetland 1 remained inundated for over 35 days and Seasonal Wetland 2 remained inundated for a period of 120 days.

Vegetative Cover Monitoring


Seasonal Wetland 2 in April 2019
Photo Credit: Monk & Associates

Vegetative cover monitoring took place in July 2019. Seasonal Wetland 1 was 100% vegetated along the transect. Dominant vegetation along the transect was Italian ryegrass (*Festuca perennis*) representing 69% of the relative cover, rabbits foot grass (*Polypogon monspeliensis*) (21% cover), and native meadow barley (*Hordeum brachyantherum*) (10% cover) which was seeded in the wetland. Seasonal Wetland 2 had only 11% vegetation cover this past year due to long-term inundation causing vegetation suppression; thus, 89% percent of the wetland was bare ground. Of the 11% vegetation cover, fully half of it (or 45.5%) was composed of hydrophytic plant species. Surprisingly, 27% of the relative cover was composed of crown scale (*Atriplex coronata* var. *coronata*), a CNPS Rank 4 species. This is an increase over the one plant that was observed at the wetland's edge the prior year.

Both Seasonal Wetland 1 and Seasonal Wetland 2 met the hydrophytic plant criterion by supporting greater than 5% hydrophytic vegetative cover for wetlands.

Wildlife Monitoring

Vernal pool fairy shrimp were observed in Seasonal Wetland 1 for two months this past monitoring year: February and March 2019. California tiger salamander eggs and larvae were observed in Seasonal Wetland 2 in March 2019, however, this wetland dried down completely by May 1 so the larvae did not survive to metamorphosis.

Recommendations

The wetlands are functioning as intended. No remedial measures are recommended at this time.

Hess Creek Channel Restoration Project (2014)

Project Overview

The Hess Creek Channel Restoration Project is located in the western portion of the inventory area and project construction was completed in February 2015. This restoration project included a series of components along the main stem of Hess Creek. A 930-foot portion of Hess Creek was re-routed, stabilized, and enhanced. In addition, 0.30 acre of seasonal wetlands, 0.08 acre of other waters, and 2.57 acres of riparian woodland were restored. Habitat establishment was primarily achieved through earthwork and planting efforts. Monitoring was performed for Years 1, 2, and 3, however no annual monitoring other than site maintenance was required in Year 4. Detailed annual monitoring resumed in Year 5, the current reporting year. Overall, the project is meeting Year 5 performance criteria, with the exception of re-established wetland acreage. The monitoring results are summarized from the *Annual Monitoring Report, Hess Creek Watershed Restoration* (Nomad Ecology 2019a).

Monitoring and Adaptive Management

Monitoring in Year 5 occurred seven times from November 2018 to October 2019. Total recorded annual precipitation for the monitoring year was 22.46 inches. The last rain event occurred in May, depositing approximately 2 inches of rain before the cessation of the rainy season. The 2018/2019 winter rainy season was very wet with the site receiving roughly 72% more precipitation than the previous season in 2017/2018 (13.0 inches).

Wetlands and Other Aquatic Features

Hess Creek Channel Restoration April 2019
Photo Credit: Nomad Ecology

Data for the percent cover and species composition of native emergent wetland vegetation, non-native invasive plants, and upland vegetation were recorded at each wetland location. All seasonal wetlands (both existing and re-established) are hydrologically connected to the creek channels. Water was observed flowing into portions of all existing and re-established seasonal wetlands during the February, March, and April 2019 site visits. Percent cover was sampled in five existing wetlands and three re-established wetlands. All but two exceeded the performance criterion of 50% relative cover of dominant wetland vegetation for Year 5 monitoring. The relative cover of dominant wetland plants ranged from 63% to 100% in transects in the existing wetlands and 0% to 76% in transects in the re-established wetlands. Monitoring in Year 5 required a formal assessment of jurisdictional wetland areas to confirm wetland acreage. A wetland delineation was conduction on May 2, 2019 and determined that wetlands in the project area total 0.486 acre and Other Waters (features regulated by the USACE but not considered wetlands) total 0.156 acre. The total linear feet of stream channel (which includes in-channel wetlands) is 2,016 linear feet. From this,

it was determined a total of 0.172 acre of seasonal wetland have been created by the project, and 0.080 acre of Other Waters have been created.

Streams and Riparian Woodlands/Streamside

For the stream and riparian woodland assessment, observations of riparian and non-native invasive plants were recorded. Overall, the channel was dominated by Italian ryegrass. Existing riparian trees comprise primarily Fremont cottonwood (*Populus fremontii* subsp. *femontii*), valley oak (*Quercus lobata*), black walnut (*Juglans hindsii*), and red willow (*Salix laevigata*). The planted riparian species comprise low cover, but appear vigorous and healthy.

Performance criteria require riparian canopy cover to remain consistent or increase from baseline conditions. The 2017-mapped riparian canopy totaled 0.66 acre using the most recent aerial imagery available at the time from Google Earth (August 2017) imported into ArcGIS. The aerial imagery available in Google Earth and ArcGIS during the preparation of the Year 5 monitoring report was April 2018. Because only 8 months elapsed between the two aerial images, there was no measurable change in riparian canopy cover.

In Year 5, a minimum of 25% of the total number of live shrubs for each individual species was randomly identified and sampled. A total of 209 plants that were alive during 2017 sampling were revisited during 2019 sampling to assess vigor and plant height on a subset of the plants. The sampled plants are healthy and vigorous, particularly California sagebrush (*Artemisia californica*). None of the willow or cottonwood pole plantings survived to 2019. Tree height was measured beginning in Year 5. The tallest plants were blue elderberry (*Sambucus nigra* subsp. *cerulea*) with an average height of 7 feet. The shortest plants were California rose (*Rosa californica*) with an average height of 2.5 feet tall. The trees had an average height of 3 feet, which indicates overall good health 3-5 years after planting.

The success criterion for riparian woodland percent cover is ≥10% in Year 5 of monitoring. The same 18 transects established in Year 1 were assessed for riparian woodland/streamside percent cover in Year 5. Of the 18 transects, 16 met the success criterion. Overall, the average percent cover of woody species along all transects was 15% which exceeds the minimum for success.

On all site visits in 2019, notes on channel stability and function were recorded. The site is functioning as designed and the channel is stable. A small headcut is developing just downstream of the weir on the channel just upstream from the large cottonwood and seasonal wetland SW-5. No other issues were identified.

During the September site visit, the site was surveyed for naturally recruiting perennial native species. The species recorded include valley oak, California rose, mugwort (*Artemisia douglasiana*) and common gumplant (*Grindelia camporum*). Most of the valley oak seedlings were observed at the downstream end of the project site. Many of the planted California rose plants are spreading rhizomatously from the original planting locations to form thickets. Three

naturally recruited mugwort plants were counted throughout the restoration area. Common gumplant was observed in patches throughout the site that had naturally recruited.

Invasive weeds were mapped in February, March, April, May, and September 2019. Ten invasive weed species were observed in the restoration area. These weed species varied in distribution from widespread to limited to populations of just a few or one. The performance criterion specifies that total percent cover of non-native invasive plant species is no more than 10% cover in wetlands. Based on the transect sampling data collected in April 2019, all seasonal wetlands have invasive weed cover less than 1% which meets the performance criterion. The performance criterion for total percent cover of non-native invasive plant species in riparian woodland habitat is no more than 10% cover. Overall, invasive weeds comprised 1 to 5% cover (estimated visually) in riparian woodland habitat which also meets the performance criterion.

Recommendations

Invasive Weed Control

Invasive weeds should continue to be controlled on site. Species that are limited in distribution on site are high priority for control since they can be controlled before they become well established. These species include poison hemlock (*Conium maculatum*), stinkwort (*Dittrichia graveolens*), Harding grass (*Phalaris aquatica*), and oblong spurge (*Euphorbia oblongata*). Recently eradicated species, including artichoke thistle (*Cynara cardunculus*), purple starthistle (*Centaurea calcitrapa*), perennial pepperweed (*Lepidium latifolium)*, and periwinkle *(Vinca* major) should also be surveyed for in case they reoccur on site. Other species that are present on site and are also high priority for control include milk thistle (*Silybum marianum*), Italian thistle (*Caruus pycnocephalus* subsp. *pycnocephalus*), yellow starthistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), and fennel (*Foeniculum vulgare*). Milk thistle, Italian thistle, yellow starthistle, and bull thistle should be sprayed with a selective herbicide (aminopyralid or clopyralid) when they are in the rosette stage.

Protective Tree Cage Release

All small cages (1" hardware cloth) around valley oak, coast live oak (*Quercus agrifolia* var *agrifolia*), and California buckeye (*Aesculus californica*) saplings should be removed in 2020. Nearly all of the plants are growing through the wire which has limited their growth. When cages were removed from some trees in 2017, a significant amount of growth took place, accounting for the high average height of the plantings recorded in 2019. It is expected that the trees released in 2020 will similarly add significant growth.

Riparian Canopy Cover

Performance criteria require riparian canopy cover to remain consistent or increase from baseline conditions. Because only 8 months had elapsed between the two aerial images used to map riparian canopy cover in 2017 and 2019, there was no measurable change in riparian canopy cover. We recommend postponing this analysis until Year 7 of monitoring (2021) to capture measurable change.

Vaquero Farms Seasonal Wetland 3 Creation (2015)

Project Overview

The third wetland at Vaquero Farms was constructed in October of 2015. The pool was constructed between two other pools (constructed in 2012), and was designed to create habitat for vernal pool fairy shrimp. Presence of vernal pool fairy shrimp in the two pools positioned immediately upstream of this pool also support listed shrimp. The reporting year is monitoring Year 4 for the project. The monitoring results are summarized from the *Annual Monitoring Report, Seasonal Wetland 3* (Monk & Associates 2019c).

Hydrologic Monitoring

Hydrologic monitoring was conducted between December 2018 and April 2019. Rainfall in the project area was greater than normal during the 2018/2019 wet season. Between October 1, 2018 and June 1, 2019, 13.54 inches of rain fell (12.88 inches is normal for the area). January and February 2019 were particularly wet months with over three inches of rain falling in each of those months (3.12 in and 3.98 in respectively). The first hydrologic monitoring visit was conducted on December 11, 2018. On this date, Seasonal Wetland 3 was dry. Also, on this date, the nearby control wetland was dry. On January 16, 2019, three puddles, approximately one inch deep each, were observed in Seasonal Wetland 3. Due to the shallow depth and absence of invertebrates in the water on this date, it is likely the pool had recently inundated.

Seasonal Wetland 3 in February 2019
Photo Credit: Monk & Associates

On February 7, 2019, three weeks later, this wetland was at capacity and showed evidence of recently spilling and vernal pool fairy shrimp were abundant. By March 18, 2019, approximately five weeks later, the pool had reduced to an average depth of approximately 5 inches and due to the warming water, no vernal pool fairy shrimp remained. By April 25, 2019 Seasonal Wetland 3 was dry.

To meet Year 3's hydrologic performance criterion, the created wetland must remain inundated to a depth of 1 inch or greater for at least 30 days. This hydrologic performance criterion was met at Seasonal Wetland 3 with this wetland holding water for at least 35

days. The control wetland tracked with Seasonal Wetland 3 with water drying down to the same approximate depth in March and drying completely by April, therefore Seasonal Wetland 3 mirrored the control wetland's hydroperiod.

Vegetative Cover Monitoring

Vegetative cover monitoring took place in July 2019. Seasonal Wetland 3 had 62% total vegetative cover. Of this 62% vegetative cover, 98.8% was hydrophytic vegetation which represents a 6.8% increase over the previous year. Thirty-four percent of the hydrophytic plant cover was comprised of a native species, meadow barley (*Hordeum brachyantherum*), which was seeded in the pool in October 2016. Other dominant hydrophytic plant species in the wetland included non-native annual rabbits foot grass (*Polypogon monspeliensis*) (59.8% cover) and Italian ryegrass (*Festuca perennis*)(5% cover). A few individual plants of the invasive stinkwort (*Dittrichia graveolens*) were observed in this wetland in April 2019, however they were hand-pulled at the time of observation and no other individuals were observed in July 2019 at the time the vegetation monitoring was completed. Seasonal Wetland 3 met the Year 3 success criterion of 2% hydrophytic vegetation cover or greater. This wetland had approximately 98.8% relative cover of hydrophytic vegetation in Year 4 of monitoring, 34% of which was native species.

Wildlife Monitoring

During Year 4 monitoring, vernal pool fairy shrimp were observed and abundant in Seasonal Wetland 3. No California tiger salamander were observed (neither eggs nor larvae).

Recommendations

Seasonal Wetland 3 is functioning as intended. No remedial actions are recommended at this time.

Ang Riparian Restoration Project (2017)

In late September 2017, Save Mount Diablo (SMD) started a new riparian planting project downstream of the 2010 Irish Canyon restoration project. The objective of this new project, taking place on the 462 acre Ang property, is similar to that of the Irish Canyon Riparian Restoration Project: improve riparian woodland habitat for wildlife by filling in gaps in existing vegetation along the banks of Irish Canyon Creek.

RPA 1 in March 2019
Photo Credit: Save Mount Diablo

The restoration plan calls for a mix of valley oak, buckeye and red willow planted across five Riparian Planting Areas (RPAs). The plantings of valley oak and buckeye were completed by the end of 2018, and plantings of red willow were completed by the end of the first quarter 2019. During the reporting year, SMD focused on maintaining and monitoring the plantings for success. The following activities were conducted at the restoration site (Save Mount Diablo 2019):

- Valley oak and buckeye plantings received water every three weeks from June to November 2019, except May due to a late rain event
- Planting sites were weeded
- Acorns were collected from the creek corridor to replant failed oak plantings
- An inventory of red willow plantings was done to track success and areas which will need replacement plantings.
- During the red willow inventory, signs of feral pig damage were noted at RPA Sites 1 and 3. In addition, some of the oak replacement plantings were re-located from the original planting locations due to ground squirrel activity. Buckeye plantings were observed to be thriving and no replanting was required.

Horse Valley Wetland Creation and Creek Restoration Project (2018)

The Horse Valley Wetland Creation and Creek Restoration Project was constructed in the summer and fall of 2018. The project is located on the Roddy Ranch property and was selected based on the relatively flat terrain conducive to seasonal wetland creation and the presence of a natural creek channel that had been disturbed and straightened, offering a good opportunity for creek

restoration with net channel gain. The project is also specifically intended to create new wetland habitats where none previously existed.

The final design included 37 seasonal wetland basins intended to support a total of 2.19 acres of newly created seasonal wetland habitat, including a large pond along the restored channel intended to provide suitable breeding habitat for California red-legged frog (*Rana draytonii*). The wetlands were designed to provide suitable habitat for vernal pool invertebrates and plants. The as-built area of the wetlands was mapped at 2.246 acres. The as-built stream channel length is 4,150 linear feet.

Because rainfall is a major driver of wetland performance, restoration monitoring years are synchronized to the state of California's Water Year, beginning October 1 and ending September 31 the following calendar year. Monitoring Year 1 began after construction was complete in November 2018 and ended on September 31, 2019. The monitoring results are summarized from *Annual Restoration Monitoring Report: Horse Valley Creek and Wetland Restoration Project* (Nomad Ecology 2019b)

Hydrologic Monitoring


Horse Valley Project Wetland 33 April 2019
Photo Credit: Nomad Ecology

Hydrologic monitoring was conducted between December 2018 and June 2019. Rainfall in the project area was greater than normal during the 2018/2019 wet season. Between October 1, 2018 and June 1, 2019, 14.40 inches of rain fell (12.80 inches is normal for the area). Eleven of the wetlands were found to be holding water during the first monitoring visit in mid-December, 2018, at which point 2.3 inches of precipitation had fallen. Water levels dropped over the month of March, despite several smaller rain events, and 29 of the 37 wetlands were dry by the end of April 2019. All of the wetlands met the performance standard of 14 days of continuous ponding except Wetland 8, which was observed to be dry during all but the February 14 monitoring visit.

Vegetative Cover Monitoring

Vegetation sampling was conducted during one site visit during peak spring bloom on May 9, 2019. Of the 37 created seasonal wetlands, 29 were dominated by wetland vegetation and met the wetland species dominance performance standard, and 8 did not. In general, seasonal wetlands in the downstream (eastern) portion of the restoration site all met the performance standards. Total vegetation cover ranged from 1% to 50% with an average cover of 10% across all created seasonal wetlands. The species with the highest cover across all seasonal wetlands was Italian ryegrass (*Festuca perennis*). Many of the seasonal wetlands were dominated by Italian ryegrass and Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*) and so met

performance standards. Five of the seasonal wetlands contained broad toothed monkeyflower (*Erythranthe latidens*) which is a native annual wetland species that was not recorded on site during pre-project plant surveys.

All the seasonal wetlands except Wetland 8 met the performance standard for invasive species cover. Wetland 8 had 15% cover of black mustard (*Brassica nigra*). Invasive weed species that were present in seasonal wetlands on site include black mustard, Medusa head (*Elymus caput-medusae*), hyssop loosestrife (*Lythrum hyssopifolia*), Italian thistle (*Carduus pycnocephalus* subsp*. pycnocephalus*), tocalote (*Centaurea melitensis*), and stinkwort (*Dittrichia graveolens*).

Ephemeral Channel

Prior to the project, the total length of the channel was 3,629 linear feet. Following restoration, the overall stream channel length is 4,150 linear feet, which exceeds the pre-project conditions by 521 linear feet. This performance standard has therefore been met.

Hydrologic Monitoring

Hydrologic monitoring was conducted between December 2018 and June 2019. During Year 1, the ephemeral channel was found to have small pools of water as early as the first monitoring visit on December 18, 2018. However, there was no standing water by the end of January, and soil conditions throughout the channel were moist but not saturated. The site received a substantial amount of rain in February filling the stock pond to capacity and allowing for overflow from the pond spillway back into the channel. The entire channel was found to be flowing in February. The portion of the channel downstream of the stock pond spillway was still flowing in early March, and small isolated pools remained upstream. The channel was entirely dry by April 30. Flowing water up to 6 inches in depth was confirmed for a period of 22 days between February and March 2019, which satisfies the 14-day inundation performance standard.

Vegetative Cover Monitoring

Vegetation sampling was conducted during one site visit during peak spring bloom on May 9, 2019. Of the 20 Channel Assessment Reaches (CARs), all but 3 met the performance standard of a minimum 20% of vegetation cover within the ordinary high water mark. Cover for all 20 CARs ranged from 3-86% and averaged 34%. The channel was strongly dominated by Italian ryegrass. Other characteristic species present in in the channel include small fescue (*Festuca microstachys*), toad rush (*Juncus bufonius* var. *bufonius*), soft chess (*Bromus hordeaceus*), tomcat clover (*Trifolium wildenovii*), slender oats (*Avena barbata*), Mediterranean barley, hare barley (*Hordeum murinum* subsp *leporinum*), long-beaked filaree (*Erodium botrys*), bindweed (*Convolvulus arvenis*), and rose clover (*Trifolium hirtum*).

