East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan Annual Report 2016

East Contra Costa County Habitat Conservancy

April 2017

Cover Photographs:

Land tour participants looking over Deer Valley, Roddy Ranch, Photo Credit: ECCC Habitat Conservancy; Preserved Forever signs along Vasco Road, Souza III, Photo Credit, Chris Lyall (EBRPD); Alameda Whipsnake feasting on a skink, Dainty Ranch, Photo Credit Lesley and Bill Hunt.

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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
Conservancy	East Contra Costa County Habitat Conservancy
Corps	U.S. Army Corps of Engineers
County	Contra Costa County
CWA	Clean Water Act
EBRPD	East Bay Regional Park District
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
EQIP	Environmental Quality Incentive Program
GIS	geographic information system
GPS	global positioning system
HCP/NCCP	*East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan*
HCPA	Habitat Conservation Plan Association
ILF	In-Lieu Fee
Mitigation Rule	*Compensatory Mitigation for Losses of Aquatic Resources*
Ln ft	Linear Feet
Plan	*East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan*
Regional Water Board	Regional Water Quality Control Board
RGP	Regional General Permit
State Water Board	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service

EXECUTIVE SUMMARY

Ridge between Horse and Deer Valleys, Roddy Ranch.
Photo Credit: ECCC Habitat Conservancy

This is the eighth 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, 2016, and December 31, 2016, 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 (ESA) and California's Natural Community Conservation Planning Act. Over the 30-year permit term, impacts from urban development and rural 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 2016, 18 projects received streamlined permits through the HCP/NCCP. The projects include infrastructure, transportation, housing, and other economic development activities providing a

[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.

range of benefits for the communities of eastern Contra Costa County. Highlights of these approved covered activities include the following.

Transportation: The Contra Costa Public Works Department constructed the Canal Road Sidewalk and Bike Lanes Project. The project involved impacts to a Willow Creek that required the County to secure permits for impacts to habitat. The project involved the construction of a sidewalk and striping bike lanes on both sides of the road. The Project is adjacent to Bel Air Elementary School and in close proximity to the Pittsburg/Bay Point Bay Area Rapid Transit (BART) station. The Project will provide safe, dedicated pedestrian and bike access to the school and BART station.

Residential Development: The 27-unit Maffeo Residential Development Project in the City of Brentwood received permit coverage under the Plan. The project initiated construction in late 2016 and construction is expected to continue into 2017.

Utility Infrastructure: The PG&E T-1047A Hydrotest Project received permit coverage under the Plan through the Conservancy in 2016. The project involves hydrostatic pressure testing on approximately 1.84 miles of 24-inch diameter natural gas pipeline. Hydrotesting is considered routine gas pipeline maintenance, and involves temporarily evacuating all gas from a portion of the gas pipeline, filling it with water, pressurizing the pipeline for the test, removing water from the pipeline after the successful test, and returning the pipeline back into service. The Project requires excavation and staging at two work locations along PG&E Line 114 in the City of Brentwood. All work associated with the project is temporary and the sites will be restored to pre-project conditions at the close of the project.

Altogether, 18 projects received streamlined permit coverage under the Plan in 2016, including 14 urban development projects, 1 rural infrastructure operations and maintenance (O&M) project, and 3 rural infrastructure projects. These activities resulted in 70.4 acres of permanent impacts and 8.1 acres of temporary impacts on terrestrial land cover types; 0.20 acre of permanent impacts on aquatic habitats; and 66.00 linear feet of permanent impacts and 6.00 linear feet of temporary impacts on streams.

Land Acquisition and Stay-Ahead Provision

During the first 9 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 the reporting period, 32 properties had been acquired for the Preserve System, totaling over 13,212 acres. All acquisitions to date have been completed in partnership with the East Bay Regional Park District (EBRPD). EBRPD owns these properties and, together with the Conservancy, manages the Preserve System lands.

The Conservancy partnered with EBRPD in 2016 to acquire three properties, totaling 915.5 acres. The Coelho and Hanson Hills properties are located adjacent or in close proximity to several Preserve System properties. The Nunn property is the first acquisition in Zone 6 and offers many unique conservation and restoration opportunities. Additional highlights of the acquisitions include the following:

- A total of 186 acres of annual grassland were acquired during the reporting period, and approximately 7,313 acres have been protected to date (44% of the annual grassland preservation requirement).
- 26 acres of alkali grassland were acquired in the reporting period, and 251 acres have been protected to date (20% of the alkali grassland preservation requirement).
- 27 acres of oak savanna were acquired in the reporting period, and 391 acres have been protected to date (78% of the oak savanna preservation requirement).

The Conservancy remains in compliance with the Plan's Stay-Ahead Provision. The Conservancy has made substantial progress in the first 9 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.

Habitat Restoration and Creation

The Plan requires stream and wetland restoration and pond creation to compensate for impacts on streams, wetlands, and ponds 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 restoration projects were constructed during the reporting period. Three previously constructed restoration projects met success criteria. To date, nine restoration projects have been constructed, and each is monitored and adaptively managed.

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 (EPA), 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.
- To date, 12 covered projects and two Conservancy restoration projects have received permit coverage through the RGP.
- The Conservancy and USACE initiated work for the reissuance of RGP 1. The reissuance is anticipated to occur to provide USACE 404 permit continuity.

Funding

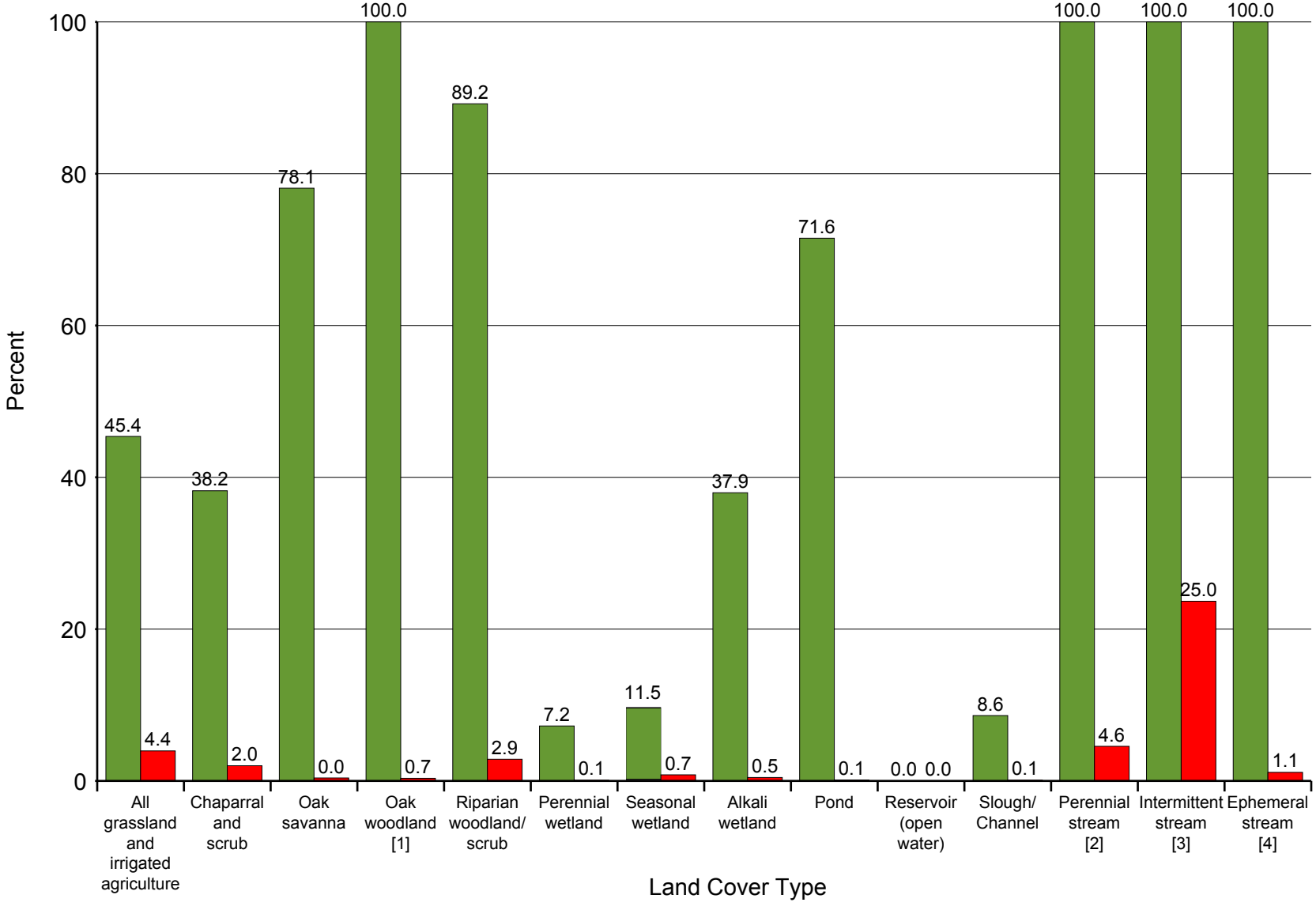
The Conservancy successfully pursued and secured grants during the 2016 reporting period. Various federal and state sources generously granted $7,363,644 towards land acquisition and

preserve management activities. Mitigation fees and other payments from project proponents totaled $1,010,904. Local matching funds, which include grants awarded to local partners, totaled $1,341,074.

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 616% of the total.

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

[3] Intermittent stream has exceeded the conservation requirement: it is 6185% of the total.

[4] Ephemeral stream has exceeded the conservation requirement: it is 624% of the total.

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

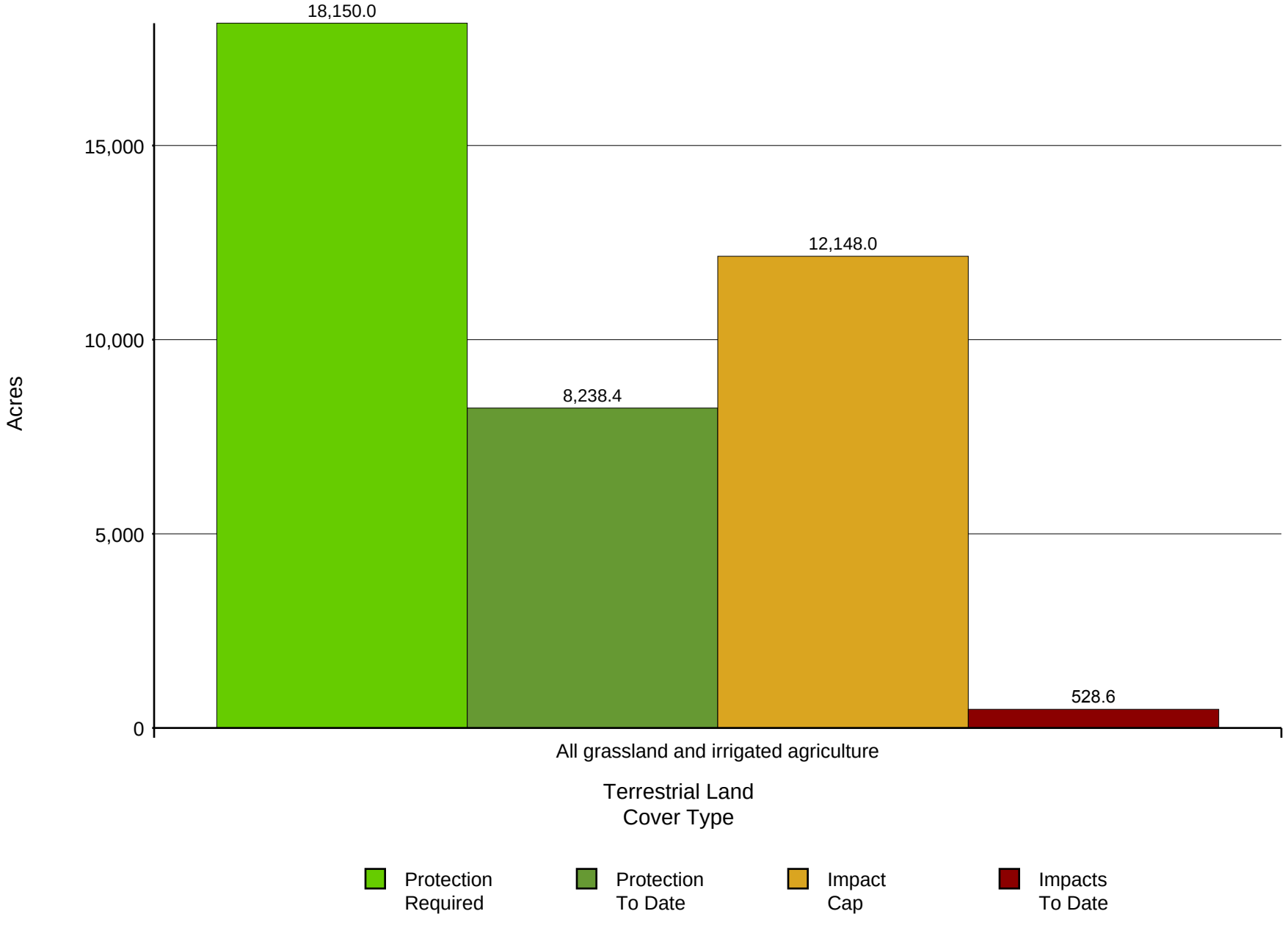


Figure ES-2b. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Terrestrial Land Cover Types

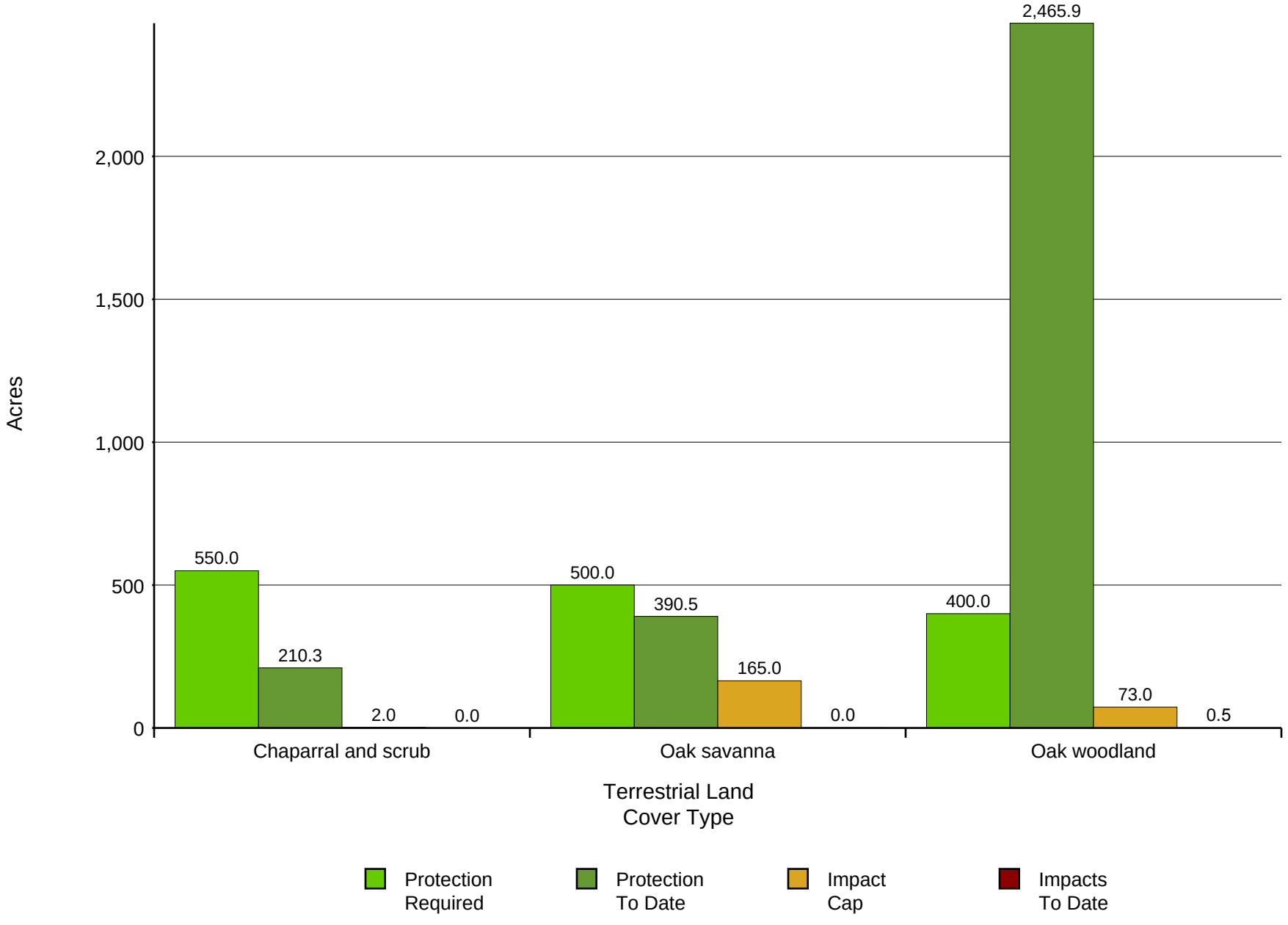


Figure ES-3a. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Aquatic Land Cover Types

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.

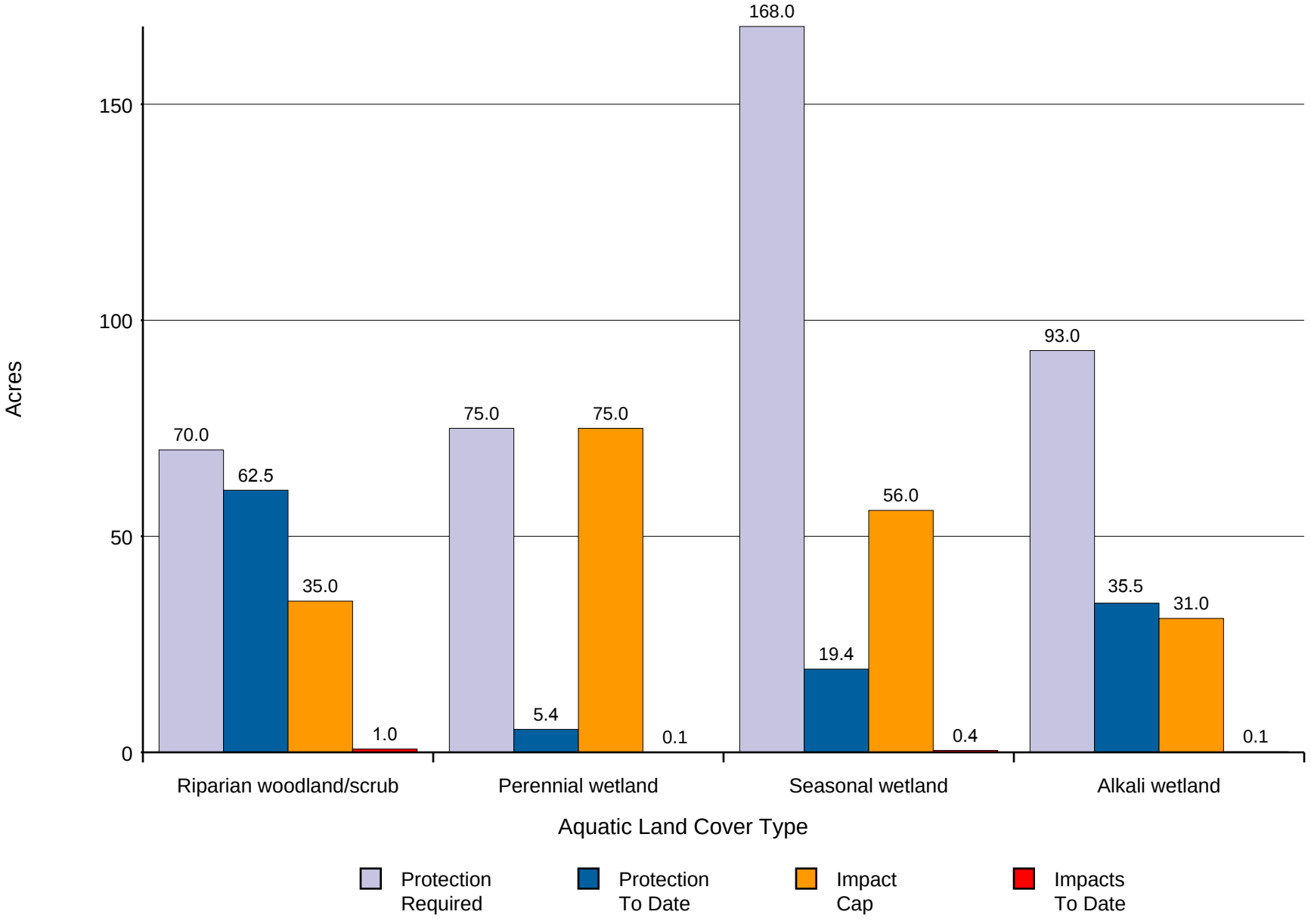


Figure ES-3b. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Aquatic Land Cover Types

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.

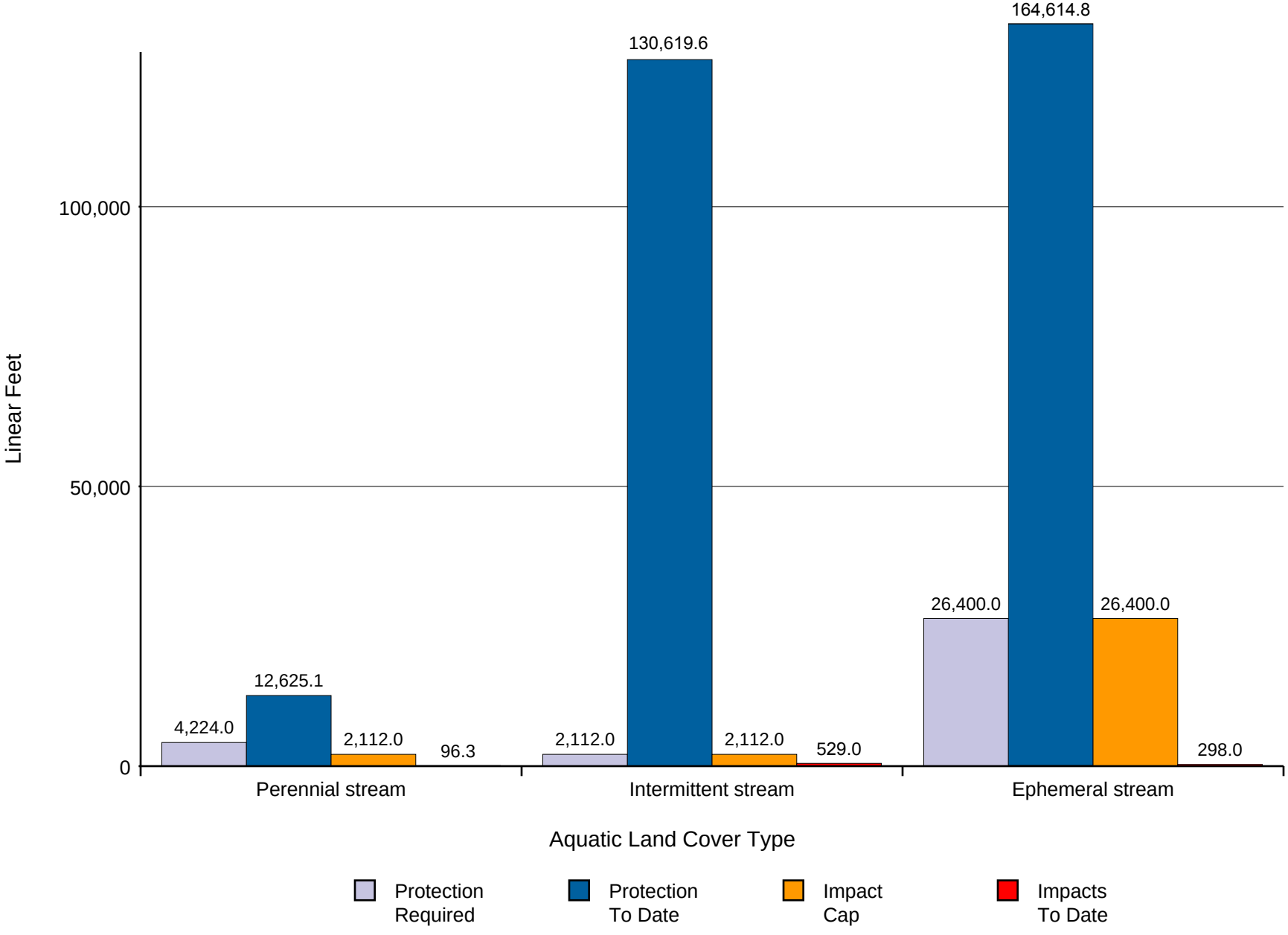
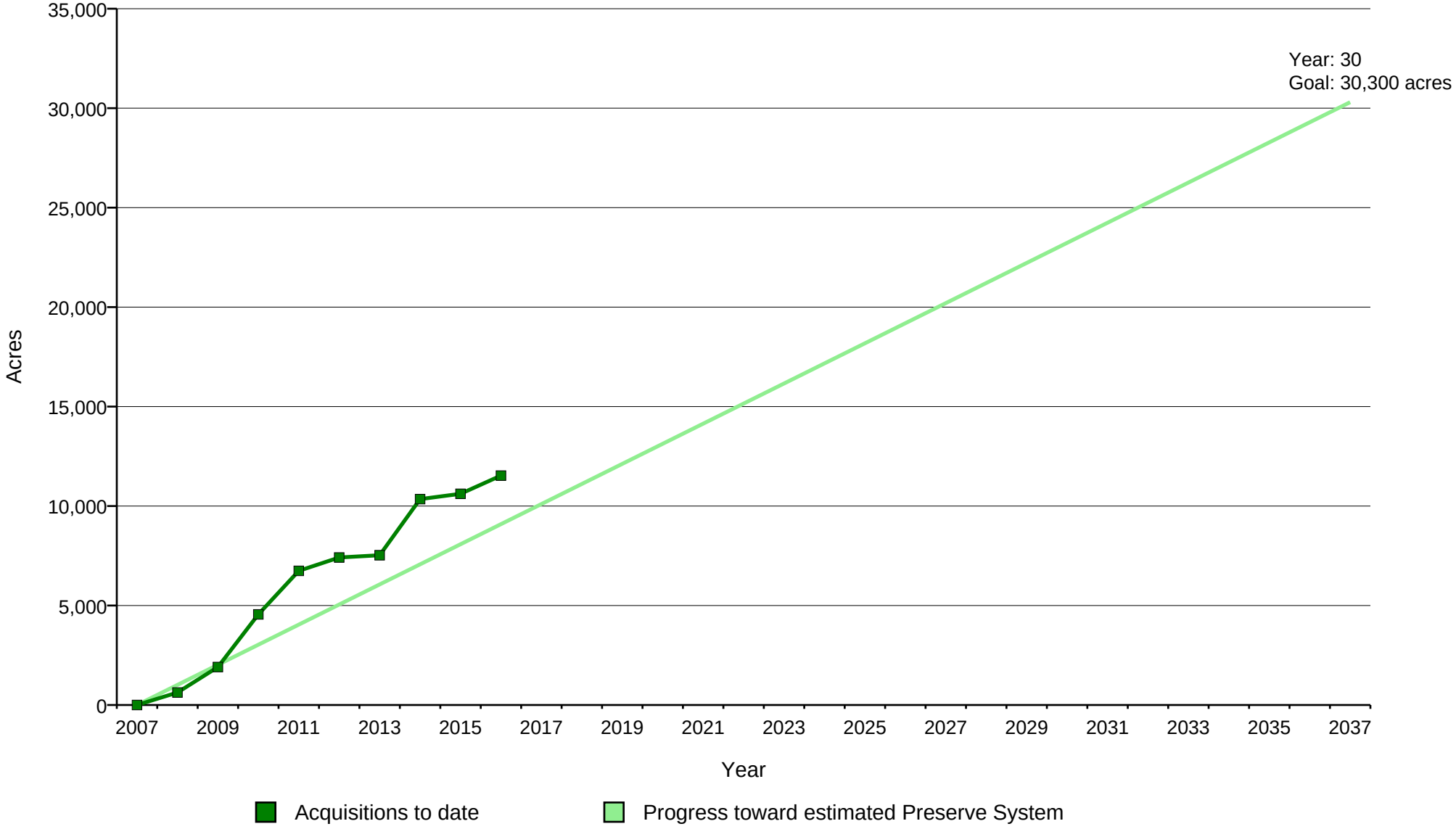


Figure ES-4. Progress Toward Assembling the Preserve System

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

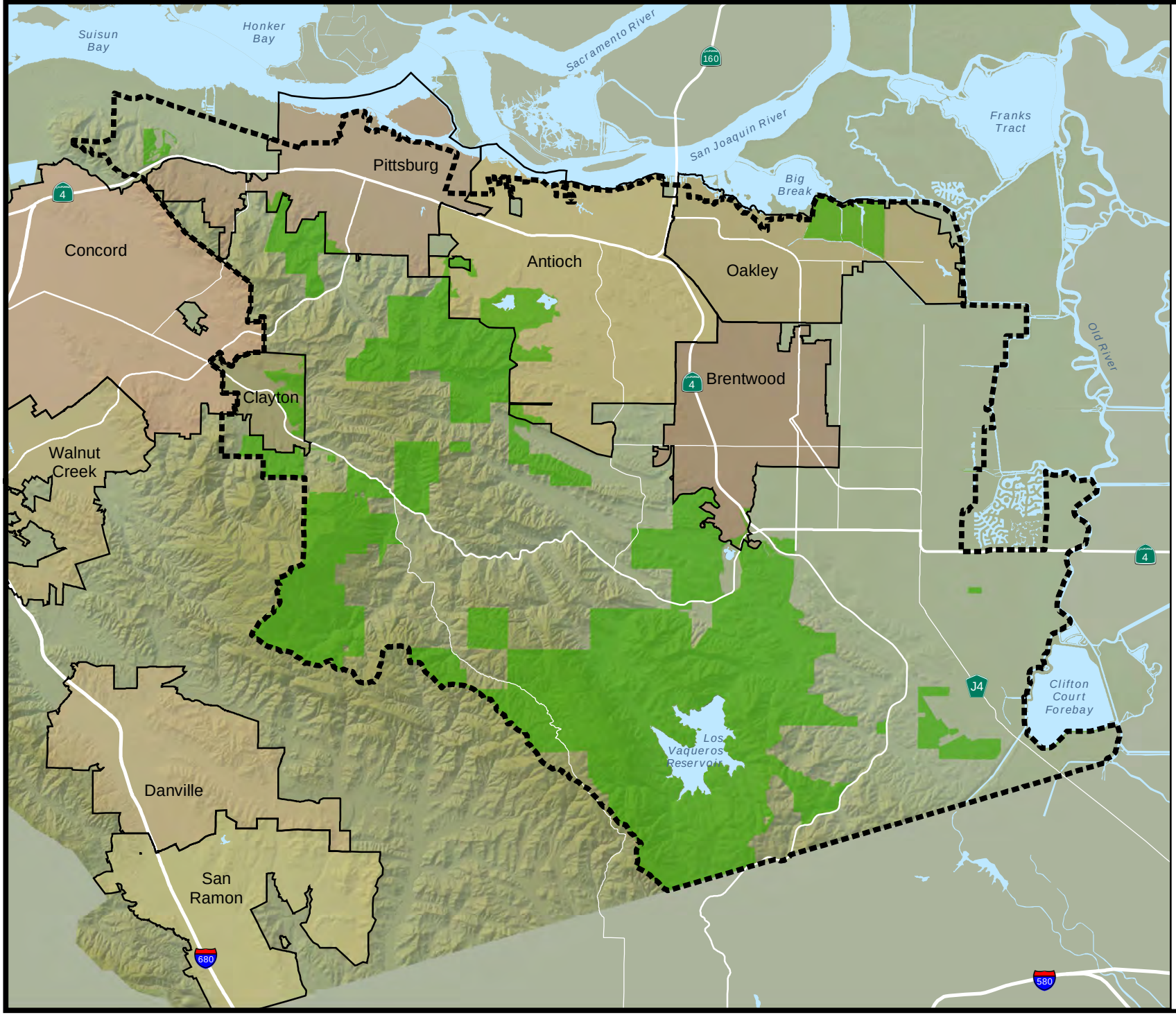
East Contra Costa County HCP/NCCP Background

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 (HCPA) 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 (County Flood Control 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 HCPA 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 (ESA) for 8,670–11,853 acres of urban development and 1,126 acres of rural infrastructure projects. The primary means to offset these impacts is to conserve and restore lands in a Preserve System. The Preserve System will

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 (as of 2006 when the HCP/NCCP was completed)
- City Limits

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encompass approximately 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 expected to be the primary landowner and land manager for the Preserve System, and so far all land acquisitions have been completed by EBRPD. EBRPD has more than 75 years of experience managing public open space lands and now owns more than 114,000 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, 2016, through December 31, 2016. The Report also summarizes the Plan implementation activities undertaken from the actual start of Plan Implementation on January

18, 2008 (when the last set of local ordinances took effect[2]), to December 31, 2016. 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.

[2] The HCP/NCCP implementing ordinances for the cities of Brentwood and Clayton and Contra Costa County took effect on January 15, 2008. The ordinances for the cities of Oakley and Pittsburg took effect on January 18, 2008.

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, etc.) and an overview of the Conservancy's budget and expenditures during the reporting period.

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 18 projects received take coverage under the Plan during the reporting period (Table 1 and Figures 3a and 3b). Covered activities include the following:

- 14 urban development area projects
- 1 rural infrastructure operation and maintenance project
- 3 rural infrastructure projects

All covered activities mitigated impacts through the payment of HCP/NCCP fees. In 2016, mitigation fees, contribution to recovery charges, and administrative fees related to covered projects totaled $1,010,904. 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*.

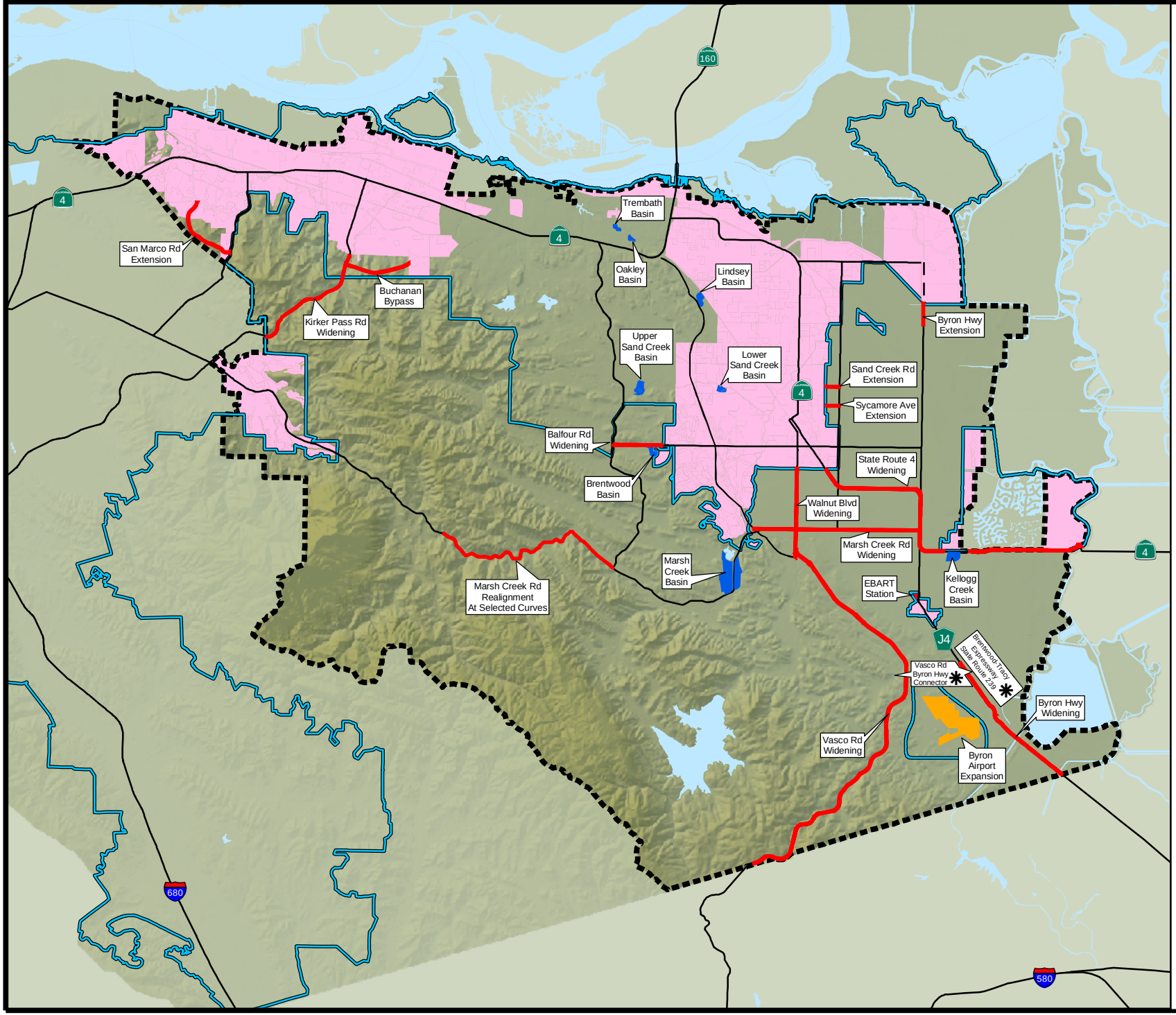
Specific project circumstances determine which conditions apply to each project. For example, Condition 1.12 *Implement Best Management Practices for Rural Road Maintenance* only applies to rural road maintenance projects. Compliance with the conditions on covered activities is an important part of the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

As shown in Tables 2 and 3, landscape, natural community, and species level conditions were applied to all 18 covered activities implemented during the 2016 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 70.4 acres of permanent impacts and 8.1 acres of temporary impacts (Table 4). Both permanent and temporary impacts occurred on streams—66.00 linear feet of permanent impacts and 6.00 linear feet of temporary impacts. 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, East County Delta, Lower Mt. Diablo, and Willow (Table 6).

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



Legend

- Inventory Area
- County Urban Limit Line

Rural Infrastructure Projects

(Please see Chapter 2 for details)

- Detention Basins
- Transportation Projects
- Byron Airport
- Initial Urban Development Area (transportation & other Infrastructure projects in this area are also covered.)

✱ Precise location to be determined. Please see Chapter 2 for a description of alignment limitations under HCP/NCCP permit.

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Figure 3a. Location and impact acreage for Projects that Received Coverage in 2016