Channel Stability Monitoring

The ephemeral channel was assessed for stability during each hydrology monitoring visit, and no areas of erosion, downcutting, or excessive cattle damage were noted. The restored ephemeral channel carried water as designed. A portion of the unrestored channel at the far downstream

end, which was left in its original state, expanded out into a wide, braided area before coalescing back into a single channel at the downstream culvert.

Recommendations

In total, 36 of the 37 created seasonal wetlands and 18 of the 20 Channel Assessment Reaches met all of the applicable performance standards in Year 1.

Seasonal Wetlands

The wetlands performed relatively well, with the majority reaching and exceeding as-built depths. Wetland 8 was the only wetland that did not meet the 14-day ponding performance standard, as it was only verified ponding a small amount of water during a single site visit in the height of the rainy season. Based on its observed performance, it is likely that Wetland 8 would only meet the 14-day ponding performance standard in years with exceptionally high rainfall.

As vegetation continues to colonize the seasonal wetlands, higher cover may result in fewer species being chosen as dominant which will clarify which seasonal wetlands are dominated by wetland vegetation and which are not. In future years of monitoring, it may be useful to collect data in the center of the seasonal wetland separately from data on the margins, or only collect data in the area that appears to be seasonal wetland.

The majority of invasive weeds present in created seasonal wetlands on site are scattered throughout the restoration site. Stinkwort should be controlled throughout the restoration site in summer and fall. If black mustard becomes established in wetlands on site, it should also be controlled, particularly in seasonal wetlands that dry early in the season.

Ephemeral Channel

The ephemeral channel was well-vegetated and all sites met the performance standard with the exception of CAR-2 and CAR-3 at the upper reaches of the stream, and CAR-20 at the downstream end of the channel which is where rock slope protection was placed to maintain stability at the culvert under Empire Mine Road. It is anticipated that vegetation on site will continue to grow and expand, and that all sites except CAR-20 will meet this performance standard in Year 2 of monitoring. Because CAR-20 is rocked, the vegetation cover performance standard should not apply at this location.

An approximately 350-foot long reach located at the farthest downstream part of the channel does not have a defined bed and bank, and consequently the flow expands out into a wide, braided channel. This section should continue to be closely monitored for any erosion.

Erosion and downcutting were noted along the same upland spillway that was identified in the As-Built report. This section should be repaired before any more significant erosion occurs.

Figure 10. Location of Habitat Restoration and Creation Projects

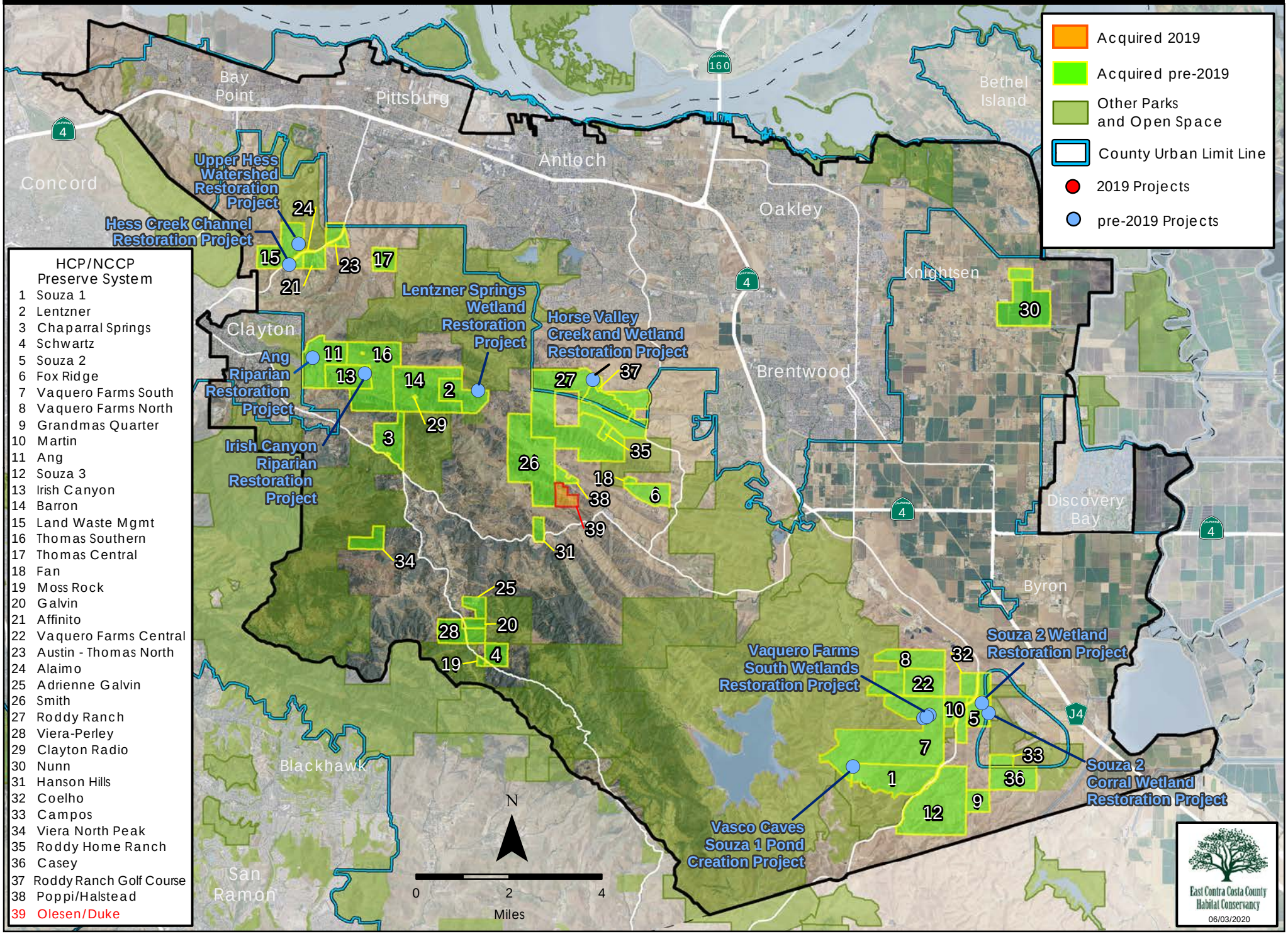


Table 12. Aquatic and Stream Land Cover Restoration and Creation by Watershed

	Aquatic Land Cover (acres)								Stream Land Cover (linear feet)				
Basin/Watershed	**Riparian woodland/ scrub**	**Perennial wetlands[1]**	**Seasonal wetlands**	**Alkali wetlands**	**Ponds**	**Reservoir (open water)[2]**	**Slough/ channel**	**Aquatic Land Cover Total**	**Perennial**	**Intermittent**	**Ephemeral**	**Classification Pending**	**Stream Land Cover Total**
Brushy Creek N Stem Sub Basin													
Restoration	--	0.16	8.10	--	--	--	--	8.26	--	2,074.58	--	507.61	2,582.19
Creation	--	--	--	--	0.30	--	--	0.30	--	--	--	--	0.00
subtotal	*0.00*	*0.16*	*8.10*	*0.00*	*0.30*	*0.00*	*0.00*	*8.56*	*0.00*	*2,074.58*	*0.00*	*507.61*	2,582.19
Frisk Creek Sub Basin													
Restoration	--	--	0.33	--	--	--	--	0.33	--	--	--	--	0.00
Creation	--	--	--	--	--	--	--	0.00	--	--	--	--	0.00
subtotal	*0.00*	*0.00*	*0.33*	*0.00*	*0.00*	*0.00*	*0.00*	*0.33*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Kirker Creek													
Restoration	3.08	--	0.23	2.40	--	--	--	5.71	--	--	--	1,759.56	1,759.56
Creation	--	--	--	--	0.12	--	--	0.12	--	--	--	--	0.00
subtotal	*3.08*	*0.00*	*0.23*	*2.40*	*0.12*	*0.00*	*0.00*	*5.83*	*0.00*	*0.00*	*0.00*	*1,759.56*	*1,759.56*
Sand Creek Sub Basin													
Restoration	--	--	2.00	0.05	--	--	--	2.05	--	4,150.00	--	--	4,150.00
Creation	--	--	--	--	0.19	--	--	0.19	--	--	--	--	0.00
subtotal	*0.00*	*0.00*	*2.00*	*0.05*	*0.19*	*0.00*	*0.00*	*2.24*	*0.00*	*4,150.00*	*0.00*	*0.00*	*4,150.00*
Upper Mt. Diablo Creek													
Restoration	2.31	--	--	--	--	--	--	2.31	--	2,253.51	--	--	2,253.51
Creation	--	--	--	--	--	--	--	0.00	--	--	--	--	0.00
subtotal	*2.31*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*2.31*	*0.00*	*2,253.51*	*0.00*	*0.00*	*2,253.51*
Total Creation for Inventory Area	**5.39**	**0.16**	**10.66**	**2.45**	**0.61**	**0.00**	**0.00**	**19.27**	**0.00**	**8,478.09**	**0.00**	**2,267.17**	**10,745.26**

[1] *Perennial wetlands* include wetlands of indeterminate hydrology. In Appendix J, perennial wetlands are classified as *wetlands.*

[2] The term *aquatic* used in Appendix J refers to reservoirs and open water. *Reservoir (open water)* is used to in place of *aquatic* in this table to remain consistent with the other tables in this report.

Restoration Project Name	Year Constructed	Habitat Type	Required Monitoring	Performance/ Success Criteria	2019 Status	Target Species Observed On-Site (Post Restoration)	Notes
Lentzner Spring Wetland Restoration Project	2008	Alkali Wetland	Years 1-5	Years 1-3 survival; Years 4-5 (or more) total relative cover of native wetland vegetation	Completed: Year 7 (2015) Recommended modified success criteria and project completion[1]	N/A[2]	Project extended monitoring beyond 5 years due to not meeting original success criteria related to drought. New vegetation success criteria and project sign-off set for Year 7 (2015).
Vasco Caves Souza I Pond Creation	2008	Seasonal Wetland	Years 1-5	Inundation; Edges and margins dominated by wetland vegetation	Completed: Year 7 (2015)[1]	CTS and CRLF	Project extended monitoring beyond 5 years due to not meeting original success criteria (presence of invasive plant). Year 7 met inundation and wetland vegetation criteria. Did not meet CEPPC criterion due to Italian rye grass, which is a FAC species on the CEPPC list. This species is not going to be eradicated and is expected to decline in abundance with continuous non-drought years and establishment of FACW and OBL species.
Souza II Wetland Restoration Project	2009	Alkali Wetland Seasonal Wetland	Years 1-5	Total relative cover of native wetland vegetation; Total absolute cover of non-native invasive species inundation; Wetland acreage	Completed: Year 6 (2015)[1]	CTS and CRLF	Project extended monitoring beyond 5 years due to not meeting original success criteria related to drought.
Irish Canyon Riparian Restoration Project	2009-2010	Riparian woodland	N/A	N/A	Year 10 (2019)	CRLF continue to be present in the area	

Restoration Project Name	Year Constructed	Habitat Type	Required Monitoring	Performance/ Success Criteria	2019 Status	Target Species Observed On-Site (Post Restoration)	Notes
Upper Hess Watershed Restoration Project	2011	Seasonal Wetland Stream Channel CTS Breeding	Years 1-5	Relative cover of wetland vegetation; Wetland acreage Stream channel; CTS breeding pond area	Year 8 (2019)	CRLF	Several of the required performance criteria were not met by the end of monitoring Year 8. Conservancy will continue to monitor and adaptively manage the project until such time that it does meet success criteria. Recommended additional remedial grading would improve the performance of the Alluvial Valley Wetlands.
Souza II Corral Seasonal Wetland Restoration Project	2012	Seasonal Wetland Vernal Pool	Years 1-5	Inundation; % Dominated by wetland vegetation; Relative cover of native wetland vegetation; Wetland acreage	Completed; Year 5 (2017)	CTS, VPFS	In Year 5, the Souza II Corral Seasonal Wetland met and exceeded the annual performance criterion for hydrology. During Year 5 monitoring the created wetland exhibited a total herbaceous cover of approximately 60%.
Vaquero Farms Seasonal Wetlands Creation Project (Pools 1 and 2)	2012	Seasonal Wetland	Years 1-5	Inundation; % Dominated by wetland vegetation; Relative cover of native wetland vegetation; Wetland acreage	Year 7 (2019)	VPFS only in pond 1, CTS only in pond 2	Both wetlands met hydrology criteria in Year 5 and Year 7. Seasonal Wetland 1 did not meet the hydrology criteria in Year 6. Both seasonal wetlands met the hydrophytic plant criteria in Year 7.
Hess Creek Channel Restoration Project	2014	Seasonal Wetland Stream Channel Riparian Woodland Riparian Streamside	Years 1, 2, 3, 5, 7, 10	Relative cover of wetland vegetation; Wetland acreage; Stream channel; Riparian vegetation cover; Riparian vegetation survival; Invasive vegetation cover	Year 5 (2019)	Project is movement habitat and not breeding habitat	Overall project is meeting Year 5 performance criteria with the exception of re-established wetland acreage. Recommended protective tree cage release is expected to add significant growth of native plantings in the upcoming season.

Restoration Project Name	Year Constructed	Habitat Type	Required Monitoring	Performance/ Success Criteria	2019 Status	Target Species Observed On-Site (Post Restoration)	Notes
Vaquero Farms Seasonal Wetland Creation (Pool 3)	2015	Seasonal Wetland	Years 1-5	Inundation; % Dominated by wetland vegetation; Relative cover of native wetland vegetation; Wetland acreage	Year 4 (2019)	VPFS Year 2 and 4	Seasonal Wetland 3 mirrored the control wetland's hydroperiod and the hydrologic performance criterion was met in Year 4. Seasonal Wetland 3 also met the Year 4 success criterion of 2% hydrophytic vegetation cover or greater.
Ang Riparian Restoration Project	2017	Riparian woodland	N/A	N/A	Year 3 (2019)	N/A	Red willow plantings were completed in early 2019. Weeding, watering, and replanting of failed seed were conducted in 2019. Feral pig damage was noted at two planting sites.
Horse Valley Creek and Wetland Restoration Project	2018	Seasonal Wetland Stream Channel CRLF and CTS Breeding	Years 1-5	N/A	Year 1 (2019)	CTS	26 of the 37 seasonal wetlands and 18 of the 20 Channel Assessment Reaches met all applicable performance standards for Year 1. CTS larvae discovered entrapped in erosion control jute netting at stock pond, recommend curtailing use at any potential breeding habitat.

[1] Final projects are in preparation for submission to the U.S. Army Corps for final approval.

[2] Due to the remoteness of the location, this site is not accessible during the wet season making species monitoring difficult.

Restoration, Creation, and Enhancement Design Target if Not Complete or Final (acres unless otherwise noted)												
Restoration Project Name	**Year Constructed**	**Year Completed**	**Permanent Wetland Created**	**Permanent Wetland Restored**	**Seasonal Wetland Created**	**Seasonal Wetland Restored**	**Seasonal Alkali Wetland Created**	**Seasonal Alkali Wetland Restored**	**Pond Restored**	**Riparian Restored**	**Stream Channel Restored (ln ft)**	**Stream Channel Created (ln ft)**	**Enhanced**
Lentzner Spring Restoration Project	2008	2015	0.00	0.00	0.00	0.00	0.08	0.23	0.00	0.00	0.00	0.00	N/A
Vasco Caves Souza I Pond Creation Project	2008	2015	0.00	0.00	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Souza II Wetland Restoration Project	2009	2015	0.00	0.54	0.17	0.00	1.17	0.64	0.00	0.00	2,782	0.00	N/A
Irish Canyon Riparian Restoration Project	2009-2010	2016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	688.50	0.00	N/A
Upper Hess Watershed Restoration Project	2011	N/A	0.00	0.00	0.00	2.47	0.00	0.00	0.06	0.00	226	0.00	N/A
Souza II Corral Seasonal Wetland Restoration Project	2012	2017	0.00	0.00	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.117
Vaquero Farms Seasonal Wetlands Creation (Pools 1 and 2)	2012	2018	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Hess Creek Channel Restoration Project	2015	N/A	0.00	0.00	0.30	0.00	0.00	0.00	0.00	3.13	1,364.00	730	N/A
Vaquero Farms Seasonal Wetland Creation (Pool 3)	2015	N/A	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
Ang Riparian Restoration Project	2016 (late Fall)	N/A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00	0.00	N/A
Horse Valley Creek and Wetland Restoration Project	2018	N/A	0.00	0.00	2.25	0.00	0.00	0.00	0.17	0.00	4,150.00	0.00	N/A
TOTAL			**0.00**	**0.54**	**4.58**	**2.47**	**1.25**	**0.87**	**0.23**	**5.60**	**9,210.50**	**730.00**	**1.12**

Table 13c. Hess Creek Channel Restoration Project (2014) Specific Objectives and Performance Criteria

Restoration Specific Objectives	Performance Criteria
Wetlands (and Other Aquatics)	
SO-1. Maintain or increase native emergent wetland vegetation.	Qualitative assessments, including photo documentation before and after restoration activities in Years 1-3, and 5, determine that native emergent wetland vegetation has been maintained or increased.
SO-2. Reduce sediment deposition and transport along Hess Creek.	Maintenance of a stable channel that conveys flow through the restoration site in Year 1-3, 5, 7 and 10.
SO-3. Maintain or increase wetland capacity.	Wetland acreage onsite has been maintained or increased and is in the range of the targeted 0.3 ac of restored wetlands within 5 years following restoration implementation.
SO-4. Maintain or increase flows to and connectivity among wetlands and wetland complexes.	Qualitative assessment, including photo-documentation before and after restoration activities in Years 1-3, 5, 7 and 10, determines that Hess Creek is hydrologically connected between the restored channel and seasonal wetlands.
SO-5. Eliminate or reduce non-native invasive plant species[1] in the project area wetlands.	Total percent cover of non-native invasive plant species is no more than 10% cover in wetlands.
SO-6. Maintain or enhance upland habitat in close proximity to wetlands to support the life-history requirements of wetland dependent covered species.	Qualitative assessment, including photo-documentation before and after restoration activities in Years 1-3, 5, 7 and 10, determines that upland habitat in close proximity to the restored wetlands has been maintained or enhanced to support the life-history requirements of wetland-dependent covered species.
SO-7. Restore approximately 0.30 ac of seasonal wetlands to compensate for permanent loss of this habitat.	Approximately 0.30 ac seasonal wetlands have been restored (confirmed via wetland delineation in Year 5) and meet the annual performance criteria.
SO-8. Restore approximately 0.3 ac of seasonal wetlands to contribute to the recovery of covered species.	Approximately 0.3 ac seasonal wetlands have been restored (confirmed via wetland delineation in Year 5) and meet the annual performance criteria.