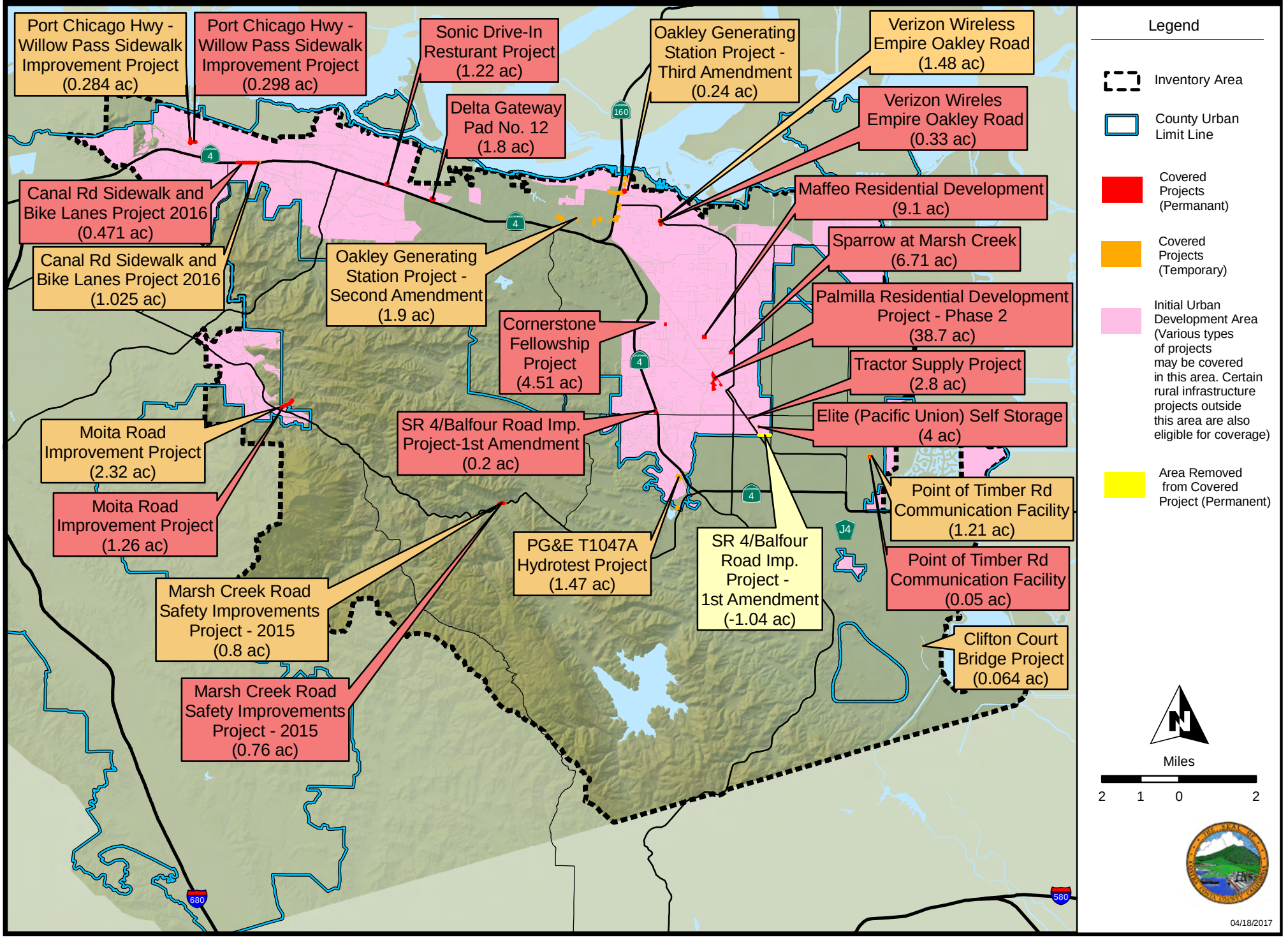
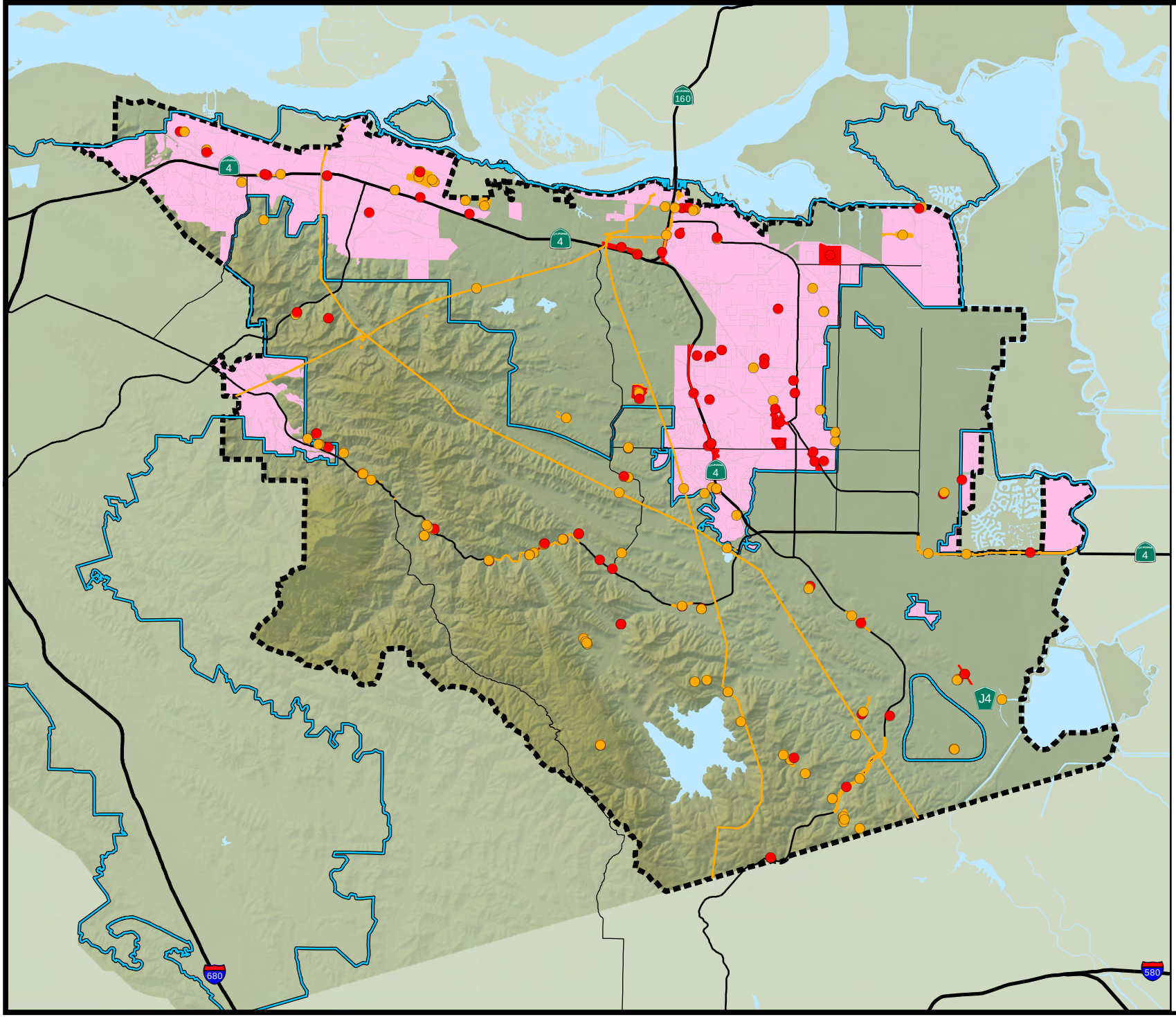


Figure 3b. Location of Covered Projects to-date (2008-2016)



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)

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Table 1. Reporting Summary of Covered Activities for 2016

Project Name	Activity Type	Covered By	Location	Description
Activities within the Urban Development Area				
Oakley Generating Station Project-Third Amendment	Utility	ECCC Habitat Conservancy	6000 Bridgehead Road, Oakley, CA	The project addressed a change in the location of transmission tower 2/21, resulting in a minor change in the transmission line right-of-way and the pull site configuration for this tower.
Oakley Generating Station Project-Second Amendment	Utility	ECCC Habitat Conservancy	6000 Bridgehead Road, Oakley, CA	The project addressed a change in the location of transmission tower 2/21, resulting in a minor change in the transmission line right-of-way and the pull site configuration for this tower.
Verizon Wireless Empire Oakley Road	Utility	City of Oakley	2092 Oakley Road, Oakley, CA 94561	Verizon Wireless constructed a new unmanned wireless communication facility designed as a pine tree, including all related equipment and cabling.
State Route 4/Balfour Road Interchange Improvements Project-First Amendment	Transportation	ECCC Habitat Conservancy	Intersection of SR4 and Balfour Road, Brentwood, CA	The amendment addressed modifications to the SR4/Balfour Road Interchange Improvement Project. The proposed changes required removal of 24 trees within the existing open channel of Deer Creek to facilitate bridge construction, channel conform work to transition the proposed daylighted section back to the existing channel, placement of rock slope protection, and eliminating the previously proposed offsite improvements associated with the Kinder Morgan utility relocation work.
Port Chicago Highway/Willow Pass Road Sidewalk Improvement Project	Transportation	Contra Costa County-Public Works	The intersection of Port Chicago Highway and Willow Pass Road in Bay Point	The Public Works Department constructed approximately 1,400 linear feet of sidewalk and bike lane improvements at the intersection of Port Chicago Highway and Willow Pass Road in the unincorporated community of Bay Point.
Canal Road Sidewalk and Bike Lanes Project	Transportation	Contra Costa County-Public Works	Canal Road between Bailey Road and Loftus Road, Bay Point, CA	The project consisted of constructing a sidewalk path along the north side of Canal Road (where missing) and striping bike lanes on both sides of the road. Construction includes installing sidewalk, curb, and gutter grading along the roadside; constructing ADA-compliant curb ramps; pavement widening; and paving driveway conforms for property access on Canal Road. The project includes alterations to the existing headwall at a section of a daylighted section of Willow Creek.

Project Name	Activity Type	Covered By	Location	Description
Delta Gateway Pad 12	Commercial	City of Pittsburg	South side of Century Boulevard, just west of the west tip of Delta Gateway Boulevard, in the City of Pittsburg	The project consists of construction of a multi-tenant retail building on a vacant pad in an existing shopping center. The project will involve construction of a 9,986 square-foot building, the extension of Delta Gateway Blvd, and various site improvements.
Sonic Drive-In Restaurant	Commercial	City of Pittsburg	1600 North Park Boulevard, Pittsburg, CA 94565	The project consists of a restaurant with drive-thru service. The building is one single-story structure and 2,308 square feet in size.
Tractor Supply Project	Commercial	City of Brentwood	425 Harvest Park Drive, Brentwood, CA 95402	The project established a tractor supply retail store.
Elite (Pacific Union) Self Storage	Commercial	City of Brentwood	722 Guthrie Lane, Brentwood, CA 94513	Construction of a new self-storage facility on an infill parcel. The project involved constructing a total of 170,262 square feet of one and two-story buildings, a 1,167 square foot office, and various site improvements.
Sparrow at Marsh Creek	Residential	City of Brentwood	West side of Brentwood Boulevard, south of Applewood Court in the City of Brentwood	The residential development project subdivided a 6.71+/- acre parcel into 39 single-family residential lots and 11 duplex/triplex lots with homes and ancillary services, and a park adjacent to Marsh Creek. The residential lots range in size from 4,010 sq ft to 6,591 sq ft.
Cornerstone Fellowship Project	Residential	City of Brentwood	6551 Lone Tree Way, Brentwood, CA 94513	The project involved the construction of a 40,540-square-foot two-story building and various site improvements on portions of four infill and redevelopment parcels. The project also involved improvements to the existing office and classroom facilities on the site.
Palmilla Residential Development Project Phase II	Residential	City of Brentwood	East of and adjacent to Marsh Creek, north of Dainty Avenue, southwest of railroad tracks, east of Griffith Lane, City of Brentwood	The new Palmilla VTM (9332) reconfigures the originally approved Marseilles layout for the project site, resulting in a total of 296 single-family lots, 3.79 acres of park land dedication, and internal streets and necessary water, sewer, and storm drainage infrastructure.
Maffeo Residential Development	Residential	City of Brentwood	East of Fitzgerald Way and north of Grant Street in the City of Brentwood	The project entails construction of 27 single-family homes with a minimum lot size of 70 feet by 110 feet and two water quality detention basins (totaling approximately 0.64 acre).

Project Name	Activity Type	Covered By	Location	Description
Rural Infratructure O&M Activities				
Clifton Court Road Bridge Project	Transportation	Contra Costa County Public Works	Clifton Court Road where a bridge spans over Italian Slough, just west of Clifton Court Forebay in unicorporated Byron.	Contra Costa County Public Works Department fortified the Clifton Court Road Bridge that spans over Italian Slough on Clifton Court Road. The purpose of the project is to prevent further deterioration of the bridge that could lead to bridge replacement. The project involved the following maintenance activities: replaced the missing portion of the retaining wall at Abutment 1, placed additional rip-rap at Abutment 6, and replaced deteriorating timber cross bracing.
Rural Infrastructure Projects				
PG&E T-1047A Hydrotest Project	Utility	ECCC Habitat Conservancy	Location A: PG&E Brentwood Terminal near the intersection of Vineyards Avenue and Fairview Parkway in Brentwood. Location D: Near the John Marsh Historic Home at 21789 Marsh Creek Rd, Brentwood, CA 94513	The project involved hydrostatic pressure testing on approximately 1.84 miles of 24-inch diameter natural gas pipeline. Hydrotesting is considered routine gas pipeline maintenance, and involves temporarily evacuating all gas from a portion of the gas pipeline, filling it with water, pressurizing the pipeline for the test, removing water from the pipeline after the successful test, and returning the pipeline back into service. The Project requires excavation and staging at two work locations along PG&E Line 114 in the City of Brentwood. All work associated with the project is temporary and the sites will be restored to pre-project conditions at the close of the project.
Point of Timber Road Communication Facility Project	Utility	Contra Costa County	3510 Point of Timber Road, Brentwood, CA 94513	The applicant erected a new wireless facility and constructed a 70-foot-tall monopine cell phone tower with a total of nine radio head units, two GPS antennas, equipment shelter, diesel generator, and associated equipment.

Project Name	Activity Type	Covered By	Location	Description
Moita Road Improvement Project	Transportation	Contra Costa County	North of Marsh Creek Road as it intersects Diablo Parkway in the unincorporated Clayton	The project involves the construction of a new road and replacement of the existing private road that currently provides access to the residents of Clayton Estates. The existing paved road is 10 feet wide, runs parallel to an existing unnamed drainage feature, and transverses the property in a north-south direction towards the property entrance at Marsh Creek Road. Along the course of the existing paved road are eroded slopes on both sides of the road as well as oak trees with exposed roots that pose a significant safety risk. Fallen tree incidents have frequently occurred along the paved road, and the stability of the slopes are a constant safety hazard.
Marsh Creek Road Safety Improvements; Federal Project #HRRRL-5928(095) 04-CC (2015)[1]	Transportation	Contra Costa County Public Works	Marsh Creek Road from 2.0 to 2.25 miles west of Deer Valley Road in east Contra Costa County	The Public Works Department, in cooperation with the Caltrans, proposes to realign the curve on Marsh Creek Road from 2.0 to 2.25 miles west of Deer Valley Road in east Contra Costa County to improve vehicle safety. As part of the realignment, the project also includes road widening along this segment of Marsh Creek Road. The road widening includes the construction of 12-foot-wide travel lanes and 8-foot-wide paved shoulders, where the shoulders will consist of 2-foot-wide dirt choker on both sides of the roadway. Striping will be laid out and adjusted so that the realigned/widened roadway conforms to the existing roadway with standard lane taper lengths. The road widening will provide a Class III bike route, as outlined in the 2003 Countywide Bicycle and Pedestrian Plan.

[1]This project occurred in 2015, however it was not included in the 2015 Annual Report. All impacts associated with the project are included in the cumulative impact calculations.

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
Empire Oakley Road							✓	✓			
Maffeo Residential Development								✓			
Palmilla Residential Development Project Phase II		✓		✓			✓	✓			
Tractor Supply Project							✓	✓			
Sparrow at Marsh Creek		✓		✓			✓	✓			
Cornerstone Fellowship Project							✓	✓			
Elite (Pacific Union) Self Storage							✓	✓			
Sonic Drive-In Restaurant							✓	✓			
Delta Gateway Pad 12							✓	✓			
Moita Road Improvement Project		✓					✓	✓			
Point of Timber Road Project								✓			
Canal Road Sidewalk and Bike Lanes Project		✓					✓	✓			
Port Chicago Highway/Willow Pass Road Sidewalk Improvement Project								✓			
State Route 4/Balfour Road Interchange Improvements Project- First Amendment		✓					✓	✓			
PG&E T-1047A Hydrotest Project							✓	✓			

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
Oakley Generating Station Project-Second Amendment		✓					✓	✓			
Oakley Generating Station Project-Third Amendment		✓					✓	✓			
Clifton Court Road Bridge Project		✓						✓	✓		
Marsh Creek Road Safety Improvements; Federal Project #HRRRL-5928(095) 04-CC (2015)[1]		✓						✓			✓

[1]This project occurred in 2015, however it was not included in the 2015 Annual Report. All impacts associated with the project are included in the cumulative impact calculations.

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
Maffeo Residential Development									✓	✓			✓	✓			✓	✓						
Palmilla Residential Development Project Phase II					✓								✓	✓			✓	✓						
Tractor Supply Project													✓	✓										
Sparrow at Marsh Creek					✓				✓	✓				✓			✓	✓						
Cornerstone Fellowship Project	✓	✓			✓				✓	✓							✓	✓						
Elite (Pacific Union) Self Storage									✓	✓			✓	✓			✓	✓						
Sonic Drive-In Restaurant													✓	✓			✓	✓						
Delta Gateway Pad 12									✓	✓			✓	✓										
Moita Road Improvement Project					✓				✓	✓			✓	✓			✓	✓						
Point of Timber Road Project	✓	✓							✓	✓			✓	✓			✓	✓						
Canal Road Sidewalk and Bike Lanes Project													✓	✓			✓	✓						
Port Chicago Highway/Willow Pass Road Sidewalk													✓	✓										
State Route 4/Balfour Road Interchange Improvements					✓				✓	✓			✓	✓	✓	✓	✓	✓						
PG&E T-1047A Hydrotest Project					✓				✓	✓			✓	✓			✓	✓						
Oakley Generating Station Project-Second Amendment					✓				✓	✓			✓	✓			✓	✓						
Oakley Generating Station Project-Third Amendment					✓				✓	✓			✓	✓			✓	✓			✓	✓		
Empire Oakley Road													✓	✓			✓	✓						
Clifton Court Road Bridge Project					✓				✓	✓			✓	✓			✓	✓			✓	✓		
Marsh Creek Road Safety Improvements; Federal Project #HRRRL-5928(095) 04-CC (2015)[2]					✓	✓			✓	✓			✓	✓			✓	✓						

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

[2] This project occurred in 2015, however it was not included in the 2015 Annual Report. All impacts associated with the project are included in the cumulative impact calculations.

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
Maffeo Residential Development																								
Palmilla Residential Development Project Phase II					✓		✓																	
Tractor Supply Project																								
Sparrow at Marsh Creek																								
Cornerstone Fellowship Project																								
Elite (Pacific Union) Self Storage																								
Sonic Drive-In Restaurant																								
Delta Gateway Pad 12																								
Moita Road Improvement Project	✓		✓		✓		✓						✓	✓			✓	✓			✓	✓		
Point of Timber Road Project																								
Canal Road Sidewalk and Bike Lanes Project					✓		✓																	
Port Chicago Highway/Willow Pass Road Sidewalk																								
State Route 4/Balfour Road Interchange Improvements	✓		✓		✓		✓						✓	✓			✓	✓			✓	✓		
PG&E T-1047A Hydrotest Project	✓		✓		✓		✓																	
Oakley Generating Station Project-Second Amendment	✓		✓		✓		✓																	
Oakley Generating Station Project-Third Amendment	✓		✓		✓		✓																	
Empire Oakley Road																								
Clifton Court Road Bridge Project	✓		✓		✓		✓						✓	✓										
Marsh Creek Road Safety Improvements; Federal Project #HRRRL-5928(095) 04-CC (2015)[2]	✓		✓		✓		✓						✓	✓			✓	✓			✓	✓		

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

[2] This project occurred in 2015, however it was not included in the 2015 Annual Report. All impacts associated with the project are included in the cumulative impact calculations.

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				Mount Diablo fairy-lantern				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	Planning Surveys	Pre-Construction Surveys	AMM	Construction Monitoring
Maffeo Residential Development																								
Palmilla Residential Development Project Phase II																								
Tractor Supply Project																								
Sparrow at Marsh Creek																								
Cornerstone Fellowship Project																								
Elite (Pacific Union) Self Storage																								
Sonic Drive-In Restaurant																								
Delta Gateway Pad 12																								
Moita Road Improvement Project	✓	✓			✓	✓			✓	✓			✓	✓			✓	✓			✓	✓		
Point of Timber Road Project																								
Canal Road Sidewalk and Bike Lanes Project																								
Port Chicago Highway/Willow Pass Road Sidewalk																								
State Route 4/Balfour Road Interchange Improvements	✓	✓			✓	✓			✓	✓			✓	✓			✓	✓			✓	✓		
PG&E T-1047A Hydrotest Project					✓	✓											✓	✓			✓	✓		
Oakley Generating Station Project-Second Amendment																								
Oakley Generating Station Project-Third Amendment																								
Empire Oakley Road																								
Clifton Court Road Bridge Project	✓	✓																						
Marsh Creek Road Safety Improvements; Federal Project #HRRRL-5928(095) 04-CC (2015)[2]	✓	✓			✓	✓			✓	✓			✓	✓			✓	✓			✓	✓		

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

[2] This project occurred in 2015, however it was not included in the 2015 Annual Report. All impacts associated with the project are included in the cumulative impact calculations.

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
Maffeo Residential Development																				
Palmilla Residential Development Project Phase II																				
Tractor Supply Project																				
Sparrow at Marsh Creek																				
Cornerstone Fellowship Project																				
Elite (Pacific Union) Self Storage																				
Sonic Drive-In Restaurant																				
Delta Gateway Pad 12																				
Moita Road Improvement Project	✓	✓											✓	✓						
Point of Timber Road Project																				
Canal Road Sidewalk and Bike Lanes Project																				
Port Chicago Highway/Willow Pass Road Sidewalk																				
State Route 4/Balfour Road Interchange Improvements									✓	✓										
PG&E T-1047A Hydrotest Project																				
Oakley Generating Station Project-Second Amendment																				
Oakley Generating Station Project-Third Amendment																				
Empire Oakley Road																				
Clifton Court Road Bridge Project					✓	✓			✓	✓							✓	✓		
Marsh Creek Road Safety Improvements; Federal Project #HRRRL-5928(095) 04-CC (2015)[2]	✓	✓			✓	✓											✓	✓		

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

[2] This project occurred in 2015, however it was not included in the 2015 Annual Report. All impacts associated with the project are included in the cumulative impact calculations.

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	Comstruction 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
Maffeo Residential Development																
Palmilla Residential Development Project Phase II																
Tractor Supply Project																
Sparrow at Marsh Creek																
Cornerstone Fellowship Project																
Elite (Pacific Union) Self Storage																
Sonic Drive-In Restaurant																
Delta Gateway Pad 12																
Moita Road Improvement Project	✓	✓														
Point of Timber Road Project																
Canal Road Sidewalk and Bike Lanes Project																
Port Chicago Highway/Willow Pass Road Sidewalk																
State Route 4/Balfour Road Interchange Improvements	✓	✓														
PG&E T-1047A Hydrotest Project																
Oakley Generating Station Project-Second Amendment																
Oakley Generating Station Project-Third Amendment																
Empire Oakley Road																
Clifton Court Road Bridge Project									✓	✓						
Marsh Creek Road Safety Improvements; Federal Project #HRRRL-5928(095) 04-CC (2015)[2]					✓	✓										

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

[2] This project occurred in 2015, however it was not included in the 2015 Annual Report. All impacts associated with the project are included in the cumulative impact calculations.

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

	Reporting Period		Cumulative	
	Impacts (acres, unless otherwise noted)		Impacts [3] (acres, unless otherwise noted)	
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Terrestrial				
Annual grassland	1.0	3.4	97.7	124.2
Alkali grassland	0.0	0.0	0.8	1.6
Ruderal	68.5	2.6	276.8	250.3
Chaparral and scrub	0.0	0.0	0.04	0.0
Oak savanna	0.0	0.0	0.02	0.7
Oak woodland	0.3	0.4	0.5	0.5
Subtotal terrestrial	*69.7*	*6.5*	*375.8*	*377.2*
Aquatic				
Riparian woodland/scrub	0.2	0.0	1.0	1.4
Perennial wetland[1]	0.0	0.0	0.1	0.6
Seasonal wetland	0.0	0.0	0.4	2.2
Alkali wetland	0.0	0.0	0.1	0.8
Pond	0.0	0.0	0.0	0.0
Reservoir (open water)[2]	0.0	0.0	0.0	0.2
Slough/Channel (includes stream)	0.0	0.0	0.1	0.2
Subtotal aquatic	*0.2*	*0.0*	*1.7*	*5.4*
Stream (length in linear feet)				
Total stream length	66.0	6.0	923.3	4,488.7
Stream length by width category				
≤ 25 feet wide	66.0	6.0	677.0	3,968.5
> 25 feet wide	0.0	0.0	246.3	520.2
Stream length by type and order				
Perennial	0.0	0.0	96.3	454.2
Intermittent	21.0	6.0	529.0	3,923.5
Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
Ephemeral, 1st or 2nd order	45.0	0.0	298.0	111.0
Subtotal stream length	*66.0*	*6.0*	*923.3*	*4,488.7*
Irrigated agriculture				
Cropland	0.0	0.08	128.1	32.4
Pasture	0.0	0.0	0.2	1.8
Orchard	0.0	0.0	1.8	0.2
Vineyard	0.3	1.5	23.4	7.4
Subtotal irrigated agricultural	*0.3*	*1.5*	*153.4*	*41.7*
Other				
Nonnative woodland	0.1	0.0	0.3	1.8
Wind turbines	0.0	0.0	0.0	0.6
Subtotal other	*0.1*	*0.0*	*0.3*	*2.4*

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

	Reporting Period		Cumulative	
	Impacts (acres, unless otherwise noted)		Impacts [3] (acres, unless otherwise noted)	
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Uncommon Vegetation Types (subtypes of above land cover types)				
Purple needlegrass grassland	0.0	0.0	0.0	0.2
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	0.2	0.4
Alkali sacaton bunchgrass grassland	0.0	0.0	0.0	0.0
Other uncommon vegetation types	0.0	0.0	0.1	0.0
Subtotal uncommon vegetation types	*0.0*	*0.0*	*0.3*	*0.6*
Uncommon Landscape Features or Habitat Elements				
Rock outcrop	0.0	0.0	0.2	0.1
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
Turf	0.0	0.0	5.3	0.5
Buildings - Bat Roosts (number)	0.0	0.0	0.0	1.0
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 (acres)	0.0	0.0	5.5	0.6
Subtotal uncommon landscape features (number)	*0.0*	*0.0*	*0.0*	*1.0*
Totals (excludes subtypes)				
Acres	70.4	8.1	531.2	426.8
Linear feet	66.0	6.0	923.3	4,488.7

[1] Perennial wetlands are equivalent permanent wetlands.

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

[3] Cumulative numbers reflect minor refinements/corrections made to the Conservancy database.

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	--	--
Brittlescale	*Atriplex depressa*	1	--	--
San Joaquin spearscale	*Atriplex joanquiniana*	0	--	[see note[2]]
Big tarplant	*Blepharizonia plumosa*	1	--	--
Mount Diablo fairy lantern	*Calochortus pulchellus*	0	--	--
Recurved larkspur	*Delphinium recurvatum*	1	--	--
Round-leaved filaree	*Erodium macrophyllum*	2	--	[see note[3]]
Diablo helianthella	*Helianthella castanea*	0	--	--
Brewer's dwarf flax	*Hesperolinon breweri*	0	--	--
Showy madia	*Madia radiata*	0	--	--
Adobe navarretia	*Navarretia nigelliformis* ssp. *nigelliformis*	1	--	--
Total		**6**	**0**	**0**

[1] This column provides the limit of impacts, by number of occurrences, on plant species allowable under the HCP/NCCP per HCP/NCCP Table 5-5.

[2] Vasco Project population translocated and impact avoided (2011).

[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 on 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	0.0	0.0	0.0	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.1
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.6
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.0*	*0.7*
	Stream (linear feet)				
	Total stream length	0.0	0.0	132.0	348.5
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	110.0	230.5
	> 25 feet wide	0.0	0.0	22.0	118.0
	Stream length by type and order	0.0	0.0		
	Perennial	0.0	0.0	56.0	282.5
	Intermittent	0.0	0.0	0.0	0.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	76.0	66.0
	Subtotal stream length	*0.0*	*0.0*	*132.0*	*348.5*
Clifton Court Forebay	**Aquatic (acres)**				
	Riparian woodland/scrub	0.0	0.0	0.0	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.0*	*0.0*
	Stream (linear feet)				
	Total stream length	0.0	0.0	47.0	112.0
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	0.0	0.0
	> 25 feet wide	0.0	0.0	47.0	112.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	47.0	112.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	*0.0*	*0.0*	*47.0*	*112.0*

Table 6. Impacts on 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	0.0	0.0	0.0	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.0*	*0.0*
	Stream (linear feet)				
	Total stream length	0.0	0.0	12.0	43.0
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	0.0	15.0
	> 25 feet wide	0.0	0.0	12.0	28.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	12.0	43.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	*0.0*	*0.0*	*12.0*	*43.0*
East County Delta	**Aquatic (acres)**				
	Riparian woodland/scrub	0.2	0.0	0.4	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.2
	Slough/Channel[3] (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.2*	*0.0*	*0.4*	*0.2*
	Stream (linear feet)				
	Total stream length	0.0	0.0	0.0	0.0
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	0.0	0.0
	> 25 feet wide	0.0	0.0	0.0	0.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	0.0	0.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	0.0	0.0	0.0	0.0

Table 6. Impacts on 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	0.0	0.0	0.1	0.3
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.3	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.1	0.1
	Subtotal aquatic	*0.0*	*0.0*	*0.4*	*0.5*
	Stream (linear feet)				
	Total stream length	0.0	0.0	6.0	0.0
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	0.0	0.0
	> 25 feet wide	0.0	0.0	6.0	0.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	6.0	0.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	*0.0*	*0.0*	*6.0*	*0.0*
Kirker	**Aquatic (acres)**				
	Riparian woodland/scrub	0.0	0.0	0.0	0.1
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.0*	*0.1*
	Stream (linear feet)				
	Total stream length	0.0	0.0	0.0	0.0
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	0.0	0.0
	> 25 feet wide	0.0	0.0	0.0	0.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	0.0	0.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	0.0	0.0	0.0	0.0

Table 6. Impacts on 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	0.0	0.0	0.0	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.1	0.2
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.1*	*0.3*
	Stream (linear feet)				
	Total stream length	0.0	0.0	40.3	66.7
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	0.0	0.0
	> 25 feet wide	0.0	0.0	40.3	66.7
	Stream length by type and order				
	Perennial	0.0	0.0	40.3	66.7
	Intermittent	0.0	0.0	0.0	0.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	*0.0*	*0.0*	*40.3*	*66.7*
Lower Mt. Diablo	**Aquatic (acres)**				
	Riparian woodland/scrub	0.0	0.0	0.0	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel[3] (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.0*	*0.0*
	Stream (linear feet)				
	Total stream length	45.0	0.0	193.0	21.0
	Stream length by width category				
	≤ 25 feet wide	45.0	0.0	193.0	21.0
	> 25 feet wide	0.0	0.0	0.0	0.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	0.0	0.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	45.0	0.0	193.0	21.0
	Subtotal stream length	*45.0*	*0.0*	*193.0*	*21.0*

Table 6. Impacts on 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	0.0	0.0	0.3	0.7
	Perennial wetland[1]	0.0	0.0	0.0	0.5
	Seasonal wetland	0.0	0.0	0.0	2.2
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.4*	*3.4*
	Stream (linear feet)				
	Total stream length	0.0	0.0	295.0	3,639.0
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	295.0	3,639.0
	> 25 feet wide	0.0	0.0	0.0	0.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	295.0	3,639.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	*0.0*	*0.0*	*295.0*	*3,639.0*
Upper Marsh	**Aquatic (acres)**				
	Riparian woodland/scrub	0.0	0.0	0.2	0.3
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.1	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.2*	*0.3*
	Stream (linear feet)				
	Total stream length	0.0	0.0	141.0	219.5
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	58.0	57.0
	> 25 feet wide	0.0	0.0	83.0	162.5
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	105.0
	Intermittent	0.0	0.0	112.0	90.5
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	29.0	24.0
	Subtotal stream length	*0.0*	*0.0*	*141.0*	*219.5*

Table 6. Impacts on 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	0.0	0.0	0.0	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.0*	*0.0*
	Stream (linear feet)				
	Total stream length	0.0	0.0	0.0	0.0
	Stream length by width category				
	≤ 25 feet wide	0.0	0.0	0.0	0.0
	> 25 feet wide	0.0	0.0	0.0	0.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	0.0	0.0	0.0	0.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	*0.0*	*0.0*	*0.0*	*0.0*
Willow	**Aquatic (acres)**				
	Riparian woodland/scrub	0.0	0.0	0.1	0.0
	Perennial wetland[1]	0.0	0.0	0.0	0.0
	Seasonal wetland	0.0	0.0	0.0	0.0
	Alkali wetland	0.0	0.0	0.0	0.0
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.0
	Slough/Channel (includes stream)	0.0	0.0	0.0	0.0
	Subtotal aquatic	*0.0*	*0.0*	*0.1*	*0.0*
	Stream (linear feet)				
	Total stream length	21.0	6.0	57.0	39.0
	Stream length by width category				
	≤ 25 feet wide	21.0	6.0	21.0	6.0
	> 25 feet wide	0.0	0.0	36.0	33.0
	Stream length by type and order				
	Perennial	0.0	0.0	0.0	0.0
	Intermittent	21.0	6.0	57.0	39.0
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	0.0	0.0	0.0	0.0
	Subtotal stream length	*21.0*	*6.0*	*57.0*	*39.0*

Table 6. Impacts on 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	0.2	0.0	1.0	1.4
	Perennial wetland[1]	0.0	0.0	0.1	0.6
	Seasonal wetland	0.0	0.0	0.4	2.2
	Alkali wetland	0.0	0.0	0.1	0.8
	Pond	0.0	0.0	0.0	0.0
	Reservoir (open water)[2]	0.0	0.0	0.0	0.2
	Slough/Channel (includes stream)	0.0	0.0	0.1	0.2
	Total aquatic	***0.2***	***0.0***	***1.7***	***5.4***
	Stream (linear feet)				
	Total stream length	66.0	6.0	923.3	4,488.7
	Stream length by width category				
	≤ 25 feet wide	66.0	6.0	677.0	3,968.5
	> 25 feet wide	0.0	6.0	246.3	520.2
	Stream length by type and order				
	Perennial	0.0	0.0	96.3	454.2
	Intermittent	21.0	0.0	529.0	3,923.5
	Ephemeral, 3rd or higher order	0.0	0.0	0.0	0.0
	Ephemeral, 1st or 2nd order	45.0	0.0	298.0	111.0
	Total stream length	***66.0***	***6.0***	***923.3***	***4,488.7***

[1] Perennial wetlands are equivalent permanent wetlands.

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

[3] Cumulative numbers reflect minor refinements/corrections made to the Conservancy database.

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

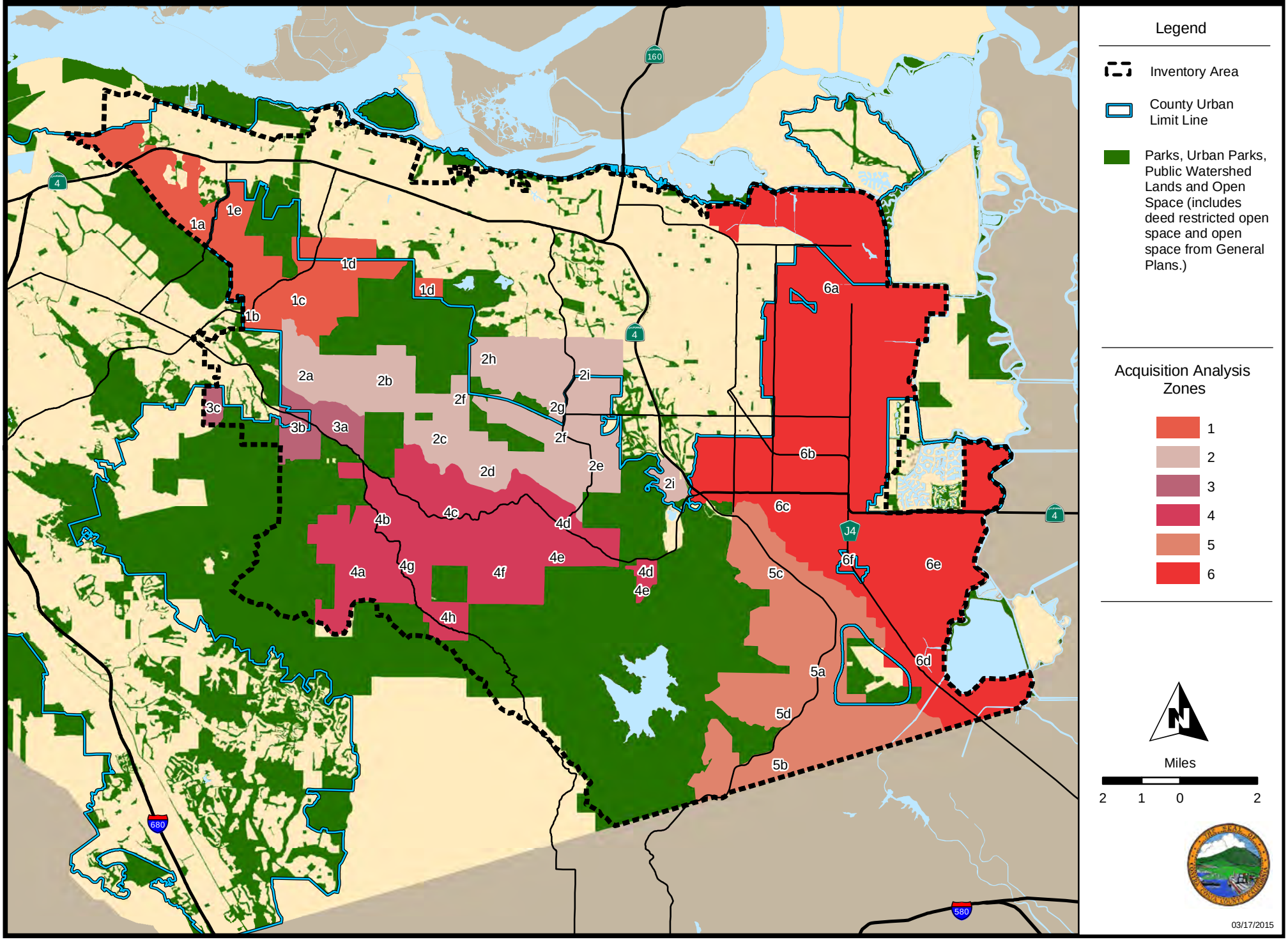
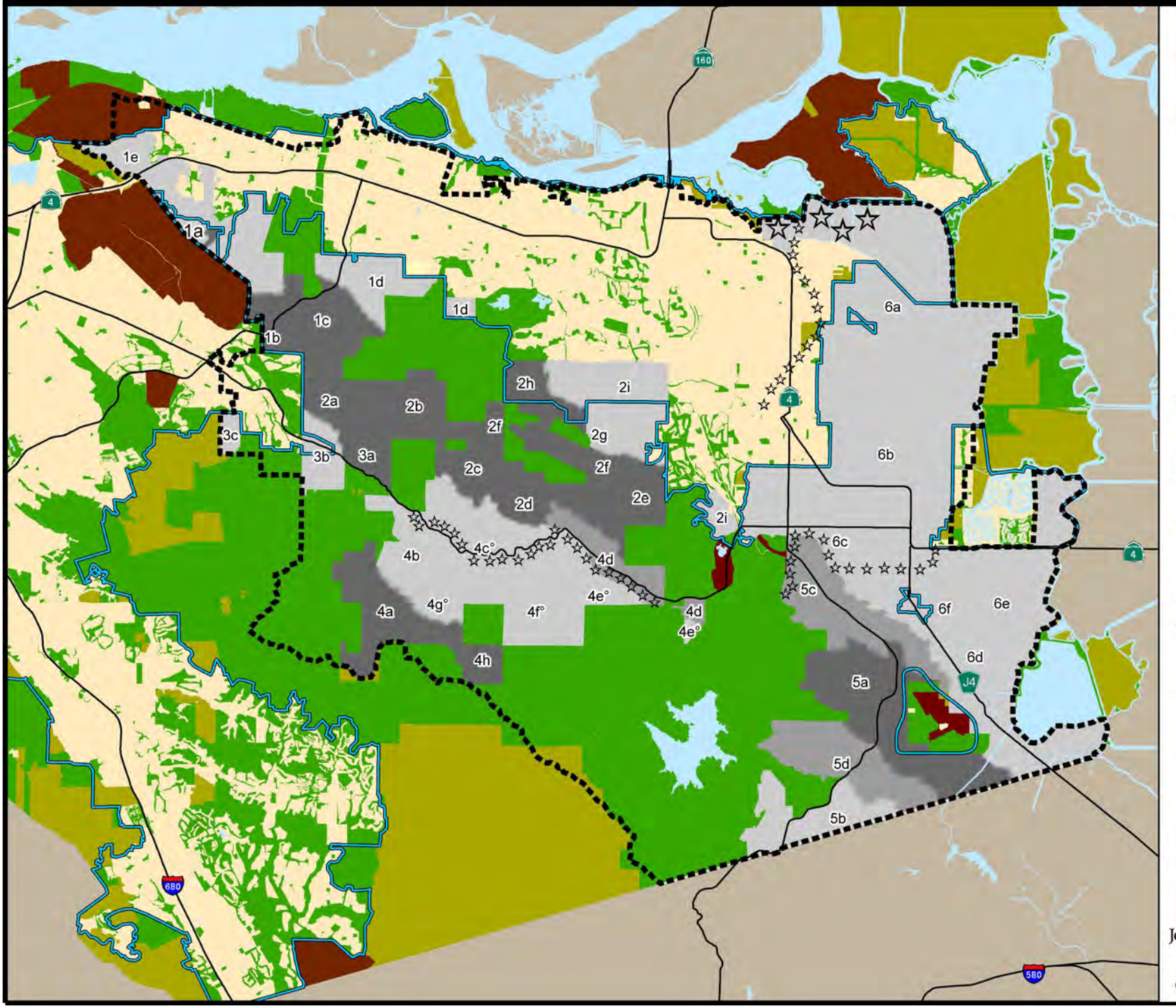