Stream and Riparian Woodland Scrub	
SO-9. Protect a minimum of 0.5 linear mi of Hess Creek.	Qualitative assessment, including photo-documentation before and after restoration activities in Years 1-3, 5, 7 and 10, determines that a minimum of 0.5 linear mi of Hess Creek has been protected.
SO-10. Acquire approximately 2.6 ac of riparian/scrub habitat.	Acquire 2.6 ac of riparian/scrub habitat.
SO-11. Maintain or increase the cover, width, and connectivity of existing riparian vegetation.	Mapping before and after restoration activities in Years 3, 5, 7 and 10, determines that the cover, width, and connectivity of existing riparian vegetation has been maintained or increased.
SO-12. Reduce the biomass, cover, and extent of non-native invasive plant species in riparian woodland habitat.	Total cover of non-native invasive plant species is no more than 10% in riparian woodland habitat.
SO-13. Restore shaded riverine aquatic habitat to reduce water temperature and temperature variation.	Approximately 0.45 ac riparian streamside habitat has been restored and meets the annual performance criteria.
SO-14. Restore shaded riverine aquatic habitat to increase inputs of organic matter into Hess Creek.	Approximately 0.45 ac riparian streamside habitat has been restored and meets the annual performance criteria.
SO-15. Reduce sediment input and downstream sediment transport and deposition in Hess Creek.	Maintenance of a stable channel that conveys flow through the restoration site in Year 1-3, 5, 7 and 10.
SO-16. Maintain and enhance instream structural diversity.	Maintenance of a stable channel that conveys flow through the restoration site in Year 1-3, 5, 7 and 10.
SO-17. Improve stream flow and connectivity along Hess Creek for native aquatic wildlife.	Maintenance of a stable channel that conveys flow through the restoration site in Year 1-3, 5, 7 and 10.
SO-18. Restore riparian woodland in addition to that required above as compensation for habitat loss.	Approximately 2.57 ac of riparian woodland/streamside habitat have been restored and meets the annual performance criteria.
SO-19. Restore native species richness and diversity, vegetative cover, wildlife function and hydrologic function.	Approximately 0.3 ac of seasonal wetland and 2.57 ac of riparian woodland/streamside habitat have been restored and meets the annual performance criteria in Tables 7, 8, and 9; and approximately 930 ln ft of stable channel has been created/maintained that conveys flow through the restoration site in Year 1-3, 5, 7 and 10.

[1] Non-native invasive plant species include those species with high impact rankings by the California Invasive Plant Council (Cal-IPC), and any other species determined to threaten successful restoration of the native plant communities onsite (California Invasive Plant Council 2006).

Table 13d. Vaquero Farms Seasonal Wetlands Creation Project (Pools 1 and 2; 2012 and Pool 3; 2015)
Specific Objectives and Performance Criteria

Restoration Specific Objectives	Performance Criteria
SO-1. Create new seasonal wetlands.	At the end of the five-year monitoring period the maximum wetland acreage. Seasonal Wetland 1 will be 0.07 acre, Seasonal Wetland 2 will be 0.13 acre, and Seasonal Wetland 3 will be 0.15 acre.
SO-2. Increase wetland capacity and water duration in the project area.	The created wetland area must remain saturated or inundated to the surface for at least 30 days each fall/winter/spring over a five year monitoring period, but should not exceed 4 months of continuous standing water.
SO-3. Establish hydrophytic plant species.	Total cover must not vary between the natural pool and the created seasonal pools by more than 25 percent. At the end of five years the created seasonal wetlands shall support at least 51% total cover. At least 51% of hydrophytic species cover shall be composed of native California wetland species.

Table 13e. Upper Hess Habitat Restoration Project (2011) Specific Objectives and Performance Criteria

Wetlands (and other Aquatic)	Performance Criteria
SO-1. Increase the abundance and distribution of native emergent vegetation in the project area.	See annual performance criteria in Table 13f.
SO-2. Reduce erosion along Upper Hess Creek.	Qualitative assessment including photo documentation before and annually for 5 years after restoration activity determines that erosion along the Upper Hess Creek onsite has been reduced.
SO-3. Increase wetland and pond capacity and water duration in the project area.	Wetland and pond acreage onsite has increased and is in the range of the targeted 2.47 acres of restored wetlands and 0.12 acre of restored pond within 5 years following restoration construction.
SO-4. Hydrologically reconnect the Upper Hess Creek from lower stock pond to channel at property boundary.	Qualitative assessment and hydrologic monitoring based on photo-documentation and seasonal shallow groundwater monitoring annually for 5 years after restoration activity shows that Upper Hess Creek is hydrologically connected between the lower stock pond and the restored channel at the property line.
SO-5. Reduce non-native plant species in restored wetlands.	Total absolute cover of non-native invasive plant species[1] no more than 10% relative cover.
SO-6. Restore approximately 2.32 acres of alkali wetlands in the project area.	Approximately 2.32 acres alkali wetlands have been restored and confirmed via wetland delineation.
SO-7. Create an approximately 0.12 acre California tiger salamander breeding pond.	An approximately 0.12 acre pond will have been restored and confirmed via wetland delineation.
SO-8. Restore approximately 2.32 acres of alkali wetlands.	Approximately 2.32 acres alkali wetlands have been restored and met the annual performance criteria in Table 7 and confirmed via wetland delineation.
SO-9. Create an approximately 0.12 acre California tiger salamander breeding pond in upper tributary.	Same as for SO-7
SO-10. Restore 489 linear feet of stream channel and hydrologically connect Upper Hess Creek from the main stock pond to channel at property boundary.	Same as for SO-4
SO-11. Create 0.12 acres California tiger salamander pond, enhance existing main pond, restore 489 linear feet of channel, restore approximately 2.32 acres of alkali wetlands.	Same as for SO-6, SO-7, and SO-8

[1] Non-native invasive plant species include those species with high impact rankings by the California Invasive Plant Council (Cal-IPC), and any other species determined to threaten successful restoration of the native plant communities onsite (California Invasive Plant Council 2006).

Table 13f. Upper Hess Habitat Restoration Project Performance Standards

Year	Criterion	Satisfactory Progress Threshold
1	Average relative percent cover of dominant wetland indicator species	5% Cover
2	Average relative percent cover of dominant wetland indicator species	10% Cover
3	Average relative percent cover of dominant wetland indicator species	20% Cover
4	Average relative percent cover of dominant wetland indicator species	35% Cover
5	Average relative percent cover of dominant wetland indicator species	50% Cover

Table 13g. Horse Valley Creek and Wetland Restoration Project (2018) Specific Objectives and Performance Criteria

Wetlands (and other Aquatic)	Performance Criteria
SO-1. Increase native emergent vegetation and habitat for benefited species by creating 37 new seasonal wetlands (2.25 acres)	a) Wetland remains ponded for a minimum of 14 continuous days during the rainy season. b) Wetland is dominated by wetland vegetation or otherwise meets the USACE definition of wetland vegetation. c) Invasive weeds are less than 10% absolute cover. d) Wetland supports a minimum 20% vegetation cover within the ordinary high water mark.
SO-2. Reduce sediment deposition and downstream transport by remediating the onsite sources of excessive sediment and repairing incised and erosive stream channel.	Qualitative assessment including photo documentation before and annually for 5 years after restoration activity determines that erosion in tributary drainages and on site has reduced. Restored creek channels are generally stable and intact with <1% of all channel banks exhibiting signs of erosion or other instability.
SO-3. Increase wetland and pond capacity and duration by creating new seasonal wetlands.	Wetland and pond acreage onsite has increased and is in the range of the targeted 2.25 acres of restored wetlands within 5 years following restoration construction. A Formal wetland delineation completed at the end of Year 5 shows wetland meets jurisdictional criteria.
SO-4. Increase flows to and connectivity among wetlands and wetland complexes by creating 37 new pools within a hydrologically connected wetland complex.	Qualitative assessment and hydrologic monitoring based on photo-documentation annually for 5 years after restoration activity shows the creek is hydrologically connected between the channel and floodplain wetlands.
SO-5. Improve streamflow and connectivity by restoring the ephemeral stream channel to its historic location and channel geometry.	Restored creek channel demonstrate a measured net increase in linear footage from pre-restoration conditions and maintains stability in the historic channel.
SO-6. Restore wildlife habitat function and hydrologic function by creating a new wetland complex and restoring the ephemeral stream channel to its historic location and channel geometry.	a) CTS habitat wetlands (designed for greater than 15 inches maximum ponding depth) remain ponded for a minimum of 100 continuous days during the rainy season. b) CRLF habitat wetland (designed for greater than 24 inches maximum ponding depth) remains ponded for a minimum of 200 continuous days during the rainy season. c) Wetland supports presence of target listed shrimp species for several years after initial inoculation with cysts (timing of inoculation TBD based on site conditions and cyst availability).

V. PRESERVE MANAGEMENT

The Plan requires that preserve management plans be developed for each preserve to identify management actions necessary for maintaining ecosystem characteristics and functions and for maintaining or improving existing habitat conditions for covered species. Preserve management plans also describe allowed uses such as recreation. This approach ensures that preserve lands management is consistent with the Plan's goals and objectives.

Preserve System lands are managed according to the preserve management plan or if a management plan is not yet prepared, the lands are managed consistent with the Plan. The following sections describe the progress to date in developing the first preserve management plan and implementing management actions.

Preserve Management Plans

Preserve management plans were originally expected to be prepared within 1 year of land acquisition; however, they have taken longer. This is due to the decision to cover many adjacent properties under one coordinated management plan, the rapid pace of acquisition, and the complexity of developing plans for larger areas. Preserve management plans are working documents and may be modified based on the evaluation of management methods in achieving objectives as well as on results of outside research. The Conservancy will formally review and systematically revise preserve management plans at least every 5 years, but management measures may be modified prior to plan updates in cases where adaptive management or new research identifies more effective techniques.

The *Vasco Hills/Byron Vernal Pools Preserve Management Plan* is under development. The Vasco Hills/Byron Vernal Pools Preserve Management Area is the southeastern portion of the inventory area, covering Acquisition Analysis Zone 5. The management area consists of eleven properties that have been acquired for the Preserve System: Vaquero Farms North, Vaquero Farms Central, Vaquero Farms South, Souza I, Souza II, Souza III, Grandma's Quarter, Martin, Coelho, Campos, and Casey.

The Conservancy and EBRPD staff are collaborating closely on finalizing the *Vasco Hills/Byron Vernal Pools Preserve Management Plan*, reviewing numerous iterations of draft materials. The final draft of the preserve management plan was provided to the Wildlife Agencies and EBRPD for review in 2018. A public draft was released in 2018 and is going through subsequent edits prior to finalization in 2020. This is the first preserve management plan prepared by the Conservancy and can be expanded to include neighboring properties as others in the area are acquired. The *Vasco Hills/Byron Vernal Pools Preserve Management Plan* will become a template for future preserve management plans prepared for other regions of the Preserve System.

While comprehensive management planning is underway, implementation of management activities have continued throughout the Preserve System and are described below.

Conceptual Ecological Models

A component of preserve management plans is a monitoring plan. The initial "monitoring design phase" of the HCP/NCCP focuses on the development of management-oriented conceptual ecological models, prioritization and implementation of projects, the identification of focal species or groups of species for intensive monitoring, and the selection of biotic and abiotic indicators of ecosystem condition. The HCP/NCCP requires annual reports to describe any conceptual ecological models developed to date and any changes to them that have taken place. To date, four separate conceptual ecological models for the grassland, wetland/pond, oak woodland, and riparian natural communities have been developed for the HCP/NCCP.

The conceptual ecological model includes all the threats and stressors that may affect these natural communities over the life of the permit term that can be managed. Based on the Monitoring Program's passive management approach, the focus of management actions in grasslands will be on grazing and invasive species management and will expand to address the other threats/stressors as needed. The initial focus of management actions for wetlands/ponds is on grazing, invasive species management, and habitat restoration/enhancement, and will expand to address the other threats/stressors as needed. For oak woodlands the focus of management will be those factors that limit oak regeneration, which includes non-native plant species and feral pigs. For riparian woodland, the focus of management will be to minimize habitat degradation through management of livestock access to watercourses and management of riparian vegetation. The riparian woodland conceptual ecological model also includes an action to restore engineered channels and restore floodplain connectivity.

Natural Community Enhancement

Natural community enhancement has been ongoing since permit issuance. This section describes the HCP/NCCP natural community enhancement conservation measures implemented during the 2019 reporting period, and provides an effort-to-date summary of the extent of land cover types enhanced.

Efforts in 2019

During the reporting period, several management strategies were applied to enhance natural communities within the Preserve System. Management techniques have been implemented in support of Conservation Measures 2.1 *Enhance, Restore, and Create Land Cover Types and Species Habitat*, Conservation Measure 2.2 *Manage Wetlands and Ponds*, Conservation Measure 2.4 *Manage Grassland*, Conservation Measure 2.6 *Manage Oak Woodland and Oak Savannah*, Conservation Measure 2.9 *Manage Streams and Riparian Woodland/Scrub*

Natural Resource Maintenance and Enhancement Projects

In 2019, natural resource maintenance and enhancement projects continued on all properties within the Vasco Hills/Byron Vernal Pools Preserve management area, Clayton Ranch management area, Concord Hills management area, Deer Valley management area, as well as at the Black Diamond Mines Regional Preserves and the Nunn property. Projects initiated in previous years continued in 2019.

Invasive Plant Control

- Removed 30 acres of Dittrichia and other invasives on the Byron Vernal Pools properties.
- Sprayed approximately ½ acre of Perennial Pepperweed and Dittrichia near the arena at Vaquero Farms Central.
- Pulled 200+ Dittrichia around Vaquero Farms Service Yard.
- Pulled 50 Russian Thistle around the VFC Service Yard.
- Mowed ¼ acre of Italian & Milk Thistle at Coelho West.
- Removed, mowed and sprayed invasive plants (various) at the former Roddy Ranch Golf Course (75+ acres).
- Mapped Pepperweed at Nunn property
- Monitored the dune scrape area for native dune vegetation and weeds.

Invasive Wildlife Control

In 2019, feral pig management was continued at various locations around the preserve to address damage to grasslands and young trees.

Grazing Management

EBRPD staff oversees the grazing operations on the Preserve. Staff met with grazing tenants to prepare annual work plans, monitor grazing units and produce stocking reports. The grazing leases are based on the EBRPD template and maximize natural resource management. Under this lease structure, rent is based on stocking rate rather than per acre. The goal is to encourage the use of sustainable stocking rates that maximize resource values rather than maximizing the number of livestock per acre. Stocking reports were reviewed monthly. Grazing manage occurred on all properties in the Preserve System.

Land Management

This section summarizes management activities undertaken on the HCP/NCCP preserves during the 2019 reporting year and discusses management issues on the preserves.

For the 2019 reporting year, management consisted of the enhancement actions described above, as well as ongoing maintenance, safety and security and planning activities. Land management activities conducted in 2019 are summarized below (excludes those activities that were discussed above in *Natural Community Enhancement*).

- General Inspections and Safety and Security
    - All properties patrolled at least 1 once a week, as well as additional visits if needed to respond to emergencies or address outstanding issues.
    - Replace locks and remove unauthorized locks on gates
    - Respond to alarms (motion sensor) at various properties, review and monitor security camera recordings
    - Respond to various trespassers on properties including break-ins to facilities, homeless encampments, hikers and campers.
    - Weed abatement for fires safety around structures
- Clean up
    - Debris removal of illegal dumped trash at various property entrances
    - Clear and remove hazard and fallen trees and brush
    - Remove old infrastructure from properties including old fence lines, old pipes, railroad ties, and debris from damaged structures.
- General Maintenance, Infrastructure and Activities
    - Installed extensive fencing and gates for new (and existing) grazing units – in excess of 5 miles in length.
    - Repaired and secured stock water infrastructure, pumps, pipe and solar panels.
    - Rocked and compacted approximately 1500’ of fire trail to maintain all weather access to the water discharge pump platform area on the Nunn property
    - Trail (access ranch road) mowing and grading – in excess of 35 miles.
    - Coordination to discuss: management activities, pre-bid walk throughs, project development, funding, grazing, encroachment permits, research and tours for new staff.

VI. MONITORING, RESEARCH, AND ADAPTIVE MANAGEMENT

The Plan provides a framework, guidelines, and specific suggestions to help the Conservancy develop a detailed monitoring program during the initial years of Plan implementation. The purpose of the monitoring and adaptive management program is to inform and improve conservation actions in the Preserve System and to ensure that the Plan achieves its biological goals and objectives. The scope of the monitoring and adaptive management program is limited to habitat restoration and creation and the assembly, management, and monitoring of the Preserve System.

Monitoring

The Plan requires two broad types of monitoring: effectiveness monitoring and compliance monitoring.

Effectiveness Monitoring

Effectiveness monitoring is the measurement of variables that allow the Conservancy to assess the success of the Plan in meeting its stated biological objectives. The Plan divides the effectiveness monitoring program into three main phases: 1) the *initial monitoring design phase*, to lay the foundation of the overarching monitoring program; 2) the *inventory phase*, which focuses on the collection of basic information as the Preserve System is assembled; and 3) the *long-term monitoring phase*, which will use the framework developed during the planning and inventory phases to carry out effectiveness monitoring. Each of these three phases, as well as progress toward completing each phase, is discussed below.

Restoration monitoring is a type of effectiveness monitoring that is specific to restoration projects. Restoration monitoring is discussed in Section IV, *Habitat Restoration and Creation*.

Monitoring Design Phase

The monitoring design phase occurs during the first 5 years of Plan implementation/preserve management. It involves the development of a comprehensive monitoring strategy that will provide a framework for the inventory and long-term monitoring. This phase includes the development of species conceptual models and monitoring protocols.

In 2015 and 2016, draft protocols were developed for the Vasco Hills/Byron Vernal Pools Management Area for monitoring the effectiveness of management actions and the status and trends of covered species. A complete draft of the revised protocols were provided to the Wildlife Agencies in early 2018. When finalized, the Conservancy anticipates these protocols will be standardized for implementation throughout the Preserve System.

Inventory Phase

The inventory phase is intended to provide baseline data for monitoring the success of habitat restoration, creation, enhancement, and management actions to meet the Plan's biological goals and objectives. The inventory design includes standardized protocols necessary for implementing the inventory phase so that meaningful and consistent baseline data are collected.

The inventory phase was initiated in early- to mid-2008 in the form of pre-acquisition surveys when the first lands were considered for acquisition and incorporation into the Preserve System. Since 2010, Nomad Ecology has been inventorying new acquisitions for special-status plant species and for wetland features. An annual report is produced and the Conservancy updates GIS data. The following is a summary of the results of these baseline inventory surveys as reported in *2019 Covered Plant Species Inventory of Preserve System Acquisitions* (Nomad Ecology 2019c).

Plants

HCP/NCCP plant species (covered and no-take species) inventories and focused botanical surveys were conducted in March, April, May, and June 2019, to correspond with blooming periods. Properties surveyed included Olesen/Duke, Poppi/Halstead and Vaquero Farms Central. The 2019 survey effort was primarily focused on the Olesen/Duke acquisition since it was the newest of the acquisitions and had not been previously surveyed for rare plants during appropriate blooming periods. The Poppi/Halstead and Vaquero Farms Central acquisitions were only surveyed in March to target early-spring species that were not covered during 2018 surveys, and to find undocumented populations.

The primary object of these surveys was to target areas of suitable habitat for covered and no-take species. If habitat is present, either the entire or partial area of suitable habitat was surveyed in 2019. These surveys were executed by walking transects within target species' suitable habitat. These transects were separated by a distance of up to 10 meters apart, depending on the target species, topography, or subject plant community. Visual surveys are considered adequate for determining the presence or absence of covered plant species that have a potential to occur within preserve acquisitions. Census information for plant populations encountered were enumerated either by direct count or estimation.

Data collected in the field conformed to reporting requirements appearing in Chapter 5, *Incorporating Covered Plant Populations in the Preserve System*, of the HCP/NCCP. Accordingly, five relevant characteristics were recorded (physical condition, age structure, reproductive success, availability of suitable habitat, and diversity of suitable habitat). GIS shapefiles of covered species occurrences were created using global positioning system (GPS) point data collected in the field.

During the course of these surveys, two covered plant species were observed within acquisition properties: San Joaquin spearscale (*Extriplex joaquinana*), and Brewer's dwarf flax (*Hesperolinon breweri*). Overall, a total of two populations of covered plant species were recorded with an estimated number of 1,811 individuals represented. No-take species were not observed during these surveys. The populations of covered plant species are considered healthy based on

observations of physical condition, reproductive success, and abundance and diversity of suitable habitat. However, the San Joaquin spearscale population should be closely monitored as it may be susceptible to decline given the low number of individuals.

In addition, one non-covered, but special status, plant species was observed during covered plant inventory surveys: Jepson's coyote thistle (*Eryngium jepsonii;* CRPR[4] 1B.2). Although not included in the HCP/NCCP as covered or no-take species this taxon is considered rare by the CNPS and CDFW.

The surveys in 2019 did not result in meeting any new population goals for covered plant species, although these two occurrences did add to the number of known covered plant species populations within the preserves. To date, 21 percent of the species-specific biological goals for covered plant populations still need to be met, which includes two populations each of Mount Diablo manzanita (*Arctostaphylos auriculata*) and recurved larkspur (*Delphinium recurvatum*).

A table of all HCP/NCCP covered plants that have been identified on the Preserve System, along with progress toward meeting preservation objectives, is provided in Table 10.

Long-term Preserve Monitoring Phase

As of December 2019, long-term preserve monitoring had not yet commenced. The long-term monitoring phase will commence once a comprehensive strategy has been developed and approved by USFWS and CDFW (monitoring design phase) and baseline studies are complete (inventory phase), or before then, if appropriate. Long-term monitoring will use the framework developed during the planning and inventory phases to carry out effectiveness monitoring and to implement adaptive management.

Compliance Monitoring

Compliance monitoring is the process of evaluating Plan implementation and documenting that all requirements of the Plan are being met (i.e., permit compliance). This Annual Report, which describes progress toward Plan implementation, is the documentation for Plan compliance.

To support the development of the Annual Report, the Conservancy developed a project-tracking database. This database tracks permitted activities, impacts on land cover types and species habitat, and conditions on covered activities. In addition, a Python-based script was developed to search both the project tracking database and HCP/NCCP GIS database (includes land cover mapping, acquisitions, etc.) and generate information required for the annual report.

Directed Research

Directed research is research that provides new information or direction regarding management actions. The purpose of directed research is to inform management in cases where species and

[4] CRPR is the acronym for California Rare Plant Rank which is a native plant rarity ranking assigned by the California Native Plant Society, in collaboration with the California Department of Fish and Wildlife, based on CNPS's Inventory of Rare and Endangered Plants of California (CNPS 2019).

natural community response to management is uncertain. Each year the Conservancy seeks project proposals across all scientific disciplines that advance the Plan's conservation strategy, monitoring and adaptive management program, and/or inform successful compliance with the biological goals and objectives of the HCP/NCCP. The Plan's Table 7-2 contains a list of potential directed research projects. This list is unchanged from the Plan.

The Conservancy, under the Science and Research Grant Program, may fund research that endeavors to illuminate, and where possible to resolve, uncertainties associated with adaptive management of natural communities and covered species found in the HCP/NCCP. Research selected for funding aids in achieving the biological goals and objectives of the HCP/NCCP and informs management actions and/or contributes to the general understanding of a covered species. Such research generally relates to the following.

- Efficacy of natural community enhancement/creation/restoration techniques,
- Refining ecological requirements of covered species,
- Response of covered species and natural communities to implementation of management actions within the Preserve System, or
- Strategies to conduct management or monitoring actions that support and/or lead to better management of natural communities or covered species.

Below is a list of recently completed (2019) and on-going research efforts on or related to understanding Preserve System Lands.

Special-Status and Invasive Plant Management Pilot Project

The goal of this study was to provide data to help assess weed management techniques for control of medusa head (*Elymus caput-medusae*) and barbed goatgrass (*Aegilops triuncialis*) and their potential effects on special status plants and other native forbs. In 2014, a literature review on round-leaved filaree (*California macrophylla)*, big tarplant (*Blepharizonia plumosa*), and shining navarretia (*Navarretia nigelliformis* subsp. *radians*) determined that adequate information was not available to provide the guidance needed by preserve managers to meet the HCP/NCCP's biological goals and objectives related to protecting and recovering rare plant populations. The two components of the project are: 1) a seed germination study, where seeds of the five target species were planted and monitored to document germination rates, germination timing, and phenology; and 2) an experiment comparing multiple eradication treatments on medusa head and subsequent effects on species composition. The results of the study are summarized from *Special Status and Invasive Plant Management Pilot Project* (Nomad Ecology 2019d).

Seed Germination Study


Round-leaved filaree seedlings March 2016
Photo Credit: Nomad Ecology

The seed germination study was designed as a quick and small pilot project to compare germination dynamics of the three special status species and two invasive grass species. The overarching goal was to determine if there is a viable phenology window for weed treatments that would effectively reduce weed cover while not harming sensitive and native plant populations. The seed germination trials took place at two locations, Black Diamond Mines Regional Preserve (BDMRP) and Vaquero Farms, over two seasons. Season 1 took place fall 2015-spring of 2016. Season 2 took place fall 2016-fall 2017.

In Season 1, seeds for round-leaved filaree and shinning navarretia were planted on May 5, 2015. Seeds for medusa head and barbed goatgrass were planted on June 19, 2015, and big tarplant was planted on September 9, 2015. In Season 2, seeds of round-leaved filaree and shinning navarretia were planted on June 2, 2016. Seeds of medusa head and barbed goatgrass were planted on October 25, 2016 and seeds of big tarplant were planted on September 5, 2016. Data on seed germination were collected every other week from the time of the first rains (November) to when the plants died (typically May). This was not the case with the invasive grasses as they were not allowed to go to seed as a precaution against establishing new weed populations.

The results of the seed germination study showed lower germination rates in special status plant species than the invasive grasses. Round-leaved filaree had the highest germination rates of the special status species in both years; 23% in Season 1 and 24% in Season 2. Shinning navarretia had the second highest germination rates; 16% in Season 1 and 21% in Season 2. Big tarplant had low germination rates both years at both locations. Generally, all special status species had higher germination rates, as well as higher survival rates, at BDMRP than Vaquero Farms in both seasons. Germination rates in Season 1 for medusa head (43%) and barbed goatgrass (32%) were higher than Season 2. Both medusa head and barbed goatgrass had less cover, approximately by half, in Season 2 compared to Season 1. This result could be due to the grass germination trial being moved in Season 2 to an area that had much more shade.

The seed germination study was a pilot project with a small number of samples over two years. California grassland ecology can vary greatly from year to year based on climate conditions making it difficult to identify general trends with confidence over such a short period. Despite this limitation, some differences between BDMRP and Vaquero Farms were identified. Germination rates were lower at Vaquero Farms and seeds that did germinate had a low rate of survival. These data indicate Vaquero Farms represents the edge of the environmental conditions that support the targeted special status species. This hypothesis is corroborated by previous survey results at Vaquero Farms where round-leaved filaree and shinning navarretia were

observed, but infrequently and in small populations, indicating sub-optimal habitat or a range edge.

A goal of this study was to determine if there was an early season germination difference between special status plant species and the target invasive grasses to identify a potential point of intervention where weed management would not harm special status plant species. Though the results show species germinating and developing at different times, there is not a clear and clean distinction between the two groups (special status taxa and invasive grasses) and no specific early season time was identified where target invasive grasses are vulnerable and special status species are not.

Invasive Plant Treatment Study

The invasive plant treatment study was designed to compare the effectiveness of three weed control treatments in reducing medusa head cover, and evaluate impacts of the treatments on native species composition. No study plots were installed in barbed goatgrass because there was no known population large enough within the preserve system that could contain all the necessary study plots. The study was conducted at two locations within the preserve system; Kreigor and Roddy Ranch. These locations were chosen due to the high cover of medusa head grass, presence of big tarplant, and the different microclimates they represent.

The four invasive plant treatment methods tested were: (1) hand pulling, (2) line trimming, (3) line trimming with follow-up herbicide spray, and (4) no treatment (control). This study consisted of 10, 3-meter x 12-meter plots at each location. Each plot had four sub-plots (3-meters x 4-meters) for a total of 40 sub-plots. Each subplot had one treatment applied. The study used a block design to compare the effects of each treatment. Vegetative cover data were collected using point-intercept transects. Two, three-meter transects were randomly placed in each treatment subplot and cover data were collected at every five centimeters (60 data points per transect, and 120 data points per sub-plot). Timing of data collection and treatment implementation was based on phenology of medusa head. Baseline data were collected in 2016 before treatments were applied. All treatments were implemented in the same way in 2016 and 2017, and vegetation response data were collected after one year of treatment (2017) and after two years of treatment (2018).

The invasive plant treatment study compared absolute cover of medusa head, native species, non-native species, forbs, litter, and bare ground across the four treatments over three years. Results indicated all treatments worked equally well at reducing medusa head cover after the first year of treatment. However, after two years of treatment, results indicated that line trimming with follow-up herbicide spray treatment is the most effective treatment for reducing medusa head cover. Native cover remained relatively consistent among the treatments in all seasons. Likewise, forb cover across treatments over three years did not show a significant difference between treatments. The 2018 data show a continuing decrease of forb cover in the control plots contrasted by a cover increase in the line trimming and spray treatment plots, however, variation was too high to determine statistically significant differences. A general lack

of dramatic forb response to treatments may be a result of forb populations requiring more than one or two seasons to increase cover in response to treatments. Litter cover showed little change across the years and treatments, however, results indicated a slight trend towards reduced litter in the line trimming and line trimming with spray treatments over the study period. The removal of living medusa head biomass is expected to show immediate effects on medusa head cover while having a more delayed impact on thatch reduction, as it takes time for the previously built-up thatch to decompose, especially for medusa head which has a high silica content. Bare ground, like litter, showed little change across treatments and years, however results indicated a slight trend of bare ground increasing, most notably in the line trimming with spray treatment. Though this difference was not statistically significant, it is consistent with the potential trend seen with litter cover.

An additional outcome of this study was documenting the high variation of medusa head phenology between the two locations. Kriegor Peak, in the western portion of the preserve system, is at 1,640 feet elevation and flowered much later than at Roddy Ranch, which is further east and at 600 feet elevation. The Preserve System is very topographically diverse and has properties across strong temperature and moisture gradients that can drive phenology. This illustrates a major challenge managers have when creating and implementing weed management plans, particularly for species such as medusa head where treatments rely heavily on specific phenological timing.

Longhorn Fairy Shrimp Study

In 2016, the EBRPD, along with the Conservancy and Vollmar Consulting, with funding from the U.S. Bureau of Reclamation and USFWS, began a study on longhorn fairy shrimp. While the sites selected for the study are not on Conservancy Preserve properties, they are adjacent to the Preserve at Vasco Caves and on Contra Costa Water District property. Longhorn fairy shrimp are a covered species, and the Conservancy will be providing in-kind (staff) assistance for the study. The study was originally scheduled to run through December 2019 but was extended for an additional year. Low precipitation rates in 2019/2020, combined with the suspension of field work in response to the COVID-19 pandemic, make it likely that the study will run through December 2021.

Bat Fatalities in the Altamont Pass Wind Resource Area

Recent research in the Altamont Pass Wind Resource Area (APWRA) has revealed high fatality rates of bats associated with wind energy facilities. There are several pressing needs associated with bat fatalities in the APWRA and elsewhere. The collision mechanisms need to be understood so that effective mitigation measures can be formulated (if possible). A better understanding is needed as to why bats are fatally injured by wind turbines, including the seasons, time periods, wind conditions, behaviors, and terrain and vegetation settings associated with fatalities. An improvement in the accuracy and precision of fatality estimates is also required by improving detection rates of available carcasses and the adjustments for the portion of the fatalities that are never found.

Shawn Smallwood and Doug Bell (EBRPD) implemented this study in 2017 with the following objectives:

Test whether dogs are more cost-effective for finding bat and small bird fatalities than are human searchers, or whether dogs can be effectively integrated into human searches to both improve detection rates and reduce monitoring costs.

Obtain overall searcher detection rates (*D*) for bats based on search intervals of 1-day, 3-day, and longer intervals.

Test whether bat fatality rates measured at wind turbines correlate with passage rates measured during nocturnal surveys using a thermal camera.

Test whether bat behavior rates and numbers of near misses correlate with bat fatality finds from daily searches.

Identify which species of scavengers are removing bat carcasses, and explore whether the locations of bat fatality finds correlates with nocturnal mammalian and diurnal avian scavenger activity levels.

The analysis and reporting are presented in two publications (Smallwood and Bell 2020a, 2020b), and briefly summarized below.

The study area comprised the Buena Vista Wind Energy and Golden Hills Wind Energy projects located 8 km apart in the APWRA. To compare bat passage rates to fatalities, fieldwork was conducted before, during, and after the seasonal peak of bat activity and previously documented fatalities in the APWRA. Peak bat activity in the area is typically from the last week of September to the first week of October, so observations were made 5 days per week from 4 September through 15 November 2017. Nocturnal surveys with thermal imaging equipment lasted 3 hours each, beginning at dusk to capture the time period corresponding with highest bat activity, and between 2 to 5 turbines were scanned each survey. In the morning following each nocturnal survey, a team comprised of a skilled handler and scent detection dog with proven bat detection ability, were deployed to search for fatalities at each turbine scanned the previous evening.

Bat Behavior and Passage Rates

Bat passage was defined as either a flight through the rotor plane or within 1 m of the rotor plane while flying parallel to the rotor axis. Observed collisions, near misses, disrupted flights, and any risky behavior such as chasing blades, chasing or foraging for prey, or other distracted behaviors were recorded and related to fatalities found the next day. Passage rates, rates of near misses and disrupted flights, and rates of risky flight behaviors all differed significantly and were higher at turbines where freshly killed bats were found in next-morning fatality searches than at turbines where bats were not found. Turbines where fatalities were found the next day averaged four times higher passage rates, eight times higher rates of near misses and disrupted flights, and 3.6 times higher rates of risky flight behaviors.

Bat Fatality Monitoring (using canines)

One hundred fifty-one (151) fatality searches were performed at 63 wind turbines during the study period. The first 20 searches were performed by human-only searchers, and the remaining 131 searches were performed by human-dog search teams. Dogs were able to find only one out of four bats seen colliding with turbine blades, but overall, they found far greater numbers of bat fatalities than human-only searchers. Rates of observed bat collisions, adjusted for rates of unseen collisions, predict four to seven times the number of fatalities found using dogs between the two wind projects. However, despite the much higher carcass detection rate when scent-detection dogs are used, bat fatality estimates are potentially biased low due to crippling bias and search radius.

Invasive Species Weed Mapping

In 2017, Nomad Ecology initiated a pilot study using remote sensing to map invasive weeds and native bunch grasses on the Preserve System. This project was designed to provide crucial information related to baseline conditions of natural resources under the Conservancy's stewardship that have yet to be systematically mapped within the Plan area. Utilizing species composition data collected in the field, and high-resolution multi-spectral aerial imagery collected at specific seasons, this project aimed to identify and map purple needlegrass grassland communities, invasive plant infestations, and clay barrens, as well as evaluate the applicability of these methods for future wetland and aquatic resource mapping. The results of the study are summarized below from *Native Bunchgrass and Invasive Weed Mapping Project Using High-Resolution Aerial Imagery* (Nomad Ecology 2019e).

The approximately 4,968 acre study area for this project includes all of the upland and aquatic habitat in nine HCP/NCCP parcels that comprise the Vasco Hills/Byron Vernal Pools Management Plan Area. The nine parcels are Coehlo, Grandma's Quarter, Martin, Souza 1, Souza 2, Souza 3, Vaquero Farms Central, Vaquero Farms North, and Vaquero Farms South. After this project was initiated the Conservancy incorporated two new parcels, Casey and Campos, into the Preserve system, so though not reflected in the study, they are part of the Management area.

The general approach of this project was to utilize high-resolution multi-spectral aerial imagery to target specific species based on their unique phenologies. The most commonly used phenological feature for mapping grassland species is late season vigor (greenness). In addition to late season vigor, unique signatures in the form of texture were also utilized to delineate boundaries of target species stands. Image capture began in June 2016 and concluded in June 2017. Flyovers were conducted on nine dates over the study period at times designed to capture the most dynamic phenology of target resources. Field data were collected in April, May and June 2017, and June 2018 to guide development and test limitations of remote sensing techniques for mapping target resources. Methodology for collecting field data included Rapid Assessment plots, reconnaissance plots, and delineation of target resources on paper field maps. Ground-truthing plots were collected in October 2017, and June and August 2018 by using reconnaissance plot methodology within mapped polygons to determine accuracy. Results of this effort were

used to assess remote sensing methods and to adjust or remove predicted polygons that were not accurately delineated.

Purple needlegrass mapping was most effective utilizing the June imagery. Invasive weed mapping was particularly effective utilizing the April and June imagery. Clay barrens and wetland features were most obvious in the June imagery. When purple needlegrass stands have a dense grouping of individuals with well-developed bunchgrass tussocks they are mappable at a high rate of accuracy from high-resolution aerial imagery. No consistent discernable attributes to identify weed species from the high-resolution aerial imagery were identified. Rather, areas that were "not grassland" could sometimes be identified, and these were typically an invasive weed.