Figure 5: Acquisition Priorities with Initial Urban Development Area



Legend

Inventory Area

County Urban Limit Line

Level of Acquisition Effort

Lower

Medium 1a Sub-Zone

Higher

Please see Chapter 5 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

Jones & Stokes

08/15/2006

Figure 6: Acquisition Priorities with Maximum Urban Development Area

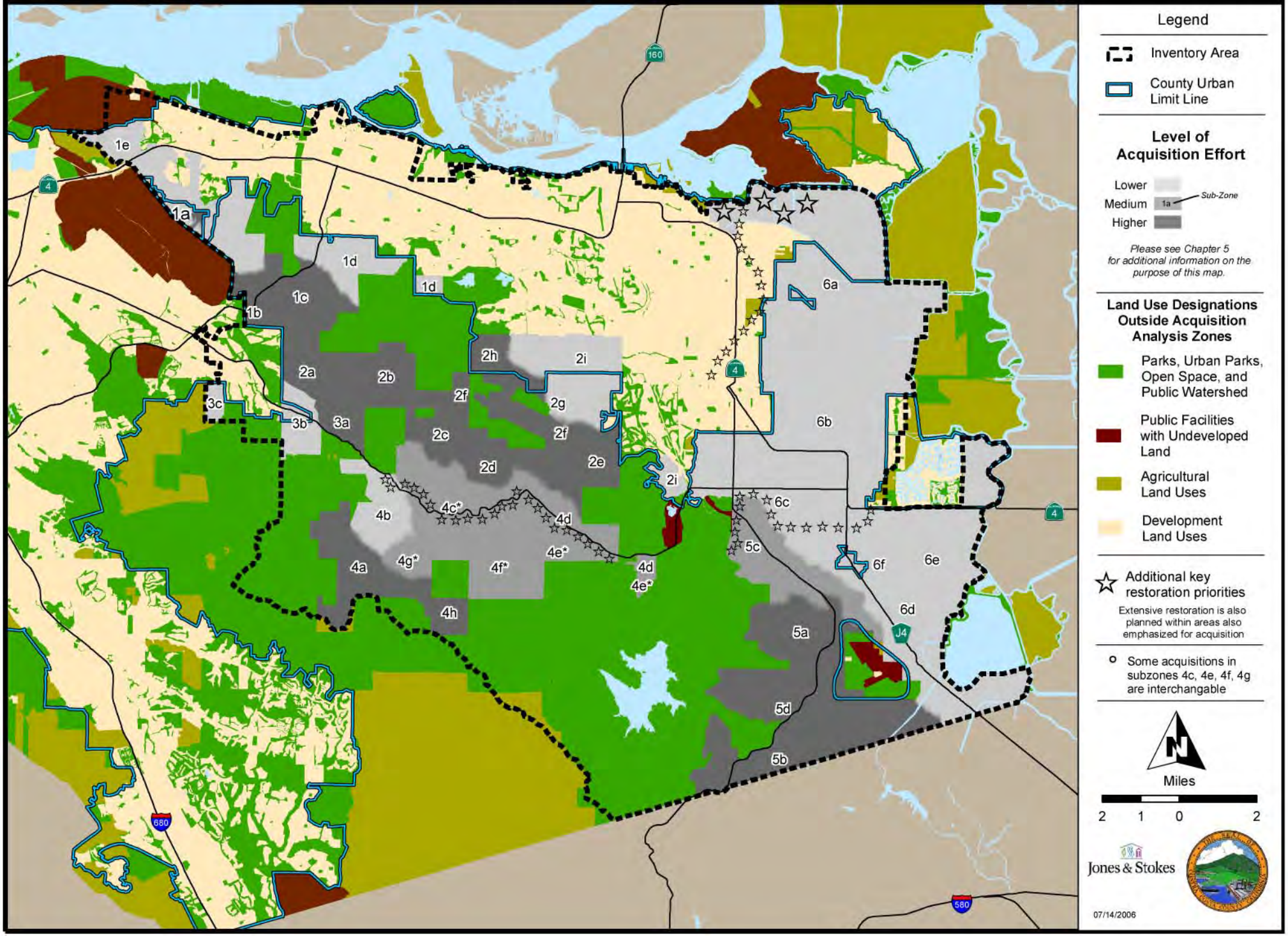
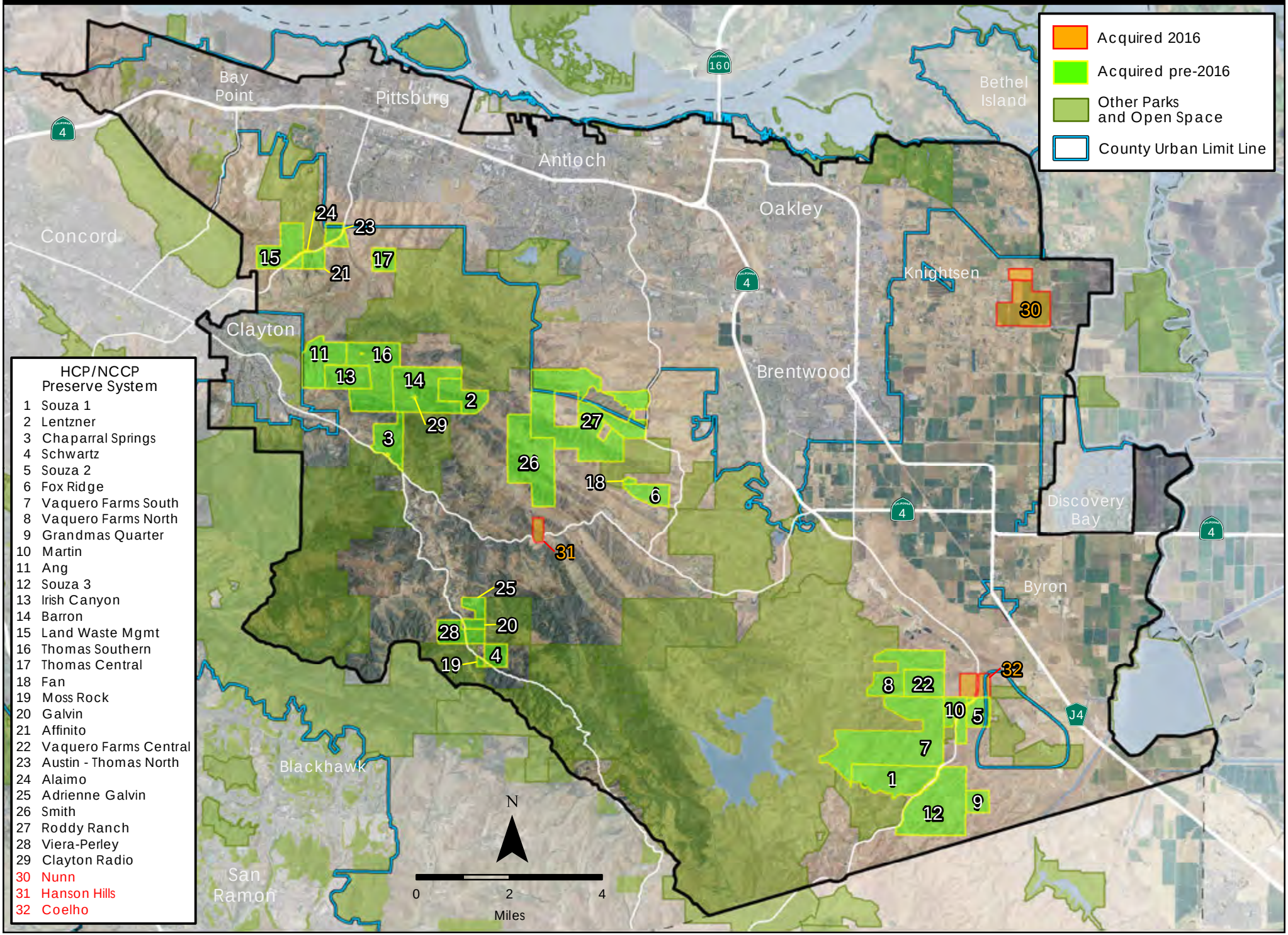


Figure 7. EBRPD Acquisitions Completed under HCP/NCCP as of December 31, 2016



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.

2016 Land Acquisition

Working with EBRPD, the Conservancy acquired three properties in 2016 for the Preserve System, totaling 915.4 acres: Coelho (200.2 acres), Hanson Hills (76.0 acres) and Nunn (639.2 acres). The three properties are shown in Figure 7, and details of the properties are shown in Figures 8 through 13. Table 7 shows the cumulative summary of acquired properties and their funding sources.

These three properties represent important contributions to the Stay-Ahead Provision requirements, wildlife corridors, and recreational opportunities in high priority conservation areas—Zones 4, 5, and 6. The acquisition of Nunn property is the first acquisition in Zone 6.

The Coelho property is designated as a high priority acquisition in priority Zone 5, and its preservation is important to the overall HCP/NCCP Preserve System. The property is adjacent or nearby several prior Preserve System acquisitions, include the Martin, Souza II, and Vaquero Farms Central properties. The Coelho property offers biological benefits that accrue to larger preserve areas. The property protects a key movement route for San Joaquin kit fox, preserves wetlands occupied by vernal pool fairy shrimp as well as a population of round leaved fillaree. All of these species-specific occurrences as well as intact habitat achieve HCP/NCCP goals.

The Hanson Hills property is located in the central region of the HCP/NCCP's inventory area in unincorporated Contra Costa County, located along and north of Marsh Creek Road. Hanson Hills is not adjacent to any other Preserve System properties but is located one parcel south of the Smith property (also referred to as Dainty Ranch). Land acquisition in Zone 4 is focused in two primary areas—along Marsh Creek in the Briones Valley and upstream (Subzone 4c) and the Upper Marsh Creek Subbasin. The Hanson Hills property does not contain Marsh Creek main stem; however, preservation of Hanson Hills will provide watershed protection and preserve the topographic and biological diversity in this area.

The Nunn property is unique in its potential contributions to the Plan's conservation strategy. While acquisition of the Nunn Property does not fit all the typical criteria of an acquisition property for the HCP/NCCP, the property offers a variety of conservation and restoration opportunities. This property is located in the northeastern region of the HCP/NCCP's inventory area in unincorporated Contra Costa County, in the community of Knightsen. The property is located in Zone 6 and is the first acquisition in this zone. The property provides suitable habitat for a variety of covered wildlife including foraging habitat for Swainson's hawk, giant garter snake, and silvery legless lizard.

Tables 8a, 8b, and 9 show the land cover types protected by the three acquisitions in 2016.

Table 10 summarizes progress toward preservation requirements of covered plant populations.[3] To date, 46 known occurrences of covered plant populations have been protected in the Preserve System. During the reporting period, the Coelho, Hanson Hills, and Nunn acquisitions were surveyed for covered plants. During plant surveys in 2016, two covered species were observed – brittlescale (*Atriplex depressa*) and San Joaquin spearscale (*Extriplex joaquinana*).

The 2016 acquisitions are known to support or have a strong potential to support several covered species, including the following:

- Alameda whipsnake
- California tiger salamander
- California red-legged frog
- Foothill yellow-legged frog (*Rana boylii*)
- Silvery legless lizard (*Anniella pulchra pulchra*)
- Western pond turtle (*Actinemys marmorata*)
- Golden eagle (*Aquila chrysaetos*)
- Swainson's hawk (*Buteo swainsoni*)
- Western burrowing owl
- San Joaquin kit fox (*Vulpus macrotis mutica*)
- Big tarplant (*Blepharizonia plumosa*)
- Mount Diablo fairy lantern (*Calochortus pulchellus*)
- Diablo manzanita (*Arctostaphylos auriculata*)
- Diablo helianthella
- Brewer's dwarf flax
- Brittlescale
- San Joaquin spearscale
- Recurved larkspur (*Delphinium recurvatum*)
- Round-leaved filaree
- Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

[3] 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.

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.

- 40% of Zone 5 requirement to protect annual grasslands was met.
- 17% of Zone 5 requirement to protect 40 acres of alkali grassland was met.
- 153% of Zone 6 requirement to protect cropland or pasture was met.
- 44% of the estimated minimum overall land acquisition requirement and 34% of the estimated maximum requirement were met.

Coelho Property

The Coelho property is located in the southeast corner of the HCP/NCCP's inventory area in unincorporated Byron, Contra Costa County (Figures 8 and 9). The property supports habitat types that are characteristic of this acquisition zone, including alkali grassland, alkali wetland, grassland, and creek. The Coelho property is adjacent to several acquisitions for the Preserve System: the Martin, Souza II, and Vaquero Farms Central properties. The Coelho property links other existing Preserve System properties, offering biological benefits that accrue to larger preserve areas and enable an economy of scale in management.

The property is bisected by Vasco Road. The east and west portions of the property are connected by a tunnel that allows for movement of cattle and wildlife and is wide enough to accommodate a one-ton pick-up truck.

The Coelho property has a gentle rolling topography, with two hills in the central area of each portion of the property and a moderate upslope in the southwest corner of the west portion linking to the Vaquero Farms Central property. Elevations range from about 160 feet in the northeast corner to approximately 230 feet at the top of the higher hill located on the west portion of the property. Roughly 1,040 linear feet of the main stem of Frisk Creek, an intermittent creek, flows northeast across the property.

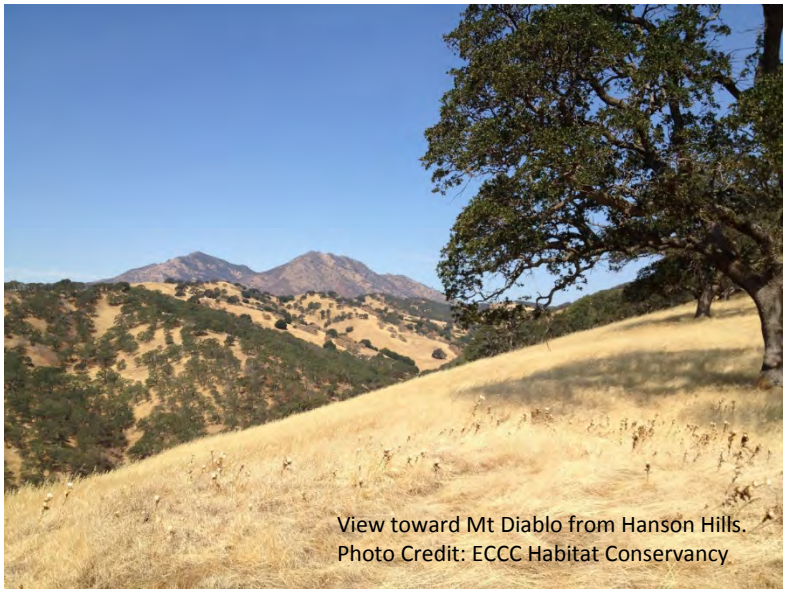
East side of the Coelho property looking west toward the tunnel that connects under Vasco Road. Photo Credit: ECCC Habitat Conservancy

The acquisition is located in the HCP/NCCP's acquisition Zone 5, Subzone 5a, and is designated high priority for acquisition for the HCP/NCCP Preserve System. The Coelho property is the Conservancy's fifth acquisition in Subzone 5a. High priority Zone 5 acquisitions are of critical

importance to the HCP because they support high quality habitat for several key species, include rare habitat found nowhere else, and serve a critical connectivity function.

Hanson Hills Property

The Hanson Hills property is located in the central region of the HCP/NCCP's inventory area in unincorporated Contra Costa County, lying along and north of Marsh Creek Road (Figures 10 and 11). The property is composed of one parcel whose southern boundary is adjacent to Marsh Creek Road.



View toward Mt Diablo from Hanson Hills.
Photo Credit: ECCC Habitat Conservancy

The Hanson Hills property has moderate to steep sloping topography that generally slopes upward from Marsh Creek Road, with one large valley that crosses the property in a mostly east-west direction in the central area of the parcel. The upper portions of the site provide panoramic views of the area and a high point of 890 feet above sea level. Long Canyon Creek traverses the center of Hanson Hills and is a tributary to Marsh Creek. The property contains roughly 1,592 feet of the seasonal Long Canyon Creek.

Hanson Hills is not adjacent to any Preserve System properties but is located one parcel away from the Smith property, acquired in 2014. The entire acquisition is located in the HCP/NCCP's acquisition Zone 4, Subzone 4c, and is designated medium priority for acquisition for the HCP/NCCP Preserve System. Hanson Hills is the Conservancy's second acquisition in Subzone 4c. A small portion of the Smith property was the first for Subzone 4c. Land acquisition in Zone 4 is focused in two primary areas—along Marsh Creek in the Briones Valley and upstream (Subzone 4c) and the Upper Marsh Creek Subbasin. Hanson Hills does not contain Marsh Creek main stem; however, preservation of Hanson Hills will provide watershed protection and preserve the topographic and biological diversity in this area.

Nunn Property

The Nunn property is unique in its potential contributions to the Plan's conservation strategy (Figures 12 and 13). While acquisition of the Nunn property does not fit the typical criteria of an acquisition property for the HCP/NCCP, the property offers a variety of conservation and restoration opportunities, as detailed below.

The entire property is located in Zone 6 (East County Agriculture) and is the first acquisition in this zone. Within Zone 6, the property lies within Subzone 6a. The property is comprised of

cropland (540.6 acres), pasture (78.0 acres), slough/channel (2.03 acres), wetland (11.44 acres), and urban (7.1 acres) land cover types. Within Zone 6, specific targets exist for land cover and species habitat.


Ponded water from Dec 2016 storms on the Nunn Property
Photo Credit: ECCC Habitat Conservancy

The acquisition requirements for Zone 6, within Subzone 6a, are specific, requiring that land acquisition contain restoration opportunities and be located east of the Dutch Slough project. Despite being located within Subzone 6a, the Nunn property is neither adjacent nor immediately east of the Dutch Slough project; however, the property contains a similar mixture of significant restoration opportunities similar to the Dutch Slough project that will augment the habitat enhancements in the region for HCP/NCCP listed species. The HCP/NCCP allows the Conservancy to retain flexibility in determining where to acquire land because the HCP/NCCP depends on willing sellers. There had been no other opportunities for acquisition along Dutch slough and adjacent lands at the time of this acquisition.

Restoration Potential

The East Contra Costa County Historical Ecology Study, developed by the San Francisco Estuary Institute and Contra Costa County, in cooperation with the Conservancy in 2011, mapped historical land cover on the Nunn property, an effort that led to some surprising findings. The maps showed that the property, which is now almost entirely cultivated land, once contained large areas of tidal and alkali wetland, alkali grassland, oak savanna, and rare interior sand dune. A feasibility study was conducted in 2013 describing the methods and results of the property and the potential to enhance or restore habitats that historically were found onsite. From that study, it was determined that while it may not be possible to restore this property to pre-settlement conditions, there is potential for extensive restoration that could include multiple types of restored wetlands, dunes, and oak savanna. The HCP/NCCP requires acquisitions in Zone 6 to be focused on land suitable for restoration as habitat for western burrowing owl, Swainson's hawk, and giant garter snake.

Species-Specific Considerations

Swainson's Hawk

One of the objectives for the goal of maintaining or increasing Swainson's hawk population size and distribution is to acquire at least 3,600 acres of modeled suitable foraging habitat for Swainson's hawk near Kellogg Creek, near Marsh Creek, adjacent to Dutch Slough, or in suitable grassland areas. The Nunn property is located within the modeled suitable foraging habitat for Swainson's hawk.

Giant Garter Snake

The biological goal for giant garter snake is to compensate for temporary and permanent loss of giant garter snake habitat, either by replacing suitable upland aquatic habitat or contributing/augmenting the restoration of suitable habitat for giant garter snake on Dutch Slough. Restoration activities are prioritized for Dutch Slough and areas adjacent to Dutch Slough to benefit giant garter snake. Sloughs and the drainage network associated with agricultural fields in the northeast and eastern section of the county are modeled as suitable habitat. Although not adjacent to Dutch Slough, the Nunn property could benefit giant garter snake and is a suitable restoration site.

Silvery Legless Lizard

Though not originally mapped in the HCP/NCCP as suitable habitat for silvery legless lizard, subsequent investigations have identified remnant dune habitat that, if managed appropriately, has potential to function as habitat for the species. Detailed studies of legless lizard habitat requirements need to be conducted to determine the distribution and ecological needs of this species more precisely.

Storm Water Quality Treatment Facility

The feasibility study mentioned above also describes opportunities and constraints of providing storm water treatment. Storm water draining large areas of east Contra Costa County generally flows from inland areas toward the Delta, making the site a potential capture area from storm water flow from Knightsen. Additional constructed constraints in the region including roads and railroad tracks have further concentrated flows into this area, creating an ongoing flood issue for the community of Knightsen. The property was identified as a preferred location for treatment wetlands. The feasibility study determined that biofiltration opportunities on the Nunn property could occur in conjunction with habitat restoration onsite. The Knightsen Town Community Services District is a potential partner in this aspect of the project.

Public Access Opportunities

The property is also positioned to provide some recreation opportunities in the area. The property's access to No Name Slough could potentially serve as water access for non-motorized watercraft. The water trail could connect to boat launches to the north at Big Break/Dutch Slough and to the south toward other EBRPD acquisitions/Discovery Bay and planned regional trails. The property also could support some trail access and connections, providing expanded opportunities in this area of the county.

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, 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.