Purple needlegrass grassland in the Study Area April 2017
Photo Credit: Nomad Ecology

Purple needlegrass grassland was found throughout the study area totaling 133 acres and comprised 158 polygons. Mapped polygons of purple needlegrass grassland were found on six of the nine properties that make up the study area. The majority of mapped acreage is found on three properties: Vaquero Farms South, Souza 1, and Souza 3. Souza 1 has the most acreage and most dense patches. Target invasive weeds were found on all properties throughout the study area. Though each species had unique habits and distribution patterns, the distribution of all weeds revealed strong associations with roadsides and windmill sites, with 77% of all mapped invasive weed acreage being within 100 meters of a road or windmill. Another source of ground disturbance that appears to favor weed establishment was ground squirrel burrows. Ground squirrel excavation represents ground disturbance that is not closely associated with roads or windmill sites, allowing invasive weed infestations to penetrate deeper into grassland systems. Clay barrens were found on four of the nine properties within the study area totaling 89.91 acres and comprised of 31 polygons. Clay barrens are relatively small features on the landscape ranging from 0.17 to 11.77 acres with 64% being under 3 acres. Approximately 87% of clay barren acreage within the study area is found on Vaquero Farms North, Vaquero Farms Central, and Coelho. The two properties with the most acreage are Vaquero Farms North (38.79 acres) and Coelho (22.7 acres). Coelho had the largest clay barren at 11.77 acres.

High-resolution multi-spectral aerial imagery in combination with accurate and thorough field data proved key to creating these baseline data and maps. While field data proved important in identifying the locations of target resources and identifying species, high-resolution aerial images provided a birds-eye view that allowed for more efficient and accurate mapping to target

resource extent. This improved accuracy will be key in monitoring change of vegetation dynamics into the future and help the HCP/NCCP in meeting specified conservation goals. This project resulted in a highly detailed set of data representing the spatial distribution of purple needlegrass grassland, weed species of concern, and clay barrens from which to monitor in the future. It also demonstrated the viability of using high-resolution multi-spectral aerial imagery for monitoring of wetland hydroperiod and the presence / absence and extent of hydrophytic vegetation of aquatic resources.

Monitoring Fossorial Mammal Burrows in Vasco Caves and Vasco Hills Preserves

This is the first small research proposal funded through the Conservancy's small grant program. It began in 2017 and has been extended from the original completion date of 2019 to December 2021. Shawn Smallwood and Doug Bell (EBRPD) are monitoring the impact of different grazing strategies on burrows of raptor prey species and other focal species.

Baseline Surveys and Long-term Monitoring Protocol for Burrowing Owls

In 2018, The Conservancy received a Local Assistance Grant (LAG) (Grant Agreement #P1830905) from the California Department of Fish and Wildlife (CDFW) to conduct baseline surveys for western burrowing owl within the 5,362-acre Vasco Hills/Byron Vernal Pools Management Area to aid in its implementation of the HCP/NCCP. This study (Nomad Ecology 2020) was designed with the goal of assessing the size and distribution of burrowing owl populations in the Management Area, while testing the survey methodology to ensure that it is scientifically valid, cost-effective, and can be repeated for long-term monitoring. This study also replicated previous surveys conducted by Albion Environmental (2006, 2007) within a portion of the Management Area (the 617-acre Souza 1 parcel) in order to determine whether there have been any changes in the size and reproductive success of the burrowing owl population within that parcel, which may serve as an index of the population status throughout the Management Area. A secondary part of the project focused on the feasibility of analyzing aerial imagery (acquired through a previous LAG award) to detect ground squirrel burrows as a means of remotely identifying habitat for burrowing owls.

Burrowing Owl Surveys and Monitoring Protocol

Three rounds of burrowing owl point count surveys, each covering the entire Management Area, were conducted following the road-side point count survey protocol outlined in Conway and Simon (2003). A set of 174 survey stations was utilized along an extensive network of existing ranch roads within the Management Area. Thirty-two stations on the Souza 1 parcel previously established by Albion Environmental during burrowing owl surveys conducted in 2006 and 2007 (Albion 2006, 2007) were used to gather data for comparison with the Albion surveys. GIS was used to establish an additional 142 survey stations on the other ten parcels which were then ground-truthed and adjusted as necessary to ensure visual coverage over approximately 92% of the Management Area.

Point count surveys consisted of a 6-minute survey at each station which included an initial 3-minute passive observation segment followed by a 3-minute call-broadcast segment. During the passive observation segment, surveyors used binoculars and spotting scopes to scan the landscape in a 360-degree arc around each survey station. For the call-broadcast segment, a smartphone or tablet paired to a wireless speaker was used to broadcast a 30-second series of burrowing owl calls (coo-coo call and alarm call), followed by 30 seconds of silence. During this time, the surveyors listened for audible responses to the call-broadcast while continuing to scan the landscape with binoculars and spotting scopes. When burrowing owls were detected, the bearing and distance to each owl location, sex and age class (adult or juvenile) when identifiable, and behavioral notes were recorded. At locations where juveniles were observed, additional time was taken to record an accurate count of number of young to estimate breeding success. Each station was surveyed three times (mid-April to early May, late May to mid-June, and mid to late July) in 2019 with timing chosen to coincide with successive burrowing owl nesting stages (incubation, nestling, and fledgling). Surveys were conducted at least three weeks apart.


Adult burrowing owl in the Management Area May 2019
Photo Credit: Nomad Ecology

Burrowing owls were observed at twelve separate locations within the Management Area throughout the course of the 2019 breeding season surveys. Five of the twelve locations represented nests that successfully fledged burrowing owl chicks. Four of the twelve locations represented pairs that did not successfully fledge any chicks, and for the purposes of these surveys were considered unsuccessful nests. The remaining three locations represented single adult burrowing owls. The nine nesting locations (five successful and four unsuccessful) fledged a total of 18 chicks, resulting in a reproductive rate of 2.00 young per pair. Nesting pairs and their fledglings were observed using multiple burrows in the same general area, and in some cases appeared to switch burrows between survey rounds.

No burrowing owls were observed anywhere on the Souza 1 parcel during the 2019 surveys. This indicates a total loss of burrowing owls on Souza 1 compared to the 18 to 19 breeding pairs observed during Albion's 2006-2007 surveys. The nearest observation was approximately 0.3 mile to the northwest, where one successful nest was located on the Vaquero Farms South parcel. The complete lack of burrowing owls on the Souza 1 parcel suggests a serious decline in population at this site. Survey results from this study produced a density estimate of 0.415 pairs per square kilometer in the Management Area in 2019, which is much lower than the region-

wide estimate of 3.201 pairs per square kilometer from earlier surveys of the Altamont Pass area (Smallwood et al. 2013). This strongly suggests that there has been a significant reduction in the burrowing owl population not only on Souza 1, but throughout the Management Area as a whole.

Although the population overall has declined, the reproductive rate of 2.00 young per pair observed in the 2019 breeding surveys was within the range observed during the Albion 2006-2007 surveys on Souza 1 (3.58 and 1.79, respectively). It also falls within the range reported by Smallwood et al. (2013) for the greater Altamont Pass area during the 2011 breeding season, which was between 1.20 and 2.03 young per pair.

The Management Area appears to contain abundant suitable habitat for burrowing owls. Some areas with substantial concentrations of unmaintained, collapsed burrows were observed, suggesting that ground squirrel colonies that had been present in prior years were no longer extant. However, even in large ground squirrel colonies where suitable burrows were abundant, burrowing owls still appeared to be absent from much of the available habitat. There are no obvious or documented indicators of why burrowing owl populations in the Management Area have declined so dramatically.

The survey methodology adapted from Conway and Simon (2003) successfully identified burrowing owls at 12 different locations within the Management Area. The call-broadcast had mixed results in eliciting responses from burrowing owls. Regardless, this protocol did appear to be largely appropriate to the site conditions within the Management Area, leading to the detection of several nesting pairs and single burrowing owls. Strictly adhering to three minutes of passive observation may have been detrimental to the overall survey effort, however, as the placement of some of the survey stations necessitated visually covering very large areas that may have required more time to observe completely. Furthermore, an approach that combines vehicle-based surveys with additional targeted surveys on foot in inaccessible locations may result in the detection of more burrowing owls, improving the accuracy of the population estimate.

Aerial Imagery Analysis

After the completion of burrowing owl surveys, a series of twelve 50 x 50-meter burrow study plots were established for the identification of burrows using previously acquired aerial imagery. Four each of three different plot types were established: (1) areas where ground squirrel burrows were observed to be abundant and highly concentrated during the breeding season surveys, (2) areas that appeared to have very few or no burrows during the surveys, and (3) plots placed randomly within the Management Area. As a comparison, Google Earth imagery was also used to identify burrows. Two Google Earth imagery dates were used: (1) March 11, 2017, which was the closest in time to the date of the existing aerial imagery, and (2) June 28, 2018, which was the most recent imagery available when the analysis was conducted.

During the ground-truthing effort, two of the pre-established study plots that were believed to contain abundant burrows were found to have none, therefore two new study plots were

established in the field at other locations where active ground squirrel burrows were verifiably abundant. In addition, one plot that was believed to be in a location with very few burrows was found to have a relatively high number of burrows. This location was surveyed regardless, because the presence of burrows where they were not initially expected was a good test of the aerial imagery analysis.

The analysis of the existing imagery produced overestimates of burrow numbers in four study plots, underestimates in seven plots, and an accurate count in one plot (although it should be noted that the accurate count in this case was zero). The analysis of the March 2017 Google Earth imagery produced overestimates in five study plots, underestimates in six plots, and an accurate count in one plot. The analysis of the June 2018 Google Earth imagery produced overestimates in three plots, underestimates in seven plots, and accurate counts in two plots (both of which had counts of zero).

Overall, the existing imagery counts underestimated burrow numbers by an average of 38%, and both of the Google Earth counts underestimated by an average of 15%. The existing imagery analysis was extremely spatially inaccurate, correctly identifying only 6% of ground-truthed burrows. The March 2017 Google Earth imagery analysis was found to be more accurate, though it still only successfully identified 17% of the ground-truthed burrows. The June 2018 Google Earth imagery analysis was the most accurate, identifying 42% of ground-truthed burrows. This demonstrates that a large portion of the burrows on site were not identified at all during the aerial imagery analysis. In addition, a large portion of burrow locations resulting from aerial image analysis were false positives.

The aerial imagery analysis was not, broadly speaking, successful. The failure to identify burrows that were actually present, coupled with a large number of false positives, suggests that this was not a useful method for identifying burrowing owl habitat.

Recommendations

Burrowing owl surveys should continue within the Management Area so that population trends can be monitored in the context of the severely reduced numbers that were observed in 2019. Without ongoing monitoring, there will be no way to determine if management actions have been effective or should be discontinued. The protocol should be modified to use three minutes as a minimum time for passive observation at each station rather than as a set limit, allowing for longer observation periods when appropriate. Surveys to assess the status of the rodent population within the Management Area would be very helpful for potentially establishing a link between prey abundance and burrowing owl populations. The establishment of refugia for rodents may be explored as an option to enhance prey populations, which could be as simple as rock and/or debris piles placed strategically within the Management Area. An assessment of the ground squirrel population and available burrow concentrations would be useful to determine which parts of the Management Area have the highest potential for burrowing owl occupancy, and thereby targeting further management activities. Essentially all of the land surrounding the

Vasco Hills/Byron Vernal Pools Management Area appears to be suitable habitat for burrowing owls, and additional land acquisitions in the area would likely be beneficial to the species.

This work is continuing in 2020.

Ecological Requirements and Conservation Priorities for Golden Eagles in Eastern Contra Costa County

In December 2018, the Conservancy Board approved the full funding of a proposal from J. David Wiens (USGS), Patrick Kolar (USGS), and Doug Bell (EBRPD) to conduct research on golden eagle habitat. Funding was provided under the Conservancy's 2019 Science and Research Grant Program.

The goal of the project is to identify and map spatial patterns in site occupancy and reproduction for golden eagles associated with the network of protected lands in the HCP/NCCP inventory area. To meet this goal, the project leads will expand their established monitoring design to gain complete survey coverage of the HCP/NCCP Preserve System. They will then use established survey protocols to determine occurrence and location of breeding and non-breeding golden eagles, in addition to reproductive success of any nesting pairs we identify. Results from this study are expected to be available by December 2021.

Fungal Disease Risk of California Tiger Salamander and California Red-Legged Frog in the Los Vaqueros Watershed

In December 2018, the Conservancy Board approved the partial funding of a proposal from Kurt Lutz (San Francisco State University [SFSU]), Jeff Wilkinson (H.T. Harvey & Associates), and Vance Vredenburg (SFSU) to conduct research on amphibian fungal diseases. Funding was provided under the Conservancy's 2019 Science and Research Grant Program, and the study will run through March 2021.

The project leads will conduct a thorough pathogenic fungal disease survey, including tests for *B. dendrobatidis* of California red-legged frog, California tiger salamander, Western toad, and Pacific chorus frog in the Los Vaqueros Reservoir Watershed. By performing this survey, the project will address the following issues or knowledge gaps in the Los Vaqueros Reservoir Watershed:

1. Potential of a fungal disease outbreak (*B. dendrobatidis*) of resident amphibians, including the infection intensity of each individual sampled;

2. Likelihood that a pond contains *B. dendrobatidis* depending on pond size, temperature, locality, and species composition;

3. Potential dispersal ability of *B. dendrobatidis* between ponds given connectedness and presence of a mobile reservoir species (*H. regilla*).

Adaptive Management

Based on the best scientific information currently available, it is expected that the Plan's conservation measures will effectively achieve the biological goals and objectives. However, there is uncertainty associated with management techniques, conditions within the inventory area and region, and the status of covered species and natural communities. It is also possible that new and different management measures not identified in the Plan will be identified and proven to be more effective in achieving biological goals and objectives than those currently proposed. Alternatively, results of effectiveness monitoring may indicate that some management measures are less effective than anticipated.

Adaptive management is a method for examining current or alternative strategies for meeting measurable biological goals and objectives and, if necessary, adjusting future management actions according to what is learned. Adaptive management follows initial implementation of effectiveness monitoring and research, but it is an ongoing process utilized throughout Plan implementation.

In 2019, implementation of adaptive management was focused primarily on restoration sites. As discussed in Section IV, *Habitat Restoration and Creation*, each site was monitored to measure progress toward achieving success criteria, and management was adjusted based on monitoring results.

VII. STAY-AHEAD PROVISION

Stay-Ahead Provision

The Plan's Stay-Ahead provision requires that the Conservancy "stay ahead" by acquiring land for the Preserve System in advance of impacts. The Plan defines two compliance methods: Stay-Ahead Measurement Method #1 and Stay-Ahead Measurement Method #2. Stay-Ahead Measurement Method #1 states that the amount of each land cover type conserved to date as a proportion of the total requirement for each land cover type must be equal to or greater than the impact to date on the land cover type as a proportion of the total anticipated impact under the Maximum Urban Development Area scenario by all covered activities. This option aggregates the following land cover types: cultivated agriculture, annual grassland, alkali grassland, and ruderal. The sum of the acres of these land cover types actually acquired is measured against the sum of the respective acquisition requirements. Other terrestrial land cover types are not aggregated.

Stay-Ahead Measurement Method #2 states that the amount of annual grassland conserved by the Conservancy in Zone 2 as a proportion of the total requirement for annual grassland acquisition in Zone 2 must be equal to or greater than the impact on annual grassland and all cultivated agriculture land cover types (cropland, irrigated pasture, vineyard, orchard) as a proportion of the total impact expected under the Maximum Urban Development Area scenario on these land cover types by all covered activities. This option provides an incentive for the Conservancy to acquire land in Zone 2 early in Plan implementation as land in this Zone is likely to be more expensive and at higher risk than land in other Zones. The Conservancy must comply with at least one of these methods during the first 10 years. After Year 10, the Conservancy may use only Measurement Method #1.

Stay-Ahead Assessment

Using Stay-Ahead Measurement Method #1, the Conservancy is currently in compliance with the Stay-Ahead Provision (Table 14). The aquatic (open water) category is not ahead (-4%); however, the Plan allows a 5% deviation from the Stay-Ahead Provision requirements without penalty to account for the likely pattern of infrequent land acquisition of large parcels. For all other land cover types, the percent ahead ranges from 7% to over 100%. Overall, the Conservancy is 11,618 acres (rounded) ahead across all land cover types and 317,291 (rounded) linear feet ahead in streams. The Conservancy is 8,329 acres (rounded) ahead of the Stay-Ahead requirement for grassland and irrigated agriculture land cover types (the current Stay-Ahead requirement is 695 acres). For plant occurrences, the Conservancy is meeting the Stay-Ahead requirement (Table 15).

Vernal Pool Crustaceans Stay Ahead

The Conservancy's preservation and creation of fairy shrimp habitat is ahead of impacts. Impacts on covered shrimp habitat include disturbances to seasonal wetlands, including vernal pools, and their adjacent uplands by covered activities both directly through project implementation and indirectly through human intrusion, introduced species, or pollution caused by the project. Applicants who impact vernal pools must determine if the pools provide suitable habitat for covered shrimp. If vernal pools are occupied by covered shrimp, then impacts must be compensated. Compensation for loss of occupied habitat is achieved by implementing the following actions for every acre of impact.

- Preserve 2 acres of occupied habitat within the Preserve System or purchase an equivalent amount of vernal pool preservation credits in a USFWS-approved mitigation bank for each acre affected.
- Restore 1 acre of suitable habitat within the Preserve System or purchase an equivalent amount of vernal pool restoration credit in a USFWS-approved mitigation bank for each acre affected.

There were no impacts on vernal pool crustacean habitat during the reporting year. Table 16 details the cumulative impacts on and compensation for vernal pool shrimp since Plan implementation.

Giant Garter Snake Habitat Impacts

The Conservancy's preservation of giant garter snake aquatic habitat is ahead of impacts. The Conservancy's preservation of giant garter snake upland habitat is ahead of impacts.
Compensation for permanent loss of giant garter snake habitat is achieved by implementing the following actions for every acre of impact.

- For every acre of aquatic habitat lost, preserve 1 acre of aquatic habitat and at least 2 acres of upland habitat adjacent to the preserved aquatic habitat, and
- For every acre of upland habitat lost, preserve 1 acre of upland habitat (in addition to the upland habitat preserved as a result of lost aquatic habitat.)

If giant garter snake habitat has not been preserved within the HCP/NCCP Preserve System in excess of that required to offset impacts, there are two options for implementing this compensation requirement: (1) by applicants selecting, acquiring, and managing in perpetuity a local mitigation site that is approved by USFWS for the sole purpose of compensating project impacts on giant garter snake, or (2) by applicants participating in a pre-existing, USFWS-approved mitigation bank with a service area that includes Contra Costa County. If a local mitigation site is selected, the site will be incorporated into the HCP/NCCP Preserve System and managed under the direction of the Conservancy to support or enhance habitat for giant garter snake.

There were no impacts on giant garter snake habitat during the reporting year. Table 17 details the cumulative impacts on and compensation for giant garter snake since Plan implementation.