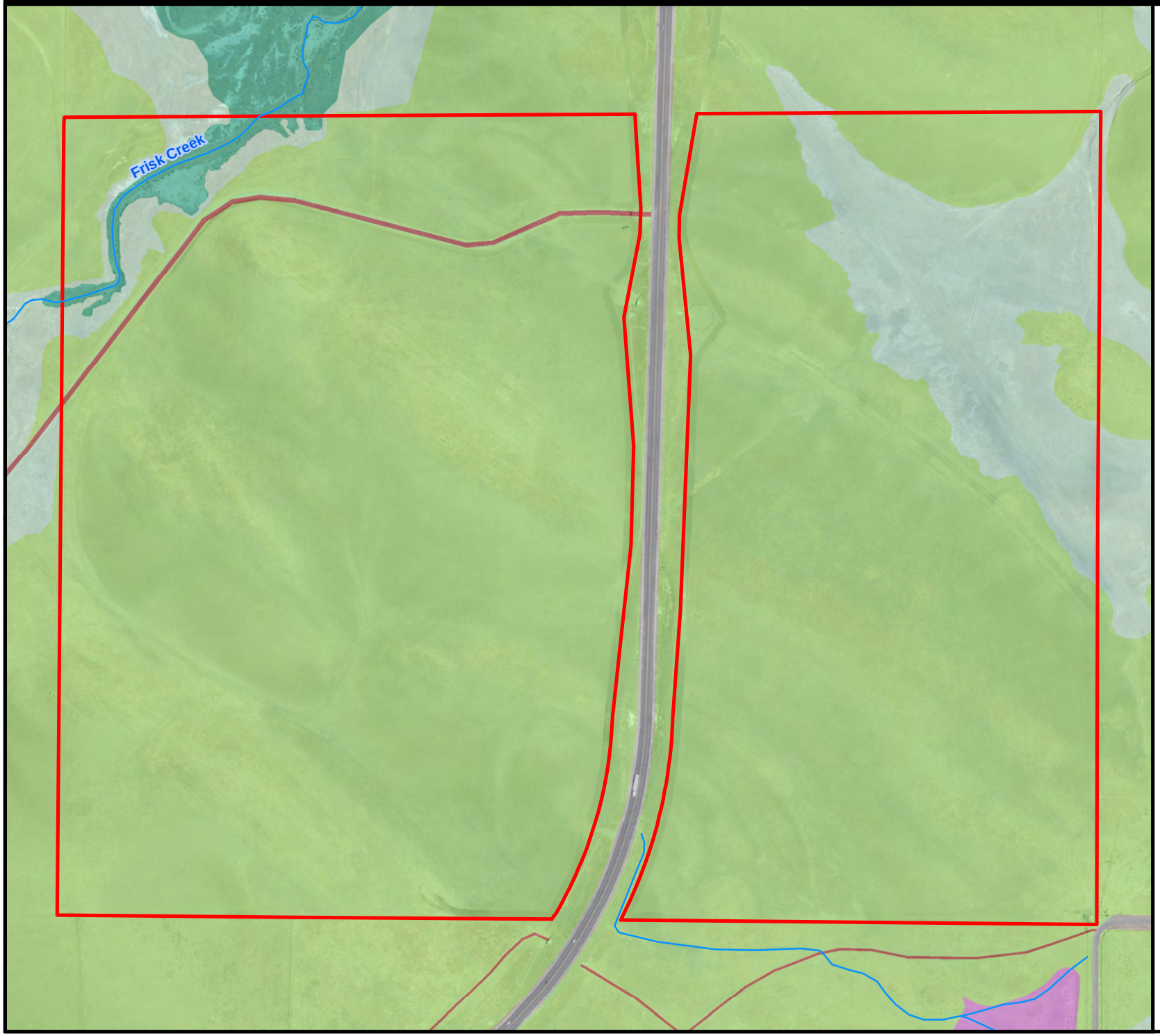
A Note on Land Cover Mapping Refinements and Cumulative Acreages

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. In this Annual Report they are not counted. This accounts for the difference between the number of acres acquired vs. number of acres protected in the Preserve System.

Figure 8. Coelho: Land Cover Map



Legend

Property Boundary

Landcover

Grassland

- grassland (177.67 acres)
- alkali grassland (19.6 acres)
- ruderal (0.84 acres)

Wetland

- permanent wetland
- seasonal wetland
- alkali wetland (2.13 acres)

Aquatic

- stream (1028.85 feet)
- aquatic/open water
- pond
- slough/channel
- riparian
- chaparral
- oak savanna
- oak woodland
- rock outcrops

Irrigated Agriculture

- pasture
- cropland
- vineyard

Developed

- urban
- aqueduct
- wind turbines

Feet

0 300 600

04/17/2016

Figure 9. Coelho: Representative Photographs

Photo 1: View west towards Vaquero Farms

Photo 2: San Joaquin spearscale

Photo 3: Main access to western portion of Property

Photo 4:Tunnel under Vasco Road

Photo 5: Alkali sink scrub along Frisk Creek

Photo 6: View looking South toward Armstrong Rd.

Figure 10. Hanson Hills: Land Cover Map

Legend

Property Boundary

Landcover

Grassland

- grassland (7.88 acres)
- alkali grassland
- ruderal

Wetland

- permanent wetland (0.01 ac)
- seasonal wetland
- alkali wetland

Aquatic

- stream (1638.96 feet)
- aquatic/open water
- pond
- slough/channel
- riparian (0.93 acres)
- chaparral
- oak savanna (27.12 ac)
- oak woodland (40.05 ac)
- rock outcrops

Irrigated Agriculture

- pasture
- cropland
- vineyard

Developed

- urban (0.05 acres)
- aqueduct
- wind turbines

Feet

0 300 600

04/17/2016

Figure 11. Hanson Hills: Representative Photographs

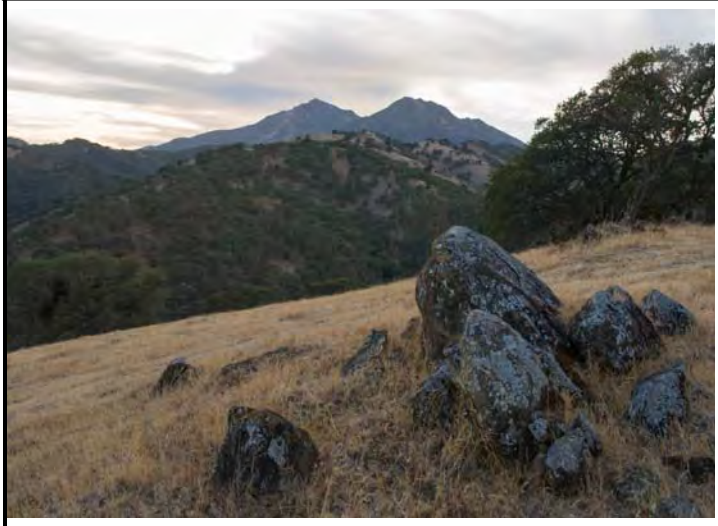


Photo 1:View West towards Mt Diablo

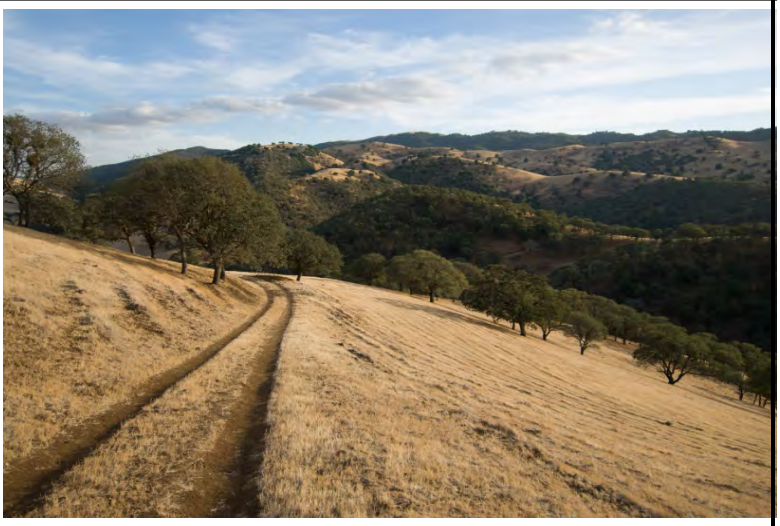


Photo 2: View East on path that traverses Property

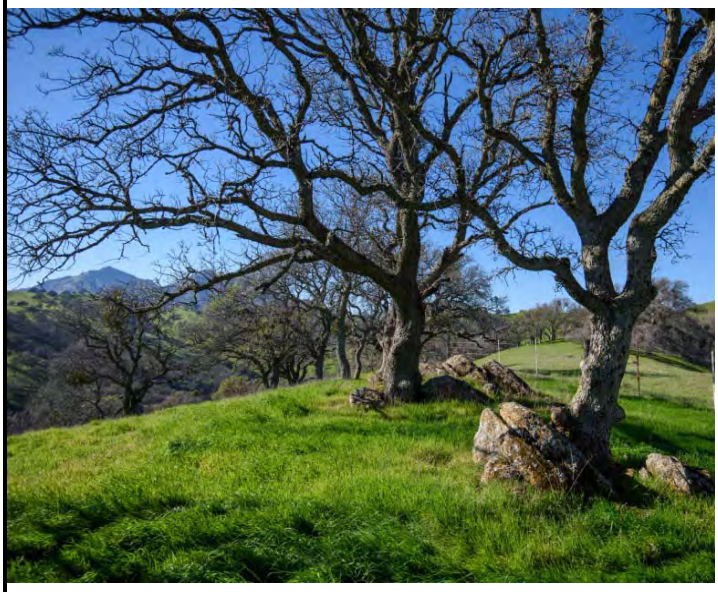


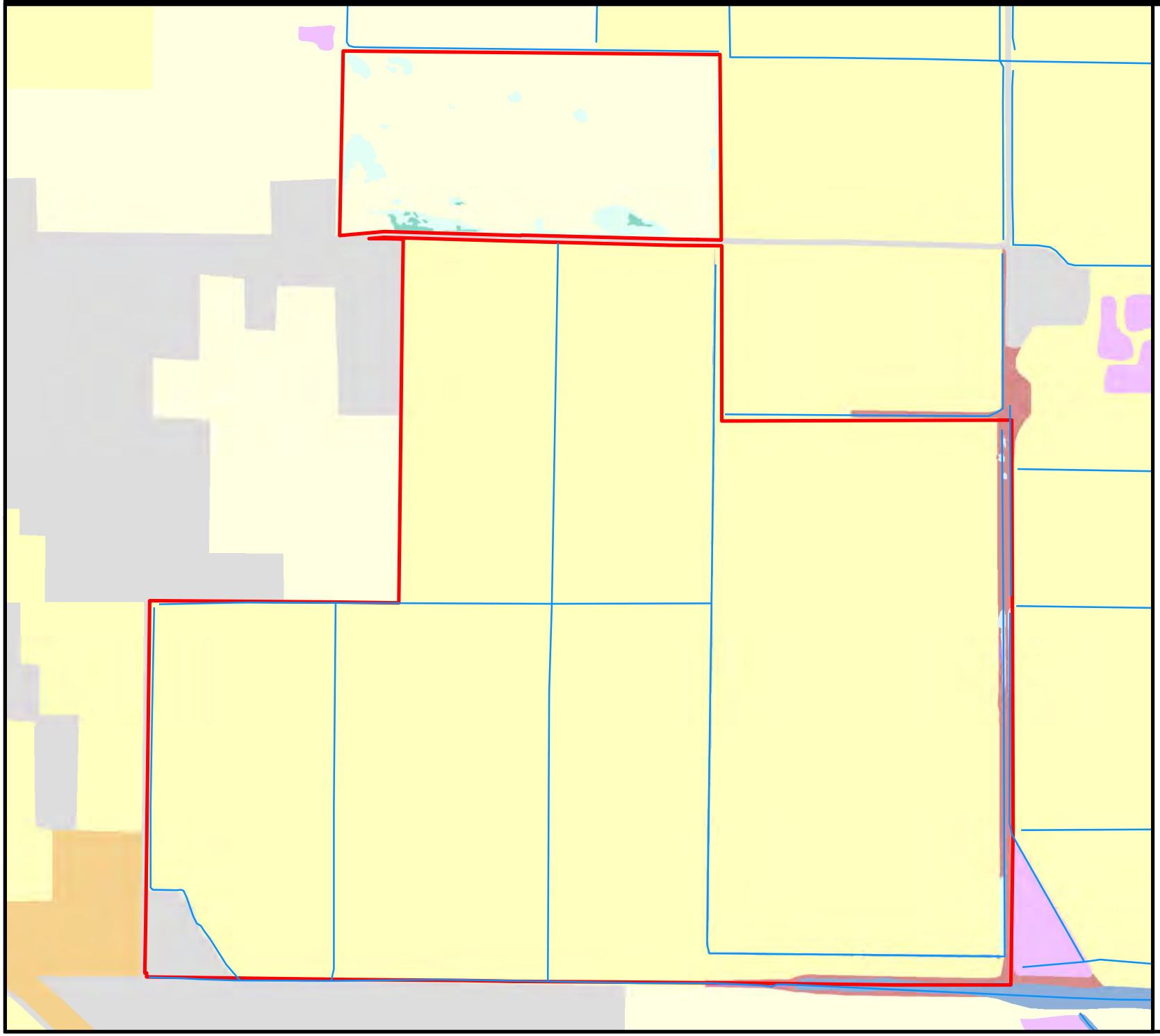
Photo 3: Oak Trees, view West

Photo 4: View Southeast, highest elevation on site

Photo 5: View West towards Mt Diablo

Photo 6: View of Property

Figure 12. Nunn: Land Cover Map



Legend

Property Boundary

Landcover

Grassland

- grassland
- alkali grassland (6.4 acres)
- ruderal (8.24 acres)

Wetland

- permanent wetland (0.11 ac)
- seasonal wetland (0.09 ac)
- alkali wetland (0.72 acres)

Aquatic

- stream
- aquatic/open water
- pond
- slough/channel (3.1 acre)
- riparian (26.48 acres)
- chaparral
- oak savanna
- oak woodland
- rock outcrops

Irrigated Agriculture

- pasture (71.34 acre)
- cropland (541.37 acre)
- vineyard

Developed

- urban (7.1 acres)
- aqueduct
- wind turbines

Feet

0 500 1,000

04/07/2016

Figure 13. Nunn: Representative Photographs

Photo 1:View of Mount Diablo to the west

Photo 2: View East from the Byron Highway

Photo 3: No Name Slough and pump, Southern boundary of the property

Photo 4: View North of cropland

Photo 5: California Croton – Dune plant species

Photo 6: Flooded northern end of property

Souza 1

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 12/23/2004
Acres: 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: 320
Land Cost: $960,000

Funding Source	Funding Amount	2009 FMV	Section 6 Match
EBRPD (tax revenues)	$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: 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: 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 (tax revenues)	$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 (tax revenues)	$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: 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 (tax revenues)	$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 (tax revenues)	$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
Date Acquired: 12/31/2009
Acres: 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 (tax revenues)	$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 (tax revenues)	$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: 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	

Excess match from this acq: $0
Cumulative Remaining Match: $0

Martin

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 7/16/2010
Acres: 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 (tax revenues)	$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 (tax revenues)	$1,629,816
TOTAL	$1,629,816

Excess match from this acq: $266,331
Cumulative Remaining Match: $266,331

Grandma's Quarter

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 7/16/2010
Acres: 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 (tax revenues)	$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 (tax revenues)	$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 (tax revenues)	$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 (tax revenues)	$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 (tax revenues)	$915,220	17%	yes
Moore Foundation	$2,000,000	38%	yes
Section 6 Grant (FY07)	$2,385,180	45%	no
TOTAL	$5,300,400	100%	

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 (tax revenues)	$915,220
TOTAL	$2,915,220

Non-Easement

Funding Source	Funding amount
EBRPD (tax revenues)	$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 (tax revenues)	$75,975

Cumulative Remaining Match: $346,974.99

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 (tax revenues)	$50,000	6%	yes
Section 6 Grant (FY07)	$792,000	94%	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 (tax revenues)	$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 (tax revenues)	$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 (tax revenues)	$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 (tax revenues)	$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	100%	

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

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

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

PG&E lease revenue

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

Proposed Funding Source	Funding amount	Percent	Section 6 Match
EBRPD (tax revenues)	$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
Acres: 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 (tax revenues)	$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 (tax revenues)	$62,400
WCB Proposition 84	$280,800
TOTAL	$343,200

Affinito

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 2/24/2012
Acres: 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 (tax revenues)	$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 (tax revenues)	$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: 319.95
Key land cover: Annual grassland, alkali grassland, alkali wetland, pond
Appraised Value: $2,400,000
Purchase Price: $2,400,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD (tax revenues)	$240,000	10%	yes
G&B Moore Foundation	$850,000	35%	yes
WCB Proposition 84	$230,000	10%	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 (tax revenues)	$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: 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 (tax revenues)	$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 (tax revenues)	$37,000
G&B Moore Foundation	$166,500
TOTAL	$203,500

Moss Rock

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 1/30/2012
Acres: 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 (tax revenues)	$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 (tax revenues)	$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: 21
Key land cover: Annual grassland, oak woodland, creek
Appraised Value: $220,000
Purchase Price: $220,000

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD (tax revenues)	$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 (tax revenues)	$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: 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 (tax revenues)	$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 (tax revenues)	$86,390
TOTAL	$475,145

Alaimo

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/15/2013
Acres: 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 (tax revenues)	$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 (tax revenues)	$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: 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: 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 (tax revenues)	$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 (tax revenues)	$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: 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 (tax revenues)	$3,561,250	25%	yes
G&B Moore Foundation Grant	$1,000,000	7%	yes
Section 6 Grant (FY09)	$2,500,000	17%	no
Section 6 Grant (FY10)	$2,341,875	16%	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 (tax revenues)	$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: 264.37
Key land cover: Oak woodland, oak savannah
Appraised Value: $1,950,000
Purchase Price: $1,950,000

Source	Funding amount	Percent	Section 6 Match
EBRPD (tax revenues)	$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 (tax revenues)	$195,000
TOTAL	$1,072,500

Clayton Radio LLC

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

Source	Funding amount	Percent
EBRPD (tax revenues)	$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: 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 (tax revenues)	$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 (tax revenues)	$607,200
TOTAL	$3,339,600

Hanson Hills

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

Funding Source	Funding amount	Percent	Section 6 Match
EBRPD (tax revenues)	$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:	199.43
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 (tax revenues)	$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 to Section 6 for 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 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	--	--	185.5	0	0	0	7,312.7	1,450.8	0	0.04	44%	--	--
Alkali grassland	1,250	--	--	26.0	0	0	0	251.4	17.5	0	0.02	20%	--	--
Ruderal	-	--	--	9.1	0	0	0	77.3	23.9	0	0	--	--	--
Chaparral and scrub	550	--	--	0.0	0	0	0	210.3	0.0	0	0	38%	--	--
Oak savanna	500	--	165	27.1	0	0	0	390.5	23.9	0	0	78%	--	--
Oak woodland	400	--	--	40.1	0	0	0	2,465.9	130.8	0	0	616%	--	--
Subtotal terrestrial	*19,200*	--	*165*	*287.8*	*0*	*0*	*0*	*10,707.9*	*1,646.9*	*0*	*0.06*	56%	--	--
Aquatic														
Riparian woodland/scrub	70	--	55	1.77	0	0	0	58.46	0.20	0	4.00	84%	--	7%
Perennial wetland[1]	75	--	85	0.12	0	0	0	5.27	5.80	0	0.16	7%	--	--
Seasonal wetland	168	--	163	0	0	0	0	10.71	1.40	0	8.66	6%	--	5%
Alkali wetland	93	--	67	2.86	0	0	0	32.86	4.30	0	2.40	35%	--	4%
Pond	16	16	--	0	0	0	0	11.03	2.70	0.42	0	69%	3%	--
Reservoir (open water)[2]	12	6	--	0	0	0	0	0	0	0	0	0%	--	--
Slough/Channel	36	--	72	3.10	0	0	0	3.10	0	0	0	9%	--	--
Subtotal aquatic	*470*	--	*442*	*7.85*	*0*	*0*	*0*	*121.43*	*14.40*	*0.42*	*15.22*	26%	--	*3%*
Stream (length in linear feet)														
Perennial	4,224	--	2,112	0	0	0	0	12,625	889.10	0	0	299%	--	--
Intermittent	2,112	--	2,112	0	0	0	0	127,636	24,415	0	2,983	6043%	--	141%
Ephemeral[4]	26,400	--	26,400	0	0	0	0	66,743	878	0	0	253%	--	--
Classification pending[4]	--	--	--	2,668	0	0	0	78,454	16,445	0	2,094	--	--	--
Subtotal stream length	*32,736*	--	*30,624*	*2,667.84*	*0*	*0*	*0*	*285,459*	*42,627*	*0*	*5,078*	872%	--	*17%*
Irrigated agriculture														
Cropland	--	--	--	541.4	0	0	0	541	0	0	0	--	--	--
Pasture	--	--	--	71.3	0	0	0	71	0	0	0	--	--	--
Orchard	--	--	--	0	0	0	0	0.1	0	0	0	--	--	--
Vineyard	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Subtotal irrigated agricultural	--	--	--	*612.7*	*0*	*0*	*0*	*612.8*	*0*	*0*	*0*	--	--	--
Other														
Nonnative woodland	--	--	--	0	0	0	0	0.7	0	0	0	--	--	--
Wind turbines	--	--	--	0	0	0	0	38.7	14.5	0	0	--	--	--
Subtotal other	--	--	--	*0*	*0*	*0*	*0*	*39.4*	*14.5*	*0*	*0*	--	--	--
Developed														
Urban	--	--	--	7.2	0	0	0	32.7	0.80	0	0	--	--	--
Aqueduct	--	--	--	0	0	0	0	0.0	0	0	0	--	--	--
Turf	--	--	--	0	0	0	0	0.0	0	0	0	--	--	--
Landfill	--	--	--	0	0	0	0	0.0	0	0	0	--	--	--
Subtotal developed	--	--	--	*7.2*	*0*	*0*	*0*	*32.7*	*0.80*	*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	--	--	--	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	16.41	4.50	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 (acres)	--	--	--	*0*	*0*	*0*	*0*	16.41	4.50	0	0	--	--	--
Subtotal uncommon landscape features (number)	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Totals (excludes subtypes)														
Acres	--	--	--	915.5	0.0	0.0	0.0	11,530.6	1,681.1	0.4	15.3	--	--	--
Linear feet (Streams)	--	--	--	2,668	0	0	0	285,459	42,627	0	5,078	--	--	--

[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 impacts provided in the Plan.