Table 14. Stay-Ahead Assessment: Land Cover

	Conservation			Impact					
Land Cover Type	Protection Required (acres)	Protection, Creation, Restoration to date (acres)	% of Required	Estimated Impacts (acres)	Impacts to date (acres)	% of Impacts	Acres Required to be Ahead	Acres Ahead	% Ahead[3] (Conservation % - Impacts %)
Terrestrial									
All grassland and cultivated agriculture	18,150	9,006.0	49.6%	12,148	836.6	6.9%	1,249.9	7,756.1	43%
Chaparral and scrub	550	310.3	56.4%	2	0.6	28.5%	156.8	153.6	28%
Oak savanna	500	410.3	82.1%	165	0.1	0.0%	0.2	410.1	82%
Oak woodland	400	2,582.5	645.6%	73	0.7	0.9%	3.6	2,578.9	645%
Subtotal terrestrial	*19,600*	*12,309.1*	*62.8%*	*12,388*	*837.9*	*7%*	*1,410.5*	*10,898.6*	*56%*
Aquatic									
Riparian woodland/scrub	70	71.11	101.6%	35	1.23	3.5%	2.47	68.64	98%
Perennial wetland[1]	75	5.54	7.4%	75	0.07	0.1%	0.07	5.47	7%
Seasonal wetland	168	23.81	14.2%	56	0.63	1.1%	1.88	21.93	13%
Alkali wetland	93	36.05	38.8%	31	0.14	0.4%	0.41	35.64	38%
Pond	16	12.08	75.5%	8	0.01	0.1%	0.02	12.06	75%
Reservoir (open water)[2]	12	0.00	0.0%	12	0.47	3.9%	0.47	-0.47	-4%
Slough/Channel	36	3.10	8.6%	72	0.65	0.9%	0.32	2.78	8%
Subtotal aquatic	*470*	*151.69*	*32.3%*	*289*	*3.19*	*1%*	*5.63*	*146.06*	*31%*
Stream (length in linear feet)									
Perennial stream	4,224	12,625.10	298.9%	2,112	149.00	7.1%	298.00	12,327.10	292%
Intermittent stream	2,112	146,461.00	6934.7%	2,112	635.31	30.1%	635.31	145,825.69	6905%
Ephemeral stream[3]	26,400	159,435.96	603.9%	26,400	298.00	1.1%	298.00	159,137.96	603%
Subtotal stream length	*32,736*	*318,522.06*	*973.0%*	*30,624*	*1,082.31*	*4%*	*1,231.31*	*317,290.75*	*969%*
Totals									
Acres	30,300	12,460.75	41%	12,677	841.1	6.6%	1,416.1	11,044.7	34%
Linear feet	32,736	318,522.06	973%	30,624	1,082.31	3.5%	1,231.31	317,290.75	969%

[1] Perennial wetlands are equivalent to permanent wetlands.

[2] Reservoir (open water) is equivalent to aquatic.

[3] Many of the streams identified as "classification pending" will ultimately be classified as ephemeral. As such, they are tracked as ephemeral streams for the purposes of the Stay-Ahead provision.

Note: The Plan allows a 5% deviation from Stay-Ahead requirements. For terrestrial land cover, the Plan provides that Stay Ahead be measured against the following categories: chaparral, oak savanna, oak woodland and the sum of all grassland and irrigated agricultural land cover types.

Common Name	*Scientific Name*	Conservation	Impacts	Difference	% Ahead
Mount Diablo manzanita	*Arctostaphylos auriculata*	0	0	0	--
Brittlescale[4]	*Atriplex depressa*	3	0	3	100%
San Joaquin spearscale[1]	*Atriplex joaquiniana*	10	1	9	90%
Big tarplant	*Blepharizonia plumosa*	12	0	12	100%
Mount Diablo fairy lantern	*Calochortus pulchellus*	6	0	6	100%
Recurved larkspur	*Delphinium recurvatum*	0	0	0	--
Round-leaved filaree	*Erodium macrophyllum*	5	[see note[2]]	5	100%
Diablo helianthella	*Helianthella castanea*	13	0	13	100%
Brewer's dwarf flax	*Hesperolinon breweri*	6	0	6	100%
Showy madia	*Madia radiata*	0	0	0	--
Adobe navarretia[3]	*Navarretia nigelliformis subsp.*	0	0	0	--
Shining navarretia	*Navarretia nigelliformis subsp. radians*	(7)	1	(7)	--
Total		**55**	**1**	**54**	

[1] Vasco Road Safety Phase 1 Project population was translocated to Souza II property in 2011, however the population did not survived. This table has been updated to account for the single impact to San Joaquin spearscale (*Atriplex joaquiniana*).

[2] Temporary impacts occurred to round-leaved filaree as part of the PG&E Contra Costa Las Positas Project. The soil was protected from disturbance, the site was returned to pre-project connections, seeds collected on site were propagated, and monitoring reports document that round-leaved filaree persists on site and is as abundant as before the project.

[3] The species *Navarretia nigelliformis* subsp. *nigelliformis* is no longer considered to occur within Contra Costa County based on specimen annotations at the UC and Jepson Herbaria at the University of California Berkeley as well as the opinions of experts in the genus. This taxon is now recognized as *Navarretia nigelliformis* subsp. *radians* . Pending further policy clarification, the Conservancy is continuing to track occurrences of shining navarretia (*Navarretia nigelliformis* subsp. *radians*).

[4] There was a mis-idenfication of a brittlescale occurrence in 2009 on the Souza II roperty. The cumulative number of conserved plant occurences has been adjusted to reflect the accurate count.

Table 16. Vernal Pool Shrimp Stay-Ahead Summary[1]

Project Name/ Preserve Property Name	Species	Impacts to Date (acres)	Preserved Occupied to Date (acres)	Restored/ Created Occupied to Date (acres)
Deer Valley Road Safety Improvements Project, 2012	VPFS	0.060		
Chevron KLM Site 1357 Maintenance Project, 2013	Covered shrimp	0.007		
Coelho	VPFS		0.980	
Souza I	VPFS		0.001	
Souza II[2]	VPFS		0.180	
Vaquero Farms South	VPFS		0.052	
Souza II - Corral	VPFS			0.400[2]
Vaquero Farms South (Pool 1)	VPFS			0.070
Vaquero Farms South (Pool 3)	VPFS			0.150
Casey	Covered shrimp		0.313	
Campos	VPFS		0.550	
Total		**0.067**	**2.076**	**0.620**

[1] The ECCC HCP/NCCP requires preservation and creation of vernal pool fairy shrimp habitat be ahead of impacts at a preservation ratio of 2:1 acres occupied habitat and a restoration ratio of 1:1 acre of occupied habitat. The Conservancy is in compliance with the stay ahead requirement.

[2] The Souza II Corral wetland was inoculated in 2012 with soil from the Deer Valley Road Widening Project. VPFS have not been found during annual surveys. The Conservancy will continue to survey for 10 years (through 2022) to determine if VPFS are present.

Table 17. Giant Garter Snake Stay-Ahead Summary

Project Name/Preserve Property Name	Aquatic Habitat Impacts to Date (acres)	Upland Habitat Impacts to Date (acres)	Aquatic Habitat Preserved to Date (acres)	Upland Habitat Preserved to Date (acres)
Caltrans/Hwy 4 Median Buffer and Shoulder Widening Project, 2012	0.01	4.77		
Emerson Ranch, 2013		5.47		
Gilbert, 2016	0.577	18.34		
Nunn Property (Preserve System Acquisition)[1]			3.10	612.71
Total	**0.59**	**28.58**	**3.10**	**612.71**

Notes: The ECCC HCP/NCCP requires preservation of giant garter snake habitat be ahead of impacts at a preservation ratio of 1:1 for aquatic habitat and 3:1 for upland habitat. The Conservancy is in compliance with the stay-ahead requirement.

[1] The Conservancy is currently in the planning and design phase of a proposed restoration project on the Nunn property and the acres of preservation will change and will be adjusted in forthcoming annual reports.

VIII. CHANGED CIRCUMSTANCES AND REMEDIAL MEASURES

The No Surprises Regulation established by USFWS defines changed circumstances as those circumstances affecting a species or geographic area covered by an HCP that can be reasonably anticipated by the applicant or the USFWS and to which the parties preparing the HCP can plan a response. The changed circumstances identified by the Plan include non-covered species in the inventory area becoming listed, wildfires that result in the large-scale loss of natural communities, pond or wetland control structure failure, or destruction of riparian plantings from flooding, prolonged drought, and vandalism of preserves. Occurrence of a changed circumstance requires the Conservancy to notify USFWS and CDFW to determine the necessity for additional conservation or mitigation measures. If the mitigation or conservation measure has already been identified in the Plan, the Conservancy must comply with the measure. However, if the measure is not currently included in the Plan, USFWS and CDFW will not require additional mitigation or conservation measures.

In the event that an anticipated changed circumstance prohibits or damages a conservation action that meets the goals of the HCP, a remedial measure must be undertaken. Remedial measures are funded by the Plan and must be undertaken by the Conservancy.

Changed Circumstances

Covered Species Becoming Listed

Foothill yellow-legged frog listed as State Endangered

In December 2019, the California Fish and Game Commission split foothill yellow-legged frog (*Rana boylii*) into seven clades: Southern Sierra, Central Coast, South Coast, Feather River, Northern Sierra, and North Coast. CDFW listed the Southern Sierra, Central Coast and South Coast clades as endangered, and the Feather River and Northern Sierra clades as threatened under CESA. The Central Coast clade overlaps the permit area.

Foothill yellow-legged frog is a covered species in the Plan. During Plan development foothill yellow-legged frog was listed as a California species of special concern but was treated as though it was listed under the CESA for the purposes of the Plan. Under Section 2835 of the California Fish and Game Code, CDFW may issue take authorization for covered species (plants or wildlife) regardless of their listing status. As such, no actions are required by the Conservancy to address this changed circumstance.

Non-covered Species Becoming Listed

Crotch Bumble Bee and Western Bumble Bee Listed as a Candidate Species

In June 2019, the California Fish and Game Commission listed the Crotch bumble bee (*Bombus crotchii*) and western bumble bee (*Bombus occidentalis occidentalis*) as candidate species. Each of these species has historic occurrence records within the Plan area. The Conservancy will conduct an assessment of the presence of suitable habitat in areas of potential effect and evaluate the potential impacts of covered activities on Crotch bumble bee and western bumble bee.

IX. FINANCES

Budget

The Conservancy analyzed cost projections from the HCP/NCCP, the previous years' actual costs, and the anticipated 2019 work plan to develop the 2019 Budget (Table 18). The Conservancy stayed within the total 2019 Budget. Overall, 2019 expenditures to implement the HCP/NCCP totaled $2,200,571.

During the reporting period, the largest budgeted item was land acquisition followed by program administration, planning and design, monitoring/research/adaptive management, and habitat restoration/creation. This focus reflects the Conservancy's continued efforts to maintain stay-ahead compliance. In addition, the Conservancy continues to make progress toward restoration requirements. Monitoring, research, and adaptive management budget and expenditures demonstrate the Conservancy's efforts to establish baseline inventories for new and existing properties.

Revenue Sources

Three main revenue sources are anticipated in the Plan.

Fee collection: Development, wetland, rural road (for certain rural road projects), and temporary impact mitigation fees are paid to mitigate impacts on special-status species, natural communities, and open space.

Local public funding and foundation grants: Acquisition and management of land by local agencies, primarily EBRPD, but could include partnerships with other local agencies. Voters approved several revenue measures for EBRPD in the prior decade, including Measure WW, which provide funding EBRPD may use to partner with the Conservancy. In addition, Foundation grants (e.g., Gordon and Betty Moore Foundation) are anticipated to help the Conservancy fund acquisition, management, restoration, and monitoring.

State and federal: Funding from the state and federal governments to assemble, manage, and monitor Preserve System lands. These state and federal grants also fund restoration projects on Preserve System lands.

Revenue sources also include Contribution to Recovery charges on certain covered activities. Contribution to Recovery payments are levied on Participating Special Entities to contribute funds over and above fee requirements in order to contribute to the recovery of species in the inventory area. Lease income from Preserve System properties are also a source of revenue but are generally received and held by EBRPD and used for Preserve System management activities, land acquisition, and long-term management.

The HCP/NCCP allows for additional revenue to be received from non-covered activities. There may be a number of benefits to addressing the mitigation needs of non-covered projects through the structure of the HCP/NCCP. USFWS and CDFW may wish to use the conservation strategy and implementing structure of the Plan to maximize the conservation benefits to covered species and natural communities. Project proponents may wish to utilize the mitigation approach of the Plan to facilitate their mitigation obligations under a variety of state and federal regulations.

Mitigation funds collected from non-covered activities must augment the mitigation and conservation obligations of the Plan (i.e., they may not offset these requirements). Mitigation funding arrangements vary by project, are reviewed and approved by the USFWS and CDFW before acceptance of these funds. No revenue from non-covered activities were received in 2019. A list of mitigation fees from non-covered activities is below:

- Kirker Pass Road Northbound Truck Climbing Lane (Area Outside HCP/NCCP) (2018)

The Conservancy received a total of $1,569,412 in revenue in 2019 (Tables 19 and 20). This amount includes development fees from covered activities ($549,512), wetland and stream mitigation fees from covered activities ($3,234), temporary impact fees ($117,713), Contributions to Recovery payments from covered activities ($34,769), administrative/staff time fees ($73,383), and other revenues ($66,272), and grants ($837,892). Local funding from partners totaled $517,797.

All grants awarded to date are summarized in Table 21. Since it began implementing the HCP/NCCP through the end of 2019, the Conservancy has been awarded over $71 million in grants. Of this amount, $67,724,287 has been spent on implementation of the Plan and $3,197,682 of awarded grant funds remain. These amounts do not include match funding provided by partners. Since Plan implementation, EBRPD has contributed an estimated $21 million of its own funds or its grant funds.

Funding in Perpetuity

In the HCP/NCCP, annual costs to operate and maintain the Preserve System in perpetuity are estimated to be slightly less than the annual cost for program administration, preserve management, and monitoring estimated during the final funding period of the Plan, or approximately $3.0 million or $3.3 million[5] annually under the initial or Maximum Urban Development Area, respectively. Actual long-term costs may be lower if the Conservancy can develop streamlined procedures for management and monitoring during the permit term, secure partners, or reduce administrative costs. Responsibility for funding long-term management and monitoring rests solely with the Permittees.

The Conservancy is required to develop a detailed plan for the long-term funding of operation and maintenance and to secure all necessary commitments to implement this Plan before using

[5] This is equivalent to approximately $125 per acre per year or $110 per acre per year in operational and capital costs for Preserve System operation under the Initial or Maximum Urban Development Areas, respectively.

50% of all authorized take under the Maximum Urban Development Area (this equals 50% of 12,704 acres, or 6,352 acres) or at the end of year 15 of implementation, whichever occurs first. The Conservancy continues to plan for this requirement, and in 2014 the Conservancy Board determined to have a long-term funding plan in place by Year 10. As such, the Conservancy completed a fee audit in 2017 (not yet adopted by the Governing Board or co-permittees) which included a long-term funding analysis. In 2019, the Conservancy selected the Regional Parks Foundation as its endowment manager and will be funding the endowment in 2020 with various sources of funding, including lease revenue from Preserve System properties and funding received prior to adoption of the HCP/NCCP that were directed toward the HCP/NCCP.

Mitigation Fee Act Annual Reporting

The Annual Report also functions as the East Contra Costa County Habitat Conservancy's Annual Report on fees collected pursuant to the Mitigation Fee Act. The information for compliance with this reporting requirement is included in this document. The required elements include the following eight categories and references and information is provided where applicable for the Development Fee and the Wetland Mitigation Fee:

1. **A brief description of the type of fee in the account or fund**:
    a) The purpose of the Development Fee is to mitigate for impacts to open space, habitat and species covered by the HCP/NCCP. The Development Fee revenues will be used to fund the acquisition of land that does or could provide habitat for covered species, the management and enhancement such land and habitat and the administrative actions necessary to accomplish these tasks, as more particularly set forth in the HCP/NCCP, incorporated herein by reference.
    b) The purpose of the Wetland Mitigation Fee is to mitigate for impacts to Jurisdictional Wetlands and Waters, riparian woodland/scrub or stream buffers. The Wetland Mitigation Fee revenues will be used to fund the restoration, creation and management of Jurisdictional Wetlands and Waters and riparian woodland/scrub and the administrative actions necessary to perform these tasks, as more particularly set forth in the HCP/NCCP.

2. **The amount of the fees:**

FEE TYPE	Participating Special Entity Projects	Cities/County Projects
Development Fees (per acre)		
Zone 1	$15,342.88	$16,757.65
Zone II	$30,685.76	$33,515.30
Zone III	$7,671.44	$8,379.53
Wetland Mitigation Fees		
Riparian woodland/scrub	$106,475.81	$82,222.77
Perennial wetlands	$156,438.77	$112,515.38
Seasonal Wetland	$362,635.95	$243,783.31
Alkali wetland	$366,305.45	$230,800.77
Ponds	$198,447.93	$122,612.91
Aquatic (open water)	$99,223.96	$62,027.71
Slough/ Channel	$144,610.94	$139,922.97
Streams 25 feet wide or less - fee per linear foot	$404.23	$670.34
Streams greater than 25 feet wide - fee per linear foot	$606.34	$1,009.75

3. **The beginning and ending balance of the account or fund:**

   The Conservancy beginning and ending balances are included in the financial audit that was reviewed and accepted by the Governing board of the East Contra Costa County Habitat Conservancy on April 22, 2020. A summary of the finances including beginning and ending balance, revenue (which includes mitigation fees collected, grants, contribution to recovery fees, and administrative fees), interest earned, and funds expended is summarized below. Please note that the amounts presented below are from the 2019 financial audit and may differ than the numbers in this Annual Report's tables and text, namely due to timing differences in and past reporting of revenue and expenditures.

	Beg. Balance	Revenue	Interest Earned	Expended	Ending Balance
Total Balance	$3,118,710	$2,393,651	$51,129	$2,432,555	$3,130,935

4. **The amount of the fees collected and the interest earned:** See Tables 19 and 20.
5. **An identification of each public improvement on which fees were expended and the amount of the expenditure on each improvement, including the total percentage of the cost of the public improvement that was funded with the fees:** See Tables 8b and 13a.
6. **An identification of an approximate date by which the construction of the public improvement will commence if the Board determines that sufficient funds have been collected to complete financing on an incomplete public improvement, and the public improvement remains incomplete:** There are not Conservancy funded

construction projects anticipated for 2020. Design work for restoration projects is continuing in 2020.

7. **A description of each interfund transfer or loan from the account or fund, including the public improvement on which the transferred or loaned fees will be expended, and, in the case of an interfund loan, the date on which the loan will be repaid, and the rate of interest that the account or fund will receive on the loan:** Not Applicable.
8. **The amount of refunds made pursuant to Government Code section 66001€ and any allocations pursuant to Government Code section 66001 (f):** Not Applicable.