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

[5] Cumulative acres includes corrections to protected acres and existing easement (no credit) as presented in prior year's Annual Report.

	Coelho		Hanson Hills		Nunn	
Land Cover Type	Protection	Existing Easement (No credit)	Protection	Existing Easement (No credit)	Protection	Existing Easement (No credit)
Terrestrial						
Annual grassland	177.7	0.0	7.9	0.0	0.0	0.0
Alkali grassland	19.6	0.0	0.0	0.0	6.4	0.0
Ruderal	0.8	0.0	0.0	0.0	8.3	0.0
Chaparral and scrub	0.0	0.0	0.0	0.0	0.0	0.0
Oak savanna	0.0	0.0	27.1	0.0	0.0	0.0
Oak woodland	0.0	0.0	40.1	0.0	0.0	0.0
Subtotal terrestrial	*198.1*	*0.0*	*75.1*	*0.0*	*14.6*	*0.0*
Aquatic						
Riparian woodland/scrub	0.00	0.00	0.93	0.00	0.84	0.00
Perennial wetland[1]	0.00	0.00	0.01	0.00	0.11	0.00
Seasonal wetland	0.00	0.00	0.00	0.00	0.00	0.00
Alkali wetland	2.13	0.00	0.00	0.00	0.73	0.00
Pond	0.00	0.00	0.00	0.00	0.00	0.00
Reservoir (open water)[2]	0.00	0.00	0.00	0.00	0.00	0.00
Slough/Channel	0.00	0.00	0.00	0.00	3.10	0.00
Subtotal aquatic	*2.13*	*0.00*	*0.94*	*0.00*	*4.78*	*0.00*
Stream (length in linear feet)						
Total stream length	1,028.86	0.00	1,638.98	0.00	0.00	0.00
Stream length by width category						
≤ 25 feet wide	0.00	0.00	0.00	0.00	0.00	0.00
> 25 feet wide	0.00	0.00	0.00	0.00	0.00	0.00
Stream length by type and order	0.00	0.00	0.00	0.00	0.00	0.00
Perennial	0.00	0.00	0.00	0.00	0.00	0.00
Intermittent	0.00	0.00	0.00	0.00	0.00	0.00
Ephemeral	0.00	0.00	0.00	0.00	0.00	0.00
Classification pending	1,028.86	0.00	1,638.98	0.00	0.00	0.00
Subtotal stream length	*1,028.86*	*0.00*	*1,638.98*	*0.00*	*0.00*	*0.00*
Irrigated agriculture						
Cropland	0.0	0.0	0.0	0.0	541.4	0.0
Pasture	0.0	0.0	0.0	0.0	71.3	0.0
Orchard	0.0	0.0	0.0	0.0	0.0	0.0
Vineyard	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal irrigated agricultural	*0.0*	*0.0*	*0.0*	*0.0*	*612.7*	*0.0*
Other						
Nonnative woodland	0.0	0.0	0.0	0.0	0.0	0.0
Wind turbines	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal other	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Developed						
Urban	0.0	0.0	0.1	0.0	7.1	0.0
Aqueduct	0.0	0.0	0.0	0.0	0.0	0.0
Turf	0.0	0.0	0.0	0.0	0.0	0.0
Landfill	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal developed	*0.0*	*0.0*	*0.1*	*0.0*	*7.1*	*0.0*

	Coelho		Hanson Hills		Nunn	
Land Cover Type	Protection	Existing Easement (No credit)	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	0.0	0.0
Wildrye grassland	0.0	0.0	0.0	0.0	0.0	0.0
Wildflower fields	0.0	0.0	0.0	0.0	0.0	0.0
Squirreltail grassland	0.0	0.0	0.0	0.0	0.0	0.0
One-sided bluegrass grassland	0.0	0.0	0.0	0.0	0.0	0.0
Serpentine grassland	0.0	0.0	0.0	0.0	0.0	0.0
Saltgrass grassland (alkali grassland)	0.0	0.0	0.0	0.0	0.0	0.0
Alkali sacaton bunchgrass grassland	0.0	0.0	0.0	0.0	0.0	0.0
Other uncommon vegetation types	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal uncommon vegetation types	0.0	0.0	0.0	0.0	0.0	0.0
Uncommon Landscape Features or Habitat Elements						
Rock outcrop	0.0	0.0	0.0	0.0	0.0	0.0
Cave	0.0	0.0	0.0	0.0	0.0	0.0
Springs/seeps	0.0	0.0	0.0	0.0	0.0	0.0
Scalds	0.0	0.0	0.0	0.0	0.0	0.0
Sand deposits	0.0	0.0	0.0	0.0	0.0	0.0
Mines (number)	0.0	0.0	0.0	0.0	0.0	0.0
Buildings (number)	0.0	0.0	0.0	0.0	0.0	0.0
Potential nest sites (number)	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal uncommon landscape	*0.0*	*0.0*	0.0	0.0	*0.0*	*0.0*
Subtotal uncommon landscape	*0.0*	*0.0*	0.0	0.0	*0.0*	*0.0*
Totals (excludes subtypes)						
Acres	200.2	0.0	76.0	0.0	639.2	0.0
Linear feet	1,028.86	0.00	1,638.98	0.00	0.00	0.0

[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)	70.00	1.77	58.46	83.51%
Preserve-wide Perennial wetland (acres)	75.00	0.12	5.27	7.03%
Preserve-wide Seasonal wetland (acres)	168.00	0.00	10.71	6.38%
Preserve-wide Alkali wetland (acres)	93.00	2.86	32.86	35.33%
Preserve-wide Pond (acres)	16.00	0.00	11.03	68.94%
Preserve-wide Reservoir (open water) (acres)	12.00	0.00	0.00	0.00%
Preserve-wide Slough/Channel (acres)	36.00	3.10	3.10	8.61%
Preserve-wide stream length (feet)	32,736.00	2,667.84	285,458.64	872.00%
Stream length by type and order				
Perennial (feet)	4,224.00	0.00	12,625.10	298.9%
Intermittent (feet)	2,112.00	0.00	127,636.20	6043.4%
Ephemeral[2] (feet)	26,400.00	0.00	66,742.90	252.8%
Classification Pending[2] (feet)	--	2,667.84	78,454.44	--

[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" will ultimately 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]	1	2	100%
San Joaquin spearscale	*Atriplex joaquiniana*	0	1	10	--
Big tarplant	*Blepharizonia plumosa*	3	0	12	400%
Mount Diablo fairy lantern	*Calochortus pulchellus*	1	0	5	500%
Recurved larkspur	*Delphinium recurvatum*	2	0	0	0%
Round-leaved filaree	*Erodium macrophyllum*	2	0	2	100%
Diablo helianthella	*Helianthella castanea*	2	0	12	600%
Brewer's dwarf flax	*Hesperolinon breweri*	3	0	3	100%
Showy madia	*Madia radiata*	0	0	0	0%
Adobe navarretia	*Navarretia nigelliformis subsp. Nigelliformis*	1	0	0	0%
Shining navarretia[3]	*Navarretia nigelliformis subsp. Radians*	0	0	(7)	--
Total		18 (20)	2	46	

[1] For the 2016 Annual Report, we are recording sightings confirmed in 2016. 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 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).*

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	0.00	0.00	0%
1b	Annual grassland (1,450 acres combined w/ 1c)	TBD	1,450	0.00	49.51	37%
1c	Annual grassland (1,450 acres combined w/ 1b)	TBD		0.00	481.55	
1d	25% of total area	478	478	0.00	201.18	42%
1e	No specific requirements	--	--	0.00	0.00	--
All	Estimated minimum requirement	2,100	2,250	0.00	858.90	38%
All	Estimated maximum requirement	2,850	3,150	0.00	858.85	27%
Zone 2						
2a	At least 60% of subzone	1,104	1,104	0.00	1,403.35	127%
2a	Annual grassland (850 acres)	--	850	0.00	936.67	110%
2a	90% of chaparral in 2a, 2b, and 2c (122 acres total)	--	see below	0.00	0.52	--
2a	Land to protect Mount Diablo manzanita	--	--	0.00	0.00	--
2b	Annual grassland (450 acres)	450	450	0.00	393.61	87%
2b	Connection between Black Diamond R.P. and Clayton Ranch (w/ 2c)		see below	0.0	0.0	--
2b	90% of chaparral in 2a, 2b, and 2c (122 acres total)		see below	0.00	5.00	--
2c	Annual grassland (400 acres)	400	400	0.00	144.92	36%
2c	0.5-mile wide connect b/w Black Diamond and Clayton Ranch (w/ 2b)			0.00	0.00	--
2c	90% of chaparral in 2a, 2b, and 2c (122 acres total)		see below	0.00	3.84	--
2c	Seven (7) of thirteen (13) ponds for TRBL, CTS, WPT, or CRLF		7	0.00	0.00	0%
2d	Annual grassland (800 acres)	800	800	0.00	389.03	49%
2d	Known occurrence of round-leaved filaree (#)	1	1	1	1	100%
2e	Annual grassland (800 acres)	800	800	0.00	79.52	10%
2e	See 2e/2f/2h below		see below	0.00	0.00	--
2f	Annual grassland (1,000 acres)	1,000	1,000	0.00	432.64	43%
2f	San Joaquin kit fox movement corridor	--	--	0.00	493.13	--
2f	Land for SJKF Movement must include 2 occurrence of big tarplant	--	--	0.00	0.00	--
2f	Land for SJKF Movement must include 1 occurrence of round-leaved filaree	--	--	0.00	0.00	--
2f	Where possible, land for SJKF and plants, should include alkali soils	--	--	0.00	0.00	--
2f	See 2e/2f/2h below	--	see below	0.00	0.00	--
2g	No specific requirements	--	--	0.00	0.00	--
2h	Annual grassland (600 acres)	600	600	0.00	274.06	46%
2h	Two occ. of big tarplant (number)	2	2	1	1	50%
2h	Known occ. of Mt. Diablo manzanita and Brewer's dwarf flax (number)	2	2	3	3	150%
2h	San Joaquin kit fox (75%)			0.00	295.06	--
2h	Silvery legless habitat, if present			0.00	31.69	--
2h	See 2e/2f/2h below		see below	0.00	0.00	--

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
2i	No specific requirements	--	--	0.00	0.00	--
2b/2c	0.5-mile wide connect between Black Diamond and Clayton Ranch	--	--	0.00	0.00	--
2a/2b/2c	Chaparral habitat (90%)	122	122	0.00	9.35	8%
2e/2f/2h	Annual grassland, combined	2,400	2,400	0.00	786.22	33%
All	Vernal pool invertebrate suitable habitat, wherever possible			Yes (not quantified)	Yes (not quantified)	--
All	Estimated minimum requirement	7,500	7,500	0.00	0.00	0%
All	Estimated maximum requirement	9,550	9,550	0.00	0.00	0%
All	Alternative Stay Ahead Measurement for Zone 2		4,900	0.00	4,365.21	89%
Zone 3						
3a	90% of modeled AWS suitable core habitat	159	159	0.00	94.86	60%
3a	Land to increase linkage from chaparral in zone to Mt. Diablo chaparral			0.00	0.00	0%
3b	No specific requirements	0	0	0.00	0.00	0%
3c	No specific requirements	0	0	0.00	0.00	0%
All	Estimated minimum requirement	400	400	0.00	0.00	0%
All	Estimated maximum requirement	750	750	0.00	292.68	39%
Zone 4						
4a	75% of natural land cover types	1,700	1,700	0.00	3.32	0%
4a	Known occ. of Diablo helianthella and Brewer's dwarf flax			0.00	0.00	
4a	See 4a/4h below		see below	0.00	0.00	--
4b	Known occ. for Mt. Diablo fairy lantern if extant	0	0	0.00	0.00	
4c	See 4c/4e/4f/4g below	--	see below	0.00	0.00	--
4d	60% of natural land cover types	953	953	0.00	0.00	0%
4e	See 4c/4e/4f/4g below	--	see below	0.00	0.00	
4f	Known occ. for Brewer's dwarf flax (number)	TBD	TBD	0.00	0.00	
4f	See 4c/4e/4f/4g below	--	see below	0.00	0.00	
4g	See 4c/4e/4f/4g below	--	see below	0.00	0.00	
4h	75% of natural land cover types	791	791	0.00	499.30	63%
4h	Linkage between Morgan Territory Ranch, Morgan Territory RP and Mt. Diablo	--	--	0.00	0.00	
4h	See 4a/4h below	--	see below	0.00	0.00	
4a/4h	90% of modeled AWS suitable core habitat	200	200	0.00	33.71	17%
4c/4e/4f/4g	18%/IDA or 39%MDA of natural land cover types in 4c, 4e, 4f, 4g	1,400	3,000	0.00	0.00	0%
All	Chaparral/Scrub	270	270	0.00	33.20	12%
All	Estimated minimum requirement	4,900	6,050	76.04	724.28	12%
All	Estimated maximum requirement	6,150	8,350	76.04	724.28	9%

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 5						
5a	See 5a/5d and 5a/5b/5d below	--	see below	0.00	0.00	--
5b	See 5a/5b/5d below	--	see below	0.00	0.00	--
5c	Annual Grassland/Suitable foraging habitat for Swainson's hawk/ SJKF core and movement habitat	1,000	1,000	0.00	0.00	0%
5c	Modeled silvery legless lizard habitat, if feasible (for MUDA)			0.00	0.00	
5d	See 5a/5d and 5a/5b/5d below	--	see below	0.00	0.00	--
5a/5d	2 (IUDA) or 4 (MUDA) of the occ. of brittlescale	4,300		0.00	2.00	
5a/5d	At least 2 occurrences of recurved larkspur		2	0.00	0.00	0%
5a/5d	170 acres connected to Byron Airport preserved areas		170	0.0	191.5	113%
5a/5b/5d	Annual grassland		7,100	177.63	3,248.0	46%
All	Grassland	5,300	8,100	177.63	3,249.0	40%
All	Alkali grassland	750	900	19.60	149.1	17%
All	Alkali wetland	40	40	2.13	19.6	49%
All	Vernal pool invertebrate suitable habitat, wherever possible			Yes (not quantified)	8.8	
All	Estimated minimum requirement	6,100	9,050	0.00	3,359.90	37%
All	Estimated maximum requirement	7,200	11,450	200.20	3,557.08	31%
Zone 6						
6a	See 6a/6b/6c/6f below	--	see below	0.00	0.00	--
6b	See 6a/6b/6c/6f below	--	see below	0.00	0.00	--
6c	See 6a/6b/6c/6f below	--	see below	0.00	0.00	--
6d	See 6d/6e below	--	see below	0.00	0.00	--
6e	See 6d/6e below	--	see below	0.00	0.00	--
6f	See 6a/6b/6c/6f below	--	see below	0.00	0.00	--
6d/6e	Alkali grassland	100	300	0.00	0.00	0%
6d/6e	Alkali wetland	20	40	0.00	0.00	0%
6a/6b/6c/6f	Cropland or Pasture	250	400	612.71	612.71	153%
All	Estimated minimum requirement	450	800	0.00	0.00	0%
All	Estimated maximum requirement	550	1,100	639.31	639.31	58%
All Zones						
All	Estimated minimum requirement	21,450	26,050	915.49	11,530.59	44%
All	Estimated maximum requirement	27,050	34,350	915.49	11,530.59	34%

[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.

There were no new restoration projects during the reporting period. However, during the 2016 reporting year, three restoration projects—Souza I, Lentzner, and Souza II—completed monitoring requirements, met success criteria, and were deemed to be completed (Tables 13a–13g). The Conservancy will continue to monitor these sites to track on-going ecological functions.

The Conservancy continues to monitor the below-listed six prior restoration projects (Figure 14).

- Vaquero Farms Seasonal Wetland 3 (constructed 2015)
- Hess Creek Channel Restoration Project (constructed 2014).
- Souza II Corral Vernal Pool Restoration (constructed 2012).
- Vaquero Farms South Vernal Pool Restoration (constructed 2012).
- Upper Hess Creek Watershed Habitat Restoration Project (constructed 2011).
- Irish Canyon Riparian Restoration Project (constructed 2010).

For projects constructed in previous years, project summaries and discussions of management actions, if applicable, are included in the section below. Table 8a summarizes restoration and creation to date by land cover type. Table 12 provides restoration and creation information by watershed.[4]

Monitoring in 2016 demonstrated advancement toward achievement of site-specific restoration objectives. However, drought conditions during the past four years have again influenced plant survival and wetland feature performance at most of the restoration project sites. The overall functionality of the sites indicates success criteria during the establishment period could be met with a wet rainy season.

Vaquero Farms Seasonal Wetland 3 Creation

Project Overview

The 3rd wetland at Vaquero Farms was constructed in October of 2015. The pool was constructed between two other pools (constructed in 2013). The wetland was designed to create habitat for vernal pool fairy shrimp. Presence of vernal pool fairy shrimp in the two pools immediately upstream positioned this pool to also support listed shrimp.

Vaquero Farms Seasonal Wetland 3
Photo Credit: ECCC Habitat Conservancy

Monitoring and Adaptive Management

Year 1 restoration monitoring was conducted in winter 2015 (hydrology monitoring) and spring, summer, and fall of 2016 (hydrology and vegetative monitoring). Seasonal Wetland 3 met the Year 1 hydrology and vegetation criteria during the 2015-2016 wet season. The rain in January produced a full pool with a

[4] 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.

depth exceeding 10 inches. The pool spilled over into the adjacent grassland and flowed in the direction of Seasonal Wetland 2.

As Seasonal Wetland 3 is newly constructed and still establishing its flora and fauna, it is not expected that within the first monitoring year there would be a high diversity of plant species, especially since four months of continuous inundation suppressed much of the vegetation. However, during the first monitoring year the pond was observed with approximately 25% vegetative cover, meeting the success criterion of 2% vegetation cover.

During the 2015–2016 monitoring season, eight bird species, three mammal species, and multiple invertebrate species were observed in the vicinity of Seasonal Wetland 3. The federally listed vernal pool fairy shrimp was also observed in this newly constructed wetland. The presence of this fairy shrimp species is either due to overland flows from the upstream pools or from wading birds carrying the fairy shrimp cysts on their feet as they move from pool to pool. Other invertebrates observed in the wetland included backswimmers (*Notonectidae*), clam shrimp (*Cyzicus* sp.), water fleas (cladocera), midges (*Chironomidae*), and copepods. Although not designated as a criterion, the objective of creating a seasonal wetland capable of supporting the federally listed vernal pool fairy shrimp was satisfied during Seasonal Wetland 3's first monitoring year.

In October 2016, a few native, hydrophytic species—salt grass, meadow barley, and spike rush—were hand-seeded along the edge of the pool to facilitate colonization by native species.

Recommendations

A single invasive plant specimen, stinkwort, was observed in May's monitoring visit. It was removed upon sight but on future monitoring visits some of the widespread, non-native species from the wetland bottom should be removed to facilitate growth of native, hydrophytic species—e.g., removing black mustard. Depending on vegetation cover observed in 2017, the Conservancy may choose to do additional hand seeding.

Hess Creek Channel Restoration Project

Project Overview

The Hess Creek Channel Restoration Project is located in the western portion of the inventory area and was completed in the fall of 2014 (H.T. Harvey & Associates 2013). 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. The net increase of restored habitats totaled 0.25 acre of wetlands, 0.06 acre of other waters, 2.39 acres of riparian woodland, and 730 linear feet of stream.

Monitoring and Adaptive Management


Hess Creek Channel Restoration
Photo Credit: Nomad Ecology

Monitoring occurred eight times through 2016 (Nomad Ecology 2016a). 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 (existing and re-established wetlands). The average relative cover of wetland plants ranged from 14% to 100% in transects in the existing wetlands and 51% to 87% in transects in the re-established wetlands. Additionally, changes to the site hydrology can be detected through a change in existing seasonal wetland composition. All seasonal wetlands (both existing and re-established) are hydrologically connected to the creek channels. Water was observed flowing into portions of all of the existing and re-established seasonal wetlands during a March 2016 site visit.

For the stream and riparian woodland assessment, observations of riparian vegetation and non-native invasive plants were recorded. Overall, the channel was dominated by Italian rye grass. Existing riparian trees were primarily Fremont cottonwood, valley oak (*quercus lobate*), black walnut, and red willow. The planted riparian species constitute extremely low cover, too low to be estimated visually, but appear vigorous and healthy.

Overall the site had 81% survival of container plantings, which does not meet the performance criterion of 100% survival. California buckeye (*aesculus californica*) and blue elderberry (*Sambucus cerulean*) had the highest percent survival (91% and 236%, respectively). California rose (*rosa californica*) and coast live oak (*quercus agrifolia*) had the lowest percent survival (42% and 64%). The surviving plants are healthy and vigorous, particularly California sagebrush (a*rtemisia californica*).