Table 18. 2019 Conservancy Budget: Actual Expenditures and Comparison to Budget Projections

	HCP/NCCP Projected Cost Estimate			2019 Budget by Revenue Source					2019 Actuals
Cost Category	Years 11-15	Average Cost Per Year (Years 11-15)	% of Total	Development Fee Account	Wetland Mitigation Fee Account	Contributions to Recovery/ Grants	Total	% of Total	Total
Program Administration and Permitting Program	$2,978,706	$595,741	6%	$1,127,460	$0	$0	$1,127,460	15%	$1,175,177
Land Acquisition	$31,752,559	$6,350,512	67%	$468,703	$0	$4,635,000	$5,103,703	67%	$653,380
Planning and Design (Management, Restoration, and Recreation)	$849,699	$169,940	2%	$134,528	$0	$250,000	$384,528	5%	$177,455
Habitat Restoration/Creation	$3,469,095	$693,819	7%	$0	$456,504	$15,000	$471,504	6%	$107,044
Environmental Compliance	$459,000	$91,800	1%	$79,176	$35,000	$0	$114,176	1%	$32,374
Preserve Management and Maintenance	$5,398,690	$1,079,738	11%	$86,843	$0	$0	$86,843	1%	$160,611
Monitoring, Research, and Adaptive Management	$2,074,364	$618,873	4%	$182,893	$0	$68,000	$250,893	3%	$126,517
Remedial Measures	$30,000	$6,000	0%	$6,000	$0	$0	$6,000	0%	$0
Contingency Fund (5% of non-land acquisition costs)	$723,186	$144,637	2%	$0	$0	$124,755	$124,755	2%	$0
TOTAL	$47,735,299	$9,751,060	100%	$2,085,602	$491,504	$5,092,755	$7,669,861	100%	$2,432,557

Table 19. Summary of All Revenues Received

Type	Reporting Period	Cumulative[1]
Development Fees	$549,512	$15,955,500
Wetland Mitigation Fees	$3,234	$1,458,200
Temporary Impact Fees	$117,713	$1,985,700
Contributions to Recovery	$34,769	$1,453,800
Grants[3]	$837,892	$71,968,900
Other Revenue[2]	$139,655	$1,750,700
Local Matching Funds[4]	$517,797	$25,799,800
Total	**$2,200,571**	**$120,372,600**

[1] Amounts are rounded.

[2] Other includes staff/administrative costs for certain permitting projects, interest earnings, and lease revenue.

[3] These are grants received, not grants awarded. Please see Table 21 for all grants details.

[4] Includes grants awarded to local partners. Grants awarded to the Conservancy are shown in *Grants* . EBRPD land acquisition due diligence costs and preserve management expenditures are also included.

Table 20. Summary Accounting of Fee and Grant Revenues Received in Reporting Period

Type		Amount
Development Fees		
Marsh Creek Road Traffic Safety Improvements Project		$5
eBART Phase II (4th Amendment)		$4,833
Alicante/Village at Main (City of Oakley)		$336,158
East Bay Regional Park District FEMA-Funded Pond Repairs		$46
Praxair (City of Pittsburg)		$1,258
Praxair Phase II (City of Pittsburg)		$41,311
The Vines at Oakley (City of Oakley)		$165,901
Development Fees subtotal		*$549,512*
Wetland Mitigation Fees		
East Bay Regional Park District FEMA-Funded Pond Repairs		$3,233.84
Wetland Mitigation Fees subtotal		*$3,234*
Temporary Impact Fees		
Upper Sand Creek Detention Basin Stockpile Burrow Management		$2,602
Marsh Creek Road Traffic Safety Improvements Project		$44
PG&E I-192D In-Line Inspection Project		$5,861
Shell Pipeline North 20		$14,729
CCWD Los Vaqueros Geotechnical Investigations Project		$10,842
East Bay Regional Park District FEMA-Funded Pond Repairs		$19,622
Praxair (City of Pittsburg)		$273
CCWD Los Vaqueros Geotechnical Investigations Project (First Amendment)		$2,578
Columbia Solar (City of Pittsburg)		$59,411
East Bay Regional Park District FEMA-Funded Pond Repairs		$1,752
Temporary Impact Fees subtotal		*$117,713*
Contributions to Recovery		
PG&E I-192D In-Line Inspection Project		$5,861
eBART Phase II (4th Amendment)		$4,833
Shell Pipeline North 20		$12,365
CCWD Los Vaqueros Geotechnical Investigations Project		$10,421
CCWD Los Vaqueros Geotechnical Investigations Project (First Amendment)		$1,289
Contributions to Recovery subtotal		*$34,769*
Other (Admin/Staff Time Fees for Participating Special Entities, Interest, Miscellaneous)		
Viera North Peak La Rue Lease (Lease Revenue)		$693
PG&E L-114 Vintage Pipeline Replacement Project (CEQA Reimbursement)		$38,383
PG&E L-114 Vintage Pipeline Replacement Project (CEQA Reimbursement)		$30,000
Shell Pipeline North 20 (Admin/Staff Time)		$5,000
FEMA Funds Horse Valley Pond Repair	Federal	$14,450
Pooled Interest Earnings		$51,129
Other subtotal		*$139,655*
Grants[1]		
Contra Costa County Buena Vista Funds for Burrowing Owl Research	Local	$12,688
CDFW LAG P1682905 Native Bunchgrass & Invasive Weed Mapping Project	State	$9,000
CDFW LAG P1682905 Native Bunchgrass & Invasive Weed Mapping Project	State	$1,883
CDFW LAG P1682906 Baseline Sampling for CRLF, CTS & WPT Aquatic Habitat	State	$3,000
CDFW Prop 1 P1696007 Knightsen Wetland Restoration and Flood Protection Project	State	$46,459
WCB Prop 84 WC-1720DC Horse Valley Restoration Project	State	$35,000

Table 20. Summary Accounting of Fee and Grant Revenues Received in Reporting Period

Type		Amount
NRCS Ang Trough Project	Federal	$2,366
WCB Prop 84 Olesen/Duke Acquisition	State	$100,000
WCB Section 6 Olesen/Duke Acquisition	Federal	$512,250
CDFW LAG P1830905 Baseline Surveys and Long-Term Monitoring Protocol for Burrowing Owls	State	$15,904
Proposition 1 (Prop 1-1709) Knightsen Wetland Restoration	State	$51,342
CDFW LAG P1830905 Baseline & Long-Term Monitoring Burrowing Owls	State	$48,000
Grants subtotal		*$837,892*
Local Matching Funds		
EBRPD (Olesen/Duke Purchase Price)		$467,750
EBRPD (Olesen/Duke Due Diligence and Closing Costs)		$50,047
Local funding subtotal		*$517,797*
Total		**$2,200,571**

[1] Grants awarded to the Conservancy for implementation of the HCP/NCCP's conservation strategy.

Table 21. Grants Awarded to the Conservancy for Implementation of the East Contra Costa County HCP/NCCP

Funding Source	Agency	Purpose	Amount	Required Match	Expended through 2019	Remaining	Grant Close Date	Complete
Section 6 (2006)	USFWS, through WCB	Acquisition	$6,531,054	$7,982,399	$6,531,054	$0	June 2010	Y
Section 6 (2007)	USFWS, through WCB	Acquisition	$7,000,000	$8,555,600	$7,000,000	$0	June 2011	Y
Section 6 (2008)	USFWS, through WCB	Acquisition	$6,000,000	$7,333,333	$5,934,114	$0	Feb 2013	Y
Section 6 (2009)	USFWS, through WCB	Acquisition	$2,500,000	$3,055,556	$2,500,000	$0	Aug 2014	Y
Section 6 (2010)	USFWS, through WCB	Acquisition	$6,000,000	$7,333,333	$6,000,000	$0	Aug 2014	Y
Section 6 (2011)	USFWS, through WCB	Acquisition	$4,463,936	$5,455,922	$4,463,936	$0	Oct 2016	Y
Section 6 (2012)	USFWS, through WCB	Acquisition	$1,000,000	$1,222,222	$1,000,000	$0	Sep 2016	Y
Section 6 (2014)	USFWS, through WCB	Acquisition	$2,000,000	$2,444,444	$2,000,000	$0	Dec 2017	Y
Section 6 (2015)	USFWS, through WCB	Acquisition	$2,000,000	$2,444,444	$2,000,000	$0	July 2019	Y
Section 6 (2017)	USFWS, through WCB	Acquisition	$2,000,000	$1,100,000	$0	$2,000,000	Aug 2021	
CVPIA HRP	USBR	Acquisition	$1,241,631	$500,000	$1,241,631	$0	Sep 2010	Y
IRWMP - Prop 50	SWRCB	Acquisition or restoration	$750,000	$500,000	$750,000	$0	June 2012	Y
IRWMP - Prop 50 (reprogrammed)	SWRCB	Acquisition or restoration	$1,400,000	$500,000	$1,400,000	$0	Mar 2012	Y
IRWMP - Prop 84	DWR	Acquisition or restoration	$650,000	$216,667	$650,000	$0	Dec 2014	Y
NCCP Local Assistance (P0630019)	CDFW	Historical Ecology and Implementation	$120,000	$0	$120,000	$0	Mar 2009	Y
NCCP Local Assistance (P0730010)	CDFW	Start-up Restoration	$60,000	$120,000	$60,000	$0	Dec 2008	Y
NCCP Local Assistance (P0882016)	CDFW	Souza 2 Wetland Restoration Project	$150,000	$0	$125,100	$0	April 2011	Y
NCCP Local Assistance (P0982030)	CDFW	Hess Restoration Project	$150,000	$111,000	$150,000	$0	Mar 2012	Y
NCCP Local Assistance (P1082019)	CDFW	Wetland and rare plant inventory	$27,000	$0	$27,000	$0	April 2013	Y
NCCP Local Assistance (P1082020)	CDFW	Effective Monitoring Plan	$50,000	$0	$50,000	$0	April 2013	Y
NCCP Local Assistance (P1082021)	CDFW	Restoration Project Monitoring/Management	$85,000	$0	$85,000	$0	April 2013	Y
NCCP Local Assistance (P1182103)	CDFW	Baseline Inventory	$40,000	$0	$40,000	$0	April 2014	Y
NCCP Local Assistance (P1182104)	CDFW	Restoration Project Monitoring/Management	$50,000	$0	$50,000	$0	April 2014	Y
NCCP Local Assistance (P1182105)	CDFW	Preserve Management Plan Development	$75,000	$0	$75,000	$0	April 2014	Y
NCCP Local Assistance (P1282108)	CDFW	Ang Pond Restoration Project	$95,000	$0	$24,816	$0	April 2015	Y
NCCP Local Assistance (P1382112)	CDFW	Baseline Inventory	$60,157	$0	$60,157	$0	Mar 2016	Y
NCCP Local Assistance (P1582104)	CDFW	Rare and Invasive Plant Management	$50,000	$0	$50,000	$0	Mar 2018	Y
NCCP Local Assistance (P1682905)	CDFW	Native Bunchgrass and Invasive Weed Mapping	$50,100	$0	$50,100	$0	Mar 2019	Y
NCCP Local Assistance (P1682906)	CDFW	Baseline Sampling for CRLF, CTS, and WPT Habitat	$50,000	$0	$50,000	$0	Mar 2019	Y
NCCP Local Assistance (P1830905)	CDFW	Baseline & Long-Term Monitoring Burrowing Owls	$48,000	$0	$48,000	$0	March 2021	Y
Prop 1 (P1696007)	CDFW	Knightsen Wetland Restoration and Flood	$240,000	$40,000	$239,994	$6	Sept 2019	Y
Proposition 1 (GA:18-002)	Coastal Conservancy	Horse Valley Creek and Wetland Restoration	$300,000	$0	$300,000	$0	Jan 2019	Y
Proposition 84 (WC-1720DC)	WCB	Horse Valley Creek and Wetland Restoration	$350,000	$0	$350,000	$0	Oct 2021	Y
Proposition 1 (Prop 1-1709)	Delta Conservancy	Knightsen Wetland Restoration	$1,225,000	$0	$51,342	$1,173,658	Sept 2021	
EQIP	NRCS	Ang Grazing and Habitat Improvements	$75,585	$0	$18,920	$0	Oct 2019	Y
Gordon and Betty Moore Foundation		Acquisition Fox Ridge	$880,000	50% desired	$880,000	$0	Dec 2009	Y
Gordon and Betty Moore Foundation		Acquisition and Research Souza 3	$2,250,000	50% desired	$2,229,695	$20,305	On-going	
Gordon and Betty Moore Foundation		Acquisition Fan, Galvin, Moss Rock, VF Central	$1,300,000	50% desired	$1,300,000	$0	Jan 2012	Y
Gordon and Betty Moore Foundation		Acquisition of Roddy Ranch	$1,000,000	$0	$1,000,000	$0	July 2014	Y
Prop 84 NCCP account	WCB	Acquisition of Barron	$973,930	$0	$973,930	$0	Feb 2012	Y
Prop 84 NCCP account	WCB	Acquisition of Thomas	$1,842,966	$0	$1,842,966	$0	June 2012	Y
Prop 84 NCCP account	WCB	Acquisition of Affinito	$1,005,750	$0	$1,005,750	$0	Dec 2012	Y
Prop 84 NCCP account	WCB	Acquisition of Vaquero Farms Central	$230,000	$0	$230,000	$0	Dec 2012	Y

Table 21. Grants Awarded to the Conservancy for Implementation of the East Contra Costa County HCP/NCCP

Funding Source	Agency	Purpose	Amount	Required Match	Expended through 2019	Remaining	Grant Close Date	Complete
Prop 84 NCCP account	WCB	Acquisition of Thomas North	$388,755	$0	$388,755	$0	Aug 2013	Y
Prop 84 NCCP account	WCB	Acquisition of Smith	$2,260,275	$0	$2,260,275	$0	July 2014	Y
Prop 84 NCCP account	WCB	Acquisition of Roddy Ranch	$4,841,875	$0	$4,841,875	$0	July 2014	Y
Prop 84 NCCP account	WCB	Acquisition of Viera/Perley	$877,500	$0	$877,500	$0	July 2014	Y
Prop 84 NCCP account	WCB	Acquisition of Nunn	$2,732,400	$0	$2,732,400	$0	Jan 2016	Y
Prop 84 NCCP account	WCB	Acquisition of Coelho	$454,239	$0	$454,239	$0	Dec 2016	Y
Prop 117	WCB	Acquisition of Campos	$226,200	$0	$226,200	$0	May 2017	Y
Prop 84 NCCP account	WCB	Acquisition of Viera North Peak	$427,000	$0	$427,000	$0	July 2017	Y
Prop 84 NCCP account	WCB	Acquisition of Roddy Home Ranch	$307,200	$0	$307,200	$0	Oct 2017	Y
Prop 84 NCCP account	WCB	Acquisition of Casey	$1,055,800	$0	$1,055,800	$0	Oct 2017	Y
Prop 84 NCCP account	WCB	Acquisition of Roddy Ranch Golf Course	$1,055,250	$0	$1,055,250	$0	April 2018	Y
Prop 84 NCCP account	WCB	Acquisition of Olesen/Duke	$100,000	$0	$100,000	$0	July 2019	Y
Contra Costa Avian Fund	NFWF	Acquisition of Casey	$28,000	$0	$26,600	$1,400	-	
Contra Costa County Buena Vista Fund	Contra Costa County	Burrowing owl research	$15,000	$0	$12,688	$2,312	-	
			$71,139,603	**$49,077,420**	**$67,724,287**	**$3,197,682**		

Note: Funding from partners not included. EBRPD has contributed over $21 million of its own funds or its grants funds to joint land acquisitions.

Acronyms:
CalOES: California Office of Emergency Services
CDFW: California Department of Fish and Wildlife
CVPIA HRP: Central Valley Project Improvement Act Habitat Restoration Program
DWR: Department of Water Resources
EBRPD: East Bay Regional Park District
EQIP: Environmental Quality Incentives Program
IRWMP: Integrated Regional Water Management Plan
NCCP: Natural Community Conservation Plan
NFWF: National Fish and Wildlife Foundation
NRCS: Natural Resource Conservation Service
Section 6: Cooperative Endangered Species Conservation Fund, HCP Land Acquisition (authorized in Section 6 of federal Endangered Species Act)
SWRCB: State Water Resources Control Board
USBR: United States Bureau of Reclamation
USFWS: United States Fish and Wildlife Service
WCB: California Wildlife Conservation Board, affiliated with CDFW

X. PROGRAM ADMINISTRATION

Minor and Major Amendments

The Conservancy made no minor or major amendments to the Plan during the reporting period.

Implementation Policies

The Conservancy did not develop any new implementation policies during the reporting period.

Coordinated Wetland Permitting

Background and 2019 Achievements

The HCP/NCCP was designed to conserve not only endangered species, but wetlands and waters that provide habitat for these species and support other natural resource functions and values. This approach was intended, in part, to enable permit streamlining to extend beyond endangered species and to include regional permitting under state and federal laws for impacts on jurisdictional wetlands and waters. The interest in integrating federal and state wetland permitting into the HCP/NCCP process is the same as the articulated purpose of the Plan—to benefit stream and wetland resources by conserving these resources in a more coordinated and comprehensive fashion on a regional scale and to provide an integrated, coordinated approach to permitting in lieu of the often inefficient and costly project-by-project approach.

Discussions with U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency, State Water Resources Control Board (State Water Board), the Regional Water Quality Control Boards (Regional Water Boards), CDFW, and USFWS regarding this parallel approach to compliance with wetlands regulations started in 2002 during the early stages of developing the HCP/NCCP. Coordinating wetlands regulation with HCPs is a difficult process in part because there is no precedent.

On May 4, 2012, the Corps issued a Regional General Permit (RGP) related to the HCP/NCCP. On April 30, 2012, USFWS issued a Biological Opinion on the RGP. The issuance of the RGP and Biological Opinion are important milestones for the overall goals of the HCP/NCCP. On June 6, 2017, the USACE re-issued RGP 1 with a new expiration date of June 6, 2022. To date, 17 covered projects and two Conservancy restoration projects have received permit coverage through the RGP.

Summary of Regional General Permit and Associated Biological Opinion

The RGP is designed to streamline wetland permitting in the HCP/NCCP inventory area by coordinating the avoidance, minimization, and mitigation measures in the Plan with the Corps' wetland permitting requirements. Projects eligible to apply for the RGP are those covered by the HCP/NCCP that meet specified wetland impact limitations (i.e., wetland impacts are less than 1.5 acres). The RGP has a greater impact threshold than the Corps' existing Nationwide Permit Program, which limits wetland impacts to 0.5 acre.

The USFWS Biological Opinion for the RGP relies on the HCP/NCCP for mitigation measures and eliminates the need for the Corps to consult individually with USFWS for each project covered by the RGP. The term of the Biological Opinion corresponds with the 30-year term of the HCP/NCCP. By regulation, RGPs must be renewed every 5 years, but in this case, a new Biological Opinion would not be needed, and on June 6, 2017, the Corps re-issued RGP 1 with a new expiration date of June 6, 2022.

With the RGP in place, project proponents will still apply directly to the wetland agencies for their wetland permits. However, due to the close match between HCP/NCCP and RGP permit conditions, the process will be expedited and improved. Key improvements include the following.

Consistent mitigation ratios and offsite mitigation requirements, which makes it possible to satisfy Corps requirements with HCP/NCCP fees (see *Proposed In-Lieu Fee Instrument/Program* below).

Consistent emphasis on regional avoidance to avoid "postage-stamp" conservation on project sites that can hinder projects and compromise the functions and values of conserved resources.

Consistent, regional, watershed approach to conserving wetlands, waters, and species, which will maximize the value and sustainability of conservation actions.

Currently, the RGP only relates to Clean Water Act Section 404 permits, those issued by the Corps, but discussions are ongoing with the State Board and Regional Water Boards to coordinate their requirements with the RGP and HCP/NCCP. This coordination would lead to further permitting assurances and streamlining.

Proposed In-Lieu Fee Instrument/Program

The In-Lieu Fee (ILF) Instrument is the agreement with the Corps and U.S. Environmental Protection Agency (and possibly other agencies such as the State Water Board and Regional Water Boards) that will sanction payment of HCP/NCCP fees as eligible mitigation under the RGP. The ILF Instrument will also provide the Corps and other signatories with oversight of the Conservancy's use of the fees. The resulting ILF program would comply with the recent federal *Compensatory Mitigation for Losses of Aquatic Resources* (Mitigation Rule; 33 [Code of Federal Regulations] CFR Part 332). The proposed ILF program would be implemented in conjunction with the RGP and HCP/NCCP. Until the ILF program is in place, an interim mitigation strategy is needed

to enable payment of HCP/NCCP fees to satisfy RGP requirements. The Conservancy has initiated work with the regulatory agencies to develop an in-lieu fee instrument that would be aligned with HCP/NCCP.

Interim Strategy

With the RGP issued, but the ILF program not yet in place, an interim strategy is needed to coordinate mitigation required under the RGP with HCP/NCCP mitigation fees. The Corps' proposed approach is *permittee-responsible compensatory mitigation*, an option defined in Mitigation Rule 33 CFR Part 332. Under this approach, until the ILF is approved, the Conservancy will designate a portion of its existing wetland restoration sites as compensatory mitigation for an applicant's project, and this will fulfill the applicant's Section 404 compensatory mitigation requirements under the RGP. The Corps initially approved using this interim strategy for up to 1 year. In 2014, the Corps approved extending the interim strategy until the ILF program is approved to replace it. Before one or more of the Conservancy's existing wetland restoration sites is deemed eligible by the Corps for permittee-responsible mitigation purposes, the Conservancy must submit detailed information to the Corps on the site. This information includes point-by-point documentation of how the site complies with each requirement of the Mitigation Rule for a final mitigation plan (33 CFR 332.4[c] 2-14). For the Conservancy's existing wetland restoration projects, the required documentation already exists in the form of construction plans and mitigation and monitoring plans for each project. The Corps will, however, require detailed quarterly and annual monitoring reports on the performance of the restoration projects used by the interim strategy.

Mitigation Fee Audit and Update

The HCP/NCCP requires automatic annual adjustments to HCP/NCCP mitigation fees based on economic indices as well as periodic audits in years 3, 6, 10, 15, 20, and 25 of Plan implementation. These periodic audits assess whether changes in HCP/NCCP implementation costs over time require additional fee adjustment. A periodic audit was completed in 2011 to assess HCP/NCCP costs through Year 3 of Plan implementation.

The Conservancy Board originally approved the changes to HCP/NCCP mitigation fees on July 22, 2011, after first considering the item on March 21, 2011. However, on May 10, 2012, after the Pittsburg City Council's consideration of the Conservancy's 2011 fee recommendations generated concern and comment, the Conservancy Board considered detailed, critical comment on fee changes and response from staff and the original economic team. On July 26, 2012, the Conservancy Board commissioned a new Periodic Fee Audit and directed staff to solicit proposals. On August 20, 2012, the Board approved the selection of a team assembled by Willdan Financial services and led by Robert Spencer of Urban Economics to perform the Periodic Fee Audit, including the information necessary to support the nexus findings the participating cities and the County may make under the Mitigation Fee Act. The Willdan team completed the *East Contra Costa County HCP/NCCP Mitigation Fee Audit* (Willdan Financial Services 2012a) and *HCP Fee*

Burden Analysis (Willdan Financial Services 2012b). Staff posted these materials on the Conservancy website and notified the Conservancy mailing list on December 22, 2012.

On January 23, 2013, the Board considered the fee item and received a presentation on it from Mr. Spencer. The Board received public comment on the matter, authorized Conservancy staff to perform additional work in the interim, and scheduled action on it for the next meeting. Prior to the April 4, 2013, Board meeting, the Board received an updated version of the fee audit report entitled, *East Contra Costa County HCP/NCCP Mitigation Fee Audit and Nexus Study, Final Report*, March 2013 (2013 Fee Report; Willdan Financial Services 2013). The changes made to the Report between December and March were minor. The 2013 Fee Report recommended a reduction to development fees, a reduction in stream fees, and increases to other wetland mitigation fees. The Conservancy Board approved 2013 Fee Report and other related actions at the June 27, 2013, Board meeting.

The Conservancy initiated work on the 2017 mitigation fee audit and update in late 2016. Urban Economics and Hausrath Economics Group completed the mitigation fee audit in early 2017. This was presented to the Conservancy Board as a draft and informational update in June 2017. There has been no further action to adopt the 2017 mitigation fee audit and update.

Other Activities

Public Outreach/Engagement

Volunteer Engagement

In 2019, 45 volunteers working with Save Mount Diablo contributed 207 hours towards an overall total of 339 hours worked by staff and volunteers over 12 workdays at the Ang Riparian Restoration Project site. Work involved clearing trails, weeding, watering, collecting and planting valley oak acorns, planting red willow stakes, and site monitoring.

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APPENDIX A: GLOSSARY

Definitions of Key Terms and Concepts

Adaptive management. A method for examining alternative strategies for meeting measurable biological goals and objectives and, if necessary, adjusting future conservation management actions according to what is learned (*65 Federal Register 106*; June 1, 2000). (See also Chapter 7 for alternative but similar definitions of adaptive management.)

Anthropogenic. Caused or produced through human agency.

Baseline. The existing environmental state, which includes past and present impacts as well as the anticipated impacts of all permitted projects in the inventory area.

Biological opinion. The document stating the opinion of the U.S. Fish and Wildlife Service and/or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service regarding whether a federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat (*50 Code of Federal Regulations* [CFR] *402.02*). A biological opinion is one of the decision documents of a consultation under Section 7 of the federal Endangered Species Act.

Biodiversity. The variety of organisms considered at all levels, from genetic variants of a single species through arrays of species to arrays of genera, families, and higher taxonomic levels; includes the variety of ecosystems.

Buffer areas. Designated zones of agricultural lands, grassland, or other habitat types adjacent to preserves that are intended to prevent or reduce the undesired intrusion of biota, harmful materials, or disturbances into the preserve, as well as the movement of covered wildlife species from preserve areas into adjoining areas.

Conservation. According to the federal Endangered Species Act (Section 3[3]), the terms *conserve*, *conserving*, and *conservation* are defined as the methods and procedures necessary to bring any endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, activities associated with resource management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transportation. The Natural Community Conservation Planning Act defines *conserve*, *conserving*, and *conservation* as the use of methods and procedures within the plan area that are necessary to bring any covered species to the point at which the measures provided pursuant to Chapter 1.5 are not necessary, and for covered species that are not listed pursuant to Chapter 1.5 to maintain or enhance the condition of a species so that listing pursuant to Chapter 1.5 will not become necessary.

Conservation measure. A management action that, when implemented, will partially or wholly achieve Plan objectives for covered species, natural communities, biodiversity, or ecosystem function.

Conserved habitat. Species habitat that is protected, enhanced, and/or restored under the Plan.

Construction monitoring. Monitoring by biologists of construction activities to ensure that conservation measures are implemented and impacts on biological resources are avoided or minimized in accordance with Plan requirements.

Contribute to recovery. Actions that measurably increase the baseline conditions necessary to support covered species and contribute to the eventual de-listing of a listed species or prevention of listing of an unlisted species. A contribution to recovery does not include actions necessary to avoid, minimize, or mitigate impacts of covered activities.

Cover (e.g., canopy cover, areal cover). The area of ground covered by vegetation of particular species or vegetation type, generally expressed as a percentage.

Covered species. Those species addressed in the Plan for which conservation measures will be implemented and for which the permittee seeks authorization for take under Section 10 of the federal Endangered Species Act and Section 2081 of the California Endangered Species Act.

Critical habitat. An area designated as critical habitat by the U.S. Fish and Wildlife Service pursuant to the federal Endangered Species Act. Critical habitat areas are specific geographic areas, whether occupied by listed species or not, that are determined to be essential for the conservation and management of listed species, and that have been formally described and designated in the Federal Register.

Dominance. The extent to which a given species predominates a community by virtue of its size, abundance, or coverage.

Ecosystem. A community of organisms and their physical environment interacting as an ecological unit.

Ecosystem function. The sum total of processes operating at the ecosystem level, such as the cycling of matter, energy, and nutrients.

Ecosystem restoration. The reestablishment of ecological functions within an area that historically supported those functions.

Environmental gradient. A shift in physical and ecological parameters, as characterized by transition zones between land cover types and natural communities or topographic gradients across a landscape.

Ephemeral stream. A stream that flows only in response to rain events and receives no groundwater input.

Executive Director. The Executive Director leads the Implementing Entity, and is responsible for Plan implementation, staff management, funding acquisition, and other managerial duties.

Extinct species. A species no longer in existence.

Extirpated species. A species no longer surviving in regions that were once part of its range.

Fossorial. Adapted for digging or burrowing into the ground.

Geographic Information System (GIS). Computer-based mapping technology that manipulates geographic data in digital layers and enables one to conduct a wide array of environmental analyses.

Goal. A broad, guiding principle that identifies an expected outcome of the Plan. Conservation strategy goals describe the desired future condition for each covered species with full implementation of the Plan.

Habitat. The environmental conditions that support occupancy of a given organism in a specified area (Hall et al. 1997). In scientific and lay publications, habitat is defined in many different ways and for many different purposes. For the purpose of the Plan, habitat is defined as the specific places where the environmental conditions (i.e., physical and biological conditions) required to support occupancy by individuals or populations of a given species are present. Habitat may be occupied (individuals or population of the species are, or have recently been, present) or unoccupied (see *unoccupied habitat* below).

Habitat creation. The establishment of a vegetation community in an area that did not previously support it. For example, stock ponds can be created in areas that previously did not support them by grading and installing a check dam.

Habitat enhancement. The improvement of an existing degraded vegetation community. Enhancement involves improving one or more ecological factors, such as species richness, species diversity, overall vegetative cover, or wildlife value. Enhancement activities typically occur on substrates that are largely intact.

Habitat-limited. A habitat-limited species is one whose abundance, distribution, or reproduction is limited by the availability or quality of suitable habitat. See *suitable habitat*.

Habitat quality. The ability of the environment to provide conditions that support the persistence of individuals and populations. The precise meaning of quality varies by species and depends on the subject species' specific needs in the context of a particular area. High-quality habitat for some species comprises only foraging and resting elements; for others it comprises foraging, resting, and nesting elements; for still others it may encompass all elements needed for the species to complete its lifecycle. Low-quality habitat would include only the minimal elements that support occurrence of the species. High-quality habitat tends to support larger numbers of species than low-quality habitat.

Habitat quantity. The area of the environment that supports or could support occupancy of a given organism.

Habitat replacement. To replace habitat is to mitigate habitat loss by enhancing or restoring habitat equivalent to or greater than the habitat lost.

Habitat restoration. The establishment of a vegetation community in an area that historically supported it, but no longer supports it because of the loss of one or more required ecological factors. Restoration may involve altering the substrate to improve a site's ability to support the historic vegetation community.

Harass. An intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (*50 CFR 17.3*).

Harm. An act that actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (*50 CFR 17.3*).

Hydrology. The movement of surface and subsurface water flows in a given area. The hydrology of an area is intimately connected with its precipitation, soils, and topography.

Incidental take. Any taking otherwise prohibited, if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity (*50 CFR 17.3*).

In-kind/like-value creation. Establishing the same vegetative community that would provide the same ecological values over time as the vegetation community affected. For example, creating an artificial vernal pool that supports species similar to those found in an affected vernal pool would be in-kind/like-value creation.

Intermittent stream. A stream that is supplied by both rainfall runoff and groundwater. Intermittent streams tend to be seasonal, flowing during the rainy season and into the late spring or early summer.

Jurisdictional wetlands and waters. State and federally regulated wetlands and other water bodies that cannot be filled or altered without permits from either the Corps under Section 404 of the Clean Water Act, the State Water Resources Board, or the Regional Water Quality Control Boards under either Section 401 of the Clean Water Act or the Porter-Cologne Water Quality Control Act, or the CDFW under Fish and Game Code Section 1602, as of the date the Plan takes effect.

Land cover type. The dominant feature of the land surface discernible from aerial photographs and defined by vegetation, water, or human uses.

Land-use designation. The designation, by parcel, in an adopted city or county General Plan of the allowable uses.

Loss of habitat. A reduction in habitat quality or quantity that results from an adverse change in an environmental condition. Environmental conditions may include cover, substrate, channel type, interacting species, river area, reservoir area, water quality, and groundwater depth.

Metapopulation. A group of partially isolated populations belonging to the same species that are connected by pathways of immigration and emigration. Exchange of individuals occurs between such populations, enabling recolonization of sites from which the species has recently become extirpated.

No-take species. Species for which take is not authorized under this Plan. In order to comply with the terms of the Plan, applicants for coverage under the Plan must avoid all direct and indirect impacts on no-take species. See Table 5-3 of the HCP/NCCP for a list of no-take species.

Out-of-kind/like-value. Establishing a similar, but not identical, vegetative community with some of the same ecological functions and values as the affected vegetative community over time.

Perennial stream. A year-round stream that is supplied by both rainfall runoff and groundwater, as well as by substantial dry-season inputs.

Performance indicator. The environmental variables that are quantitatively measured over time to determine if enhanced/created/restored natural communities have successfully met Plan biological goals and objectives.

Performance objective. In monitoring, the optimal desired value for each performance indicator. Performance objectives establish a higher threshold for each indicator than that established for performance standards. Funding, design, and management objectives for enhanced/created/restored natural communities are established at levels that are designed to ensure that the performance objectives are achieved. Failure to meet a performance objective would not constitute a changed circumstance or require remedial measures.

Performance period. In monitoring, the time over which performance standards must be met.

Performance standard. In monitoring, a minimum requirement necessary to achieve biological goals and objectives. Failure to achieve a performance standard could constitute a changed circumstance and require that remedial measures be implemented.

Permittees. Those entities requesting a Section 10(a)(1)(B) incidental take permit from the USFWS and a take permit under the Natural Community Conservation Planning Act from the CDFW for the species and activities covered in the accompanying HCP/NCCP.

Planning surveys. Surveys conducted by applicants for Plan coverage and used in the project-planning process to identify constraints and determine which Plan conservation measures are applicable. Planning surveys also include surveys conducted by the Implementing Entity on potential preserve lands to evaluate whether these lands will meet Plan requirements.

Population. A group of individuals of the same species inhabiting a given geographic area, among which mature individuals reproduce or are likely to reproduce. Ecological interactions and

genetic exchange are more likely among individuals within a population than among individuals of separate populations of the same species.

Range. The geographic area a species is known to occupy or believed to occupy.

Practicable. Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purpose (45 FR 85344, December 24, 1980: U.S. Environmental Protection Agency, *40 CFR 230.3,* Definitions).

Preconstruction surveys. Surveys conducted by applicants for Plan coverage for certain biological resources immediately prior to construction to ensure that species and habitat avoidance and minimization measures can be effectively implemented during construction of covered projects or implementation of covered activities.

Preserves. Discrete areas of conserved habitats managed as single units under the Plan.

Preserve System. All Plan preserves considered collectively.

Protect habitat. To maintain the existing or enhanced extent of species habitat through acquisition, easements, or other practicable processes for bringing unprotected sites under protected status.

Recovery. The process by which the decline of an endangered or threatened species is arrested or reversed or threats to its survival neutralized so that its long-term survival in nature can be ensured. Recovery entails actions to achieve the conservation and survival of a species (U.S. Fish and Wildlife Service and National Marine Fisheries Service 1998), including actions to prevent any further erosion of a population's viability and genetic integrity, as well as actions to restore or establish environmental conditions that enable a species to persist (i.e., the long-term occurrence of a species through the full range of environmental variation).

Recovery Plan. A document published by the USFWS that lists the status of a listed species and the actions necessary to remove the species from the endangered species list.

Riparian habitat. Vegetation associated with rivers, streams, lake banks, and floodplains.

Ruderal. A species or plant community that occurs on a highly disturbed site.

Signature. Characteristic value, color, or texture on an aerial photograph that correlates to a particular land cover type.

Stream, perennial. A stream that flows throughout the year.

Stream, intermittent. A stream that flows only at certain times of the year, generally in response to precipitation runoff or groundwater input.

Stream, ephemeral. A stream that flows only briefly in direct response to precipitation in the immediate vicinity, and that does not receive groundwater input.

Succession. The change in the composition and structure of a biological community over time. Successional patterns often shift dramatically following a major disturbance (e.g., fire, flood, anthropogenic clearing of land).

Suitable habitat. Habitat that exhibits the characteristics necessary to support a given species.

Take. According to the federal Endangered Species Act (Section 3[18]), to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. According to the California Endangered Species Act (Section 86 of the California Fish and Game Code), *take* means to hunt, pursue, catch, capture, or kill.

Take Coverage. Is defined in the HCP/NCCP in terms of land cover types lost as a result of covered activities. See HCP/NCCP Chapter 3 of for definition of land cover types and Chapter 4 for an estimate of loss of these land cover types.

Umbrella species. A species whose range and habitat requirements are large and broad enough to encompass the range and habitat requirements of other species.

Unoccupied habitat. Habitat that exhibits all the constituent elements necessary for a species, but where surveys have determined that the species is not currently present. The lack of individuals or populations in the habitat is assumed to be the result of reduced numbers or distribution of the species such that some habitat areas are unused. It is expected that these areas would be used if species numbers or distribution were greater. See also definition of *suitable habitat*.

Urban-wildland interface. The narrow zone (<100 feet) between dense urban development and natural land cover in which structures can be built to minimize the damaging indirect effects on covered species or habitats of activities within urban areas.

Vegetation community. A natural or artificial terrestrial community defined by the dominant vegetation and the vegetation structure. This term is used synonymously with the regulatory term *natural community* under the Natural Community Conservation Planning Act of 2002.