During the August 2016 monitoring visit, numerous dead plantings were observed, particularly coast live oak and California rose. These plantings showed signs of being damaged and ultimately killed by small mammals that were gnawing on the roots and crowns of the plantings. Existing cages onsite extend 1 inch below the soil surface but are not deep enough to preclude access by burrowing and tunneling mammals. Most plants were damaged by small mammals during the summer between the April and August site visits. The dead plants were well distributed throughout the site.

The willow and cottonwood pole cuttings had extremely low survival (5% and 5%) based on August observations. In 2015, pole cuttings were not watered, all individuals in an area died), which suggests environmental variables may play a role.

Additional plantings are required because the site overall did not meet the 100% survival performance criterion. The plants that need to be replaced are scattered throughout the site. To address this requirement, additional plantings occurred in November 2016. Buckeye and valley oak acorns were gathered from nearby properties. Valley oaks were collected in mid-October and stored in the refrigerator in 1-gallon plastic bags filled with perlite. Buckeye seeds were collected in mid-November and planted the following day.

Valley oak and buckeyes were planted adjacent to plantings that had died, but using a new planting hole. Buckeye seeds were planted 2 per hole; 48 buckeyes seeds were planted in 24 basins. Acorns were planted 3 per hole; 222 acorns were planted in 74 basins. Plantings were double-caged with a buried fine-mesh inner cage and an aboveground larger-mesh outer cage to prevent herbivory by small mammals. New plantings should be watered every 2 weeks for the first year and every 3 weeks for the second year.

Recommendations

Invasive weeds should continue to be controlled onsite. Species that are limited in distribution onsite are a high priority for control since they can be controlled before they become well established. These species should be removed whenever they are detected because there are so few onsite. These species include stinkwort (*Dittrichia graveolens*), purple starthistle, perennial pepperweed, and artichoke thistle. Surveys should be conducted at the appropriate time for these species (when they are detectable but prior to flowering) and they should be removed by hand, bagged, and disposed of when they are detected.

Other species present onsite and a high priority for control include milk thistle, yellow starthistle, bull thistle, and fennel. Milk thistle, yellow starthistle, and bull thistle should be sprayed with a selective herbicide (aminopyralid or clopyralid) when they are in the rosette stage.

Souza II Corral Vernal Pool Restoration

Project Overview

The Souza II Corral Vernal Pool Restoration Project is located on the 191-acre Souza II property in the Brushy Creek Watershed . It was constructed in October of 2012. An existing corral was cleared of debris and excavated to restore a 0.3-acre wetland feature. The wetland feature is intended to function as a vernal pool and was inoculated with soil from a wetland with a vernal pool fairy shrimp population. The source wetland was impacted by the Deer Valley Road Widening Project. The new wetland is designed to have the appropriate inundation, water depth, and hydroperiod to provide habitat for vernal pool fairy shrimp and other vernal pool species.

Monitoring and Adaptive Management

Year 4 hydrologic monitoring was conducted in December 2015 and in January, February, March, April, and May 2016 (Monk & Associates 2016a). Despite rainfall exceeding the region's average in Year 4, the created seasonal wetland inundated for a few weeks in January 2016. While this wetland did inundate in the month of January, it did not stay inundated or saturated for a full 30

days. In Year 4, the Souza II Corral seasonal wetland did not satisfy the annual performance criterion for hydrology.

Year 4 vegetation monitoring was conducted in May 2016. In the past monitoring years this wetland has been mostly bare, with between 28% and 55% bare ground. However, during the 2015–2016 monitoring year this wetland exhibited 100% herbaceous vegetation cover comprising Italian rye grass, Great Valley gum plant (*Grindelia camporum*), and a small amount (5% cover) of Mediterranean barley, and less than 2% cover of hare barley. The relative cover of hydrophytic plant species (wetland plants) was 100%. According to the written success criterion, a total of 25% wetland vegetation cover must be present in the wetland by the end of Year 3 (there are no specific criteria for Year 4). Accordingly, the total cover of hydrophytic plant species within the wetland met the Year 3 annual performance criterion for wetland vegetation in Year 4.

Recommendations

Despite the Byron area receiving 116% normal rainfall during the 2015–2016 wet season, the Souza II Corral created wetland failed to meet its hydrology criterion of 30 days of inundation. The reason that the Corral wetland did not hold water as long as intended could be due to the shortage of available "fat" clays when the wetland was constructed. Due to a clay shortage the wetland's berm and spillway were not lined with fat clays but rather with a sandy clay subsoil found in the area. Thus, water rising more than 10 inches off the wetland's lowest elevation percolates through the sides and dissipates into the surrounding soils. The only way to fix this would be to regrade the side slopes and spillway and add a compacted layer of fat clay to these features. This remedial measure should increase the duration of inundation to provide more suitable habitat for native wetland plant species and for the federally listed vernal pool fairy shrimp. It is recommended to continue to monitoring the hydrology and make a determination in subsequent year if an earthwork solution is required.

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

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. Similar to the Souza II Corral Vernal Pool Restoration Project, the wetland features are intended to function as vernal pools and provide habitat for vernal pool fairy shrimp and other vernal pool species

Vaquero Farms Seasonal Wetland
Photo Credit: Monk & Associates

Monitoring and Adaptive Management

Hydrologic monitoring was conducted in December 2015, and in January, February, March, April, and May 2016. (Monk & Associates 2016b). Rainfall in the project area was 116% of normal during the 2015–2016 wet season. The October through December 2016 rains soaked into Seasonal Wetland 1's soil, recharging it after the long drought. On this same December date the Control Wetland and Seasonal Wetland 2 were both inundated with 2–4 inches of standing water. These two wetlands have a slightly larger watershed than Seasonal Wetland 1, and the contributions from those watersheds and from the farm road runoff that flows directly into the south side of Seasonal Wetland 2 are the likely reasons these two wetlands were inundated in December. The heavy rainfall in January (greater than 4 inches) filled Seasonal Wetlands 1 and 2 and inundated the Control Wetland to a depth of 6 inches Seasonal Wetlands 1 and 2 surpassed the hydrologic performance criterion (minimum of 30 days of inundation) by remaining inundated for approximately 5 months (Seasonal Wetland 1 was inundated for 4 months and Seasonal Wetland 2 for 5 months).

In March 2016, Seasonal Wetland 1 was inundated through April, and while it was inundated the only vegetation visible was dead doveweed plants sticking out of the water. Once the wetland dried completely down in May, there was only 5% vegetation cover consisting of a mix of upland and wetland plant species. Plants observed were common amaranth (*Amaranthus retroflexus*), doveweed, a couple of black mustard rosettes, a few rabbit's foot grass (*polypogons*) plants, and a couple of coyote thistle (*Eryngium aristulatum aristulatum*) and hyssop loosestrife (*Lythrum hyssopifolia*) plants. In total, 95% of this wetland's surface was bare due to 4 months of inundation and vegetation suppression. Seasonal Wetland 1's edges were ringed with Italian rye grass that extended into the uplands.

Seasonal Wetland 2 also experienced long-term inundation and vegetation suppression that resulted in only 10% vegetative cover of swamp pricklegrass (*Crypsis schoenoides*), rabbit's foot grass, and Italian rye grass. The remaining 90% of the surface area was barren. Although neither Seasonal Wetland 1 nor 2 achieved Year 3's success criteria of 25% wetland vegetation cover. The created seasonal wetlands are comparable with the Control Wetland's 25% vegetation cover. Therefore, the vegetation success criterion has been met.

California tiger salamander and vernal pool fairy shrimp were observed in the Control Pool and Seasonal Wetland 1 in January and February, and the California tiger salamander was observed

in both wetlands in March. Seasonal Wetland 2 contained abundant California tiger salamander eggs in January and February and contained young California tiger salamander larvae in March. Though not designated as a criterion, the objective of creating seasonal wetlands capable of supporting the federally listed vernal pool fairy shrimp was satisfied.

Recommendations

On October 27, 2016, a few native, hydrophytic plant species were hand-seeded along the edge of the pool to facilitate the pools' colonization by native species. The entire perimeter of Seasonal Wetlands 1 and 2 were hand-raked just below the edge of the wetland to expose the top half inch of soil. The seed was then evenly dispersed around the perimeter. Soil was then spread over the seed to cover it and hide it from granivorous birds and effectively sow the seeds. Rain fell immediately after seed dispersal.

No additional remedial measures were recommended.

Upper Hess Watershed Habitat Restoration Project

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).

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. 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, and226 linear feet of channel were restored or created as part of this project.

Monitoring and Adaptive Management

The following two site-specific restoration objectives were met during Year 5: create a Channel Restoration Area and reduce erosion along Upper Hess Creek. The annual performance restoration goal for Year 5 was 50% relative percent cover of native wetland vegetation. Unfortunately, this was the fifth year in a row that the restoration area received less than normal rainfall and wetland vegetative cover did not thrive (Monk & Associates 2016c).

Annual performance criterion for the alluvial valley wetlands was not met in Year 5. Native vegetation cover was limited in the wetlands as it was likely outcompeted by the non-native Italian rye grass. Italian rye grass is ubiquitous in California's grasslands and thrives in both dry and moderately wet conditions. Standing water needs to be present for long duration in order for growth of this grass to slow. Seacoast bulrush (*Bolboschoenus robustus*) (a native species) was absent from the transects this year and was not observed in the vicinity of Basin 1 as it has been in past years. This basin had an almost homogenous cover of Italian rye grass.

Erosion along Upper Hess Creek did not appear to be a problem during the 2015–2016 monitoring year as the banks and channel are densely vegetated with Mexican rush and grasses such as salt grass and Bermuda grass. Also, no erosional scars or nick points were observed along Upper Hess Creek or within the restored area. This restored former road crossing within this creek was vegetated over the monitoring year with hydrophytic plant species as described above. Water was flowing or standing in this area most of the year.

Drought conditions make it difficult to assess successes related to hydrology. However, it is safe to conclude that the restoration of the Main Stock Pond, restoration of the Upper Hess Creek channel (i.e., the Channel Restoration Area), the creation of the California tiger salamander pond and the Alluvial Valley Wetlands increased the wetland and pond capacity and water duration in the project area. While during these drought years this increase is minimal, it is an increase over what was there before. The functioning area of the California tiger salamander pond and the Channel Restoration Area are indicative of that since there was no wetland or aquatic habitat in either of these areas prior to the restoration project.

The main stock pond continues to function well. This pond filled and spilled during the course of the winter (this is, it was inundated to a depth greater than 8 feet) and then remained inundated to a depth of almost 7 feet 6 inches through the month of June 2016. The water level dropped appreciably during the summer months.

The Alluvial Valley Wetlands, while exhibiting some areas with wetland vegetation and inundation, did not function as designed during the 2015–2016 rain year. This may be attributable to the low rainfall during the wet season and resultant reduced available runoff; however, as these wetlands have only been observed during drought years, it is unclear how they will function in years with normal to above normal rainfall.

While both perennial pepperweed and fennel have been identified in the wetland features onsite in past years, none of the restored wetlands supported 10% absolute cover (or relative cover) of high impact invasive plant species. In 2015–2016, perennial pepperweed was found in sporadic

areas around the main stock pond and along the upper creek channel between the road crossing and stock pond. For the first time, fennel was not observed this year. Milk thistle was also observed in the uplands near the California tiger salamander pond. Milk thistle only has a "limited" rating on the California Invasive Plant Council's website. Neither of these species (perennial pepperweed nor milk thistle) provided 10% or greater combined total cover within any mitigation feature.

The California Tiger Salamander pond only inundated for a few short weeks during the 2015–2016 wet season, reaching a maximum depth of 7 inches. This is not surprising given the severity of the drought facing California. This pond relies entirely on direct precipitation and watershed runoff to inundate. Due to the continuing drought, it was impossible to confirm whether or not the objective of creating a 0.06-acre pond was met during the 2015–2016 monitoring year.

The stream channel below the California tiger salamander pond (109 linear feet restored), the Upper Hess Creek Channel (117 feet restored), the main stock pond, and the Lower Channel were visually assessed during each and every monitoring visit. The 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. The stream channel below the California tiger salamander pond did not flow during the 2015–2016 monitoring year due to drought conditions. The Upper Hess Creek either had a slight trickle of flow or exhibited saturated soil conditions for several months in the winter and spring due to existing seeps/springs along this creek. Vegetation growing along this channel consisted of hydrophytic species.

A variety of wildlife was observed during monitoring visits. The restored and constructed wetlands increase the habitat diversity of the area, provide an essential water source for wildlife over the restoration area, and attract and maintain wildlife species in an otherwise dry landscape. The emergent vegetation growing in the main stock pond also provides nesting opportunities for many bird species.

Recommendations

Several of the required success criteria were not met by the end of monitoring Year 5. As such, the Conservancy will continue to monitor and adaptively manage the project until such time that it does meet success criteria. No remedial measures are recommended at this time as it is suspected that the extended drought combined with unauthorized cattle grazing in restoration areas has hindered restoration success. If a series of non-drought years arises and the project continues to underperform, additional adjustments will be evaluated and remedial measures will be implemented as necessary.

Irish Canyon Riparian Restoration Project

Monitoring and Adaptive Management

The restoration project continues to demonstrate high seedling recruitment and sapling survival. At the end of 2016, there were 123 established trees across the planted areas, one more than

the target of 122. Regular watering began in April 2016 and weeding and mowing occurred in April and May. In June, volunteers began using recycled water to irrigate young plantings for the first time. All management was completed by Save Mount Diablo staff and volunteers. Staff and volunteers continued to observe rodent activity in 2016, although they did not cause tree mortality in 2016 as they had in previous years. Weeding, watering, and replanting will continue in 2017.

Figure 14. Location of Habitat Restoration and Creation Projects

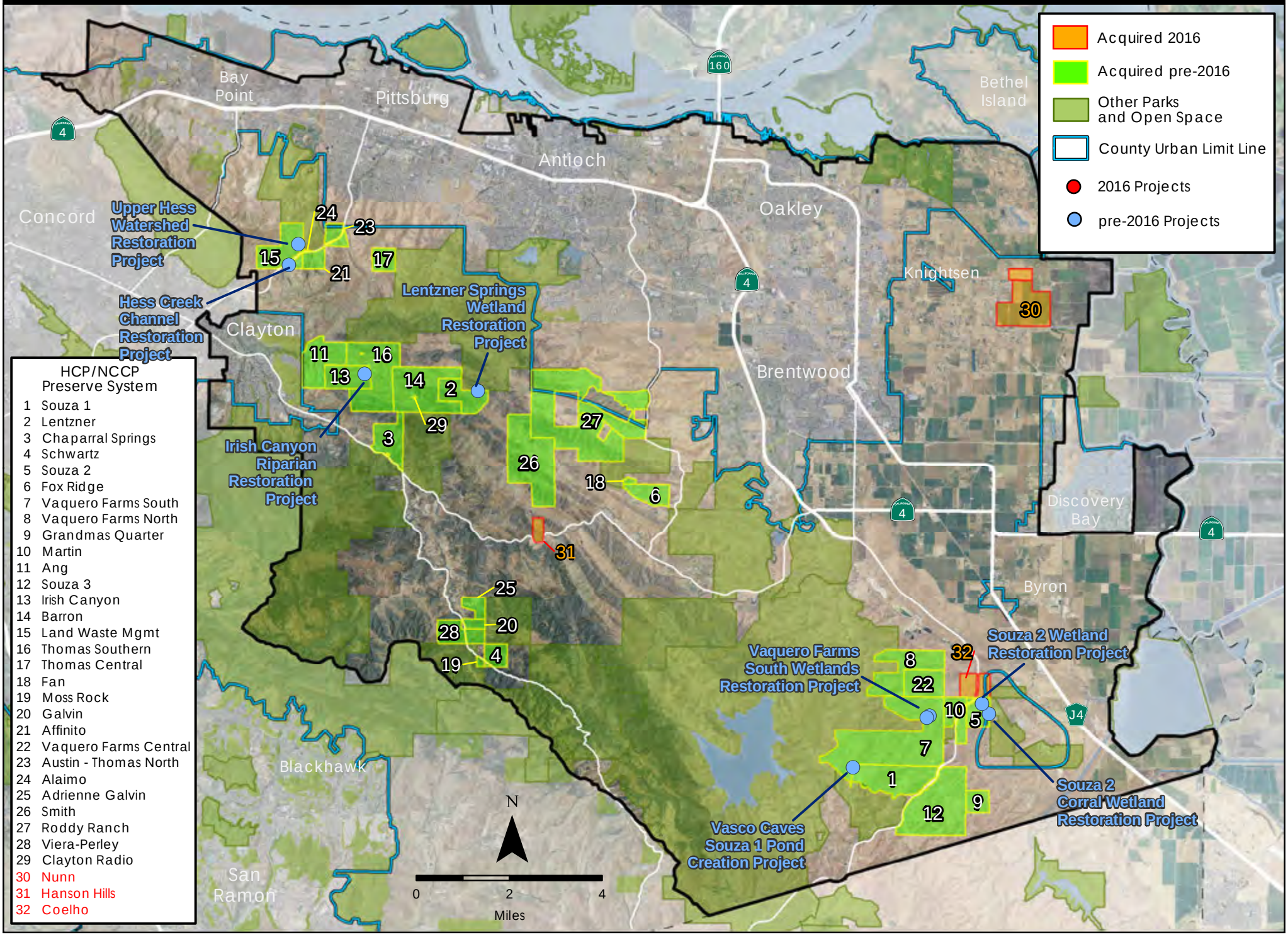


Table 12. Aquatic and Stream Land Cover Restoration and Creation by Watershed

	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													
Restoration	--	0.16	8.10	--	--	--	--	8.26	--	2,074.58	--	334.83	2,409.41
Creation	--	--	--	--	0.30	--	--	0.30	--	--	--	--	--
subtotal	*0.00*	*0.16*	*8.10*	*0.00*	*0.30*	*0.00*	*0.00*	*8.56*	*0.00*	*2,074.58*	*0.00*	*334.83*	*2,409.41*
Frisk Creek Sub Basin													
Restoration	--	--	0.33	--	--	--	--	0.33	--	--	--	--	--
Creation	--	--	--	--	--	--	--	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	--	--	--	--	--
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	--	--	--	0.05	--	--	--	0.05	--	--	--	--	--
Creation	--	--	--	--	--	--	--	0.00	--	--	--	--	--
subtotal	*0.00*	*0.00*	*0.00*	*0.05*	*0.00*	*0.00*	*0.00*	*0.05*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Upper Mt. Diablo Creek													
Restoration	0.91	--	--	--	--	--	--	0.91	--	908.83	--	--	908.83
Creation	--	--	--	--	--	--	--	0.00	--	--	--	--	--
subtotal	*0.91*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.91*	*0.00*	*908.83*	*0.00*	*0.00*	*908.83*
Total for Inventory Area	**3.99**	**0.16**	**8.66**	**2.45**	**0.42**	**0.00**	**0.00**	**15.68**	**0.00**	**2,983.41**	**0.00**	**2,094.39**	**5,077.80**

[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	2016 Status	HCP 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. Recommending new vegetation success criteria and project sign-off for Year 7 (2015).
Vasco Caves Souza I Pond Creation Project	2008	Seasonal Wetland	Years 1-5	Inundation; Edges and margins dominated by wetland vegetation	Completed: Year 7 (2015)[1]	California tiger salamander and California red-legged frog	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.
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]	California tiger salamander and California red-legged frog	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		Year 7 (2016)	California red-legged frog continue to be present in the area	Currently there are 123 live trees. Weeding, watering planned for 2017.
Upper Hess Watershed Restoration Project	2011	Seasonal Wetland Stream Channel Pond	Years 1-5	Relative cover of wetland vegetation; Wetland acreage Stream channel; CTS breeding pond area	Year 5 (2016)	California red-legged frog	Wetlands and California tiger salamander pond not meeting criteria most likely due to drought. Stream channel has met success criteria.

Restoration Project Name	Year Constructed	Habitat Type	Required Monitoring	Performance/Success Criteria	2016 Status	HCP Target Species Observed On-Site (Post Restoration)	Notes
Souza II Corral Seasonal Wetland Restoration Project	2012	Seasonal Wetland	Years 1-5	Inundation; % Dominated by wetland vegetation; Relative cover of native wetland vegetation; Wetland acreage	Year 4 (2016)	California tiger salamander	Minor modifications to success criteria were made in Year 2. Site is on trajectory to meet success criteria in Year 5.
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 4 (2016)	California tiger salamander and vernal pool fairy shrimp in pond 1, California tiger salamander only in pond 2	Both wetlands met hydrology criteria but not vegetation cover. Expected to meet vegetation criteria in "normal" rainfall years.
Hess Creek Channel Restoration Project	2015	Seasonal Wetland; Stream Channel; Riparian Woodland	Wetland Years 1-5 Riparian Years 1-10	Relative cover of wetland vegetation; Wetland acreage; Stream channel; Riparian vegetation cover; Riparian vegetation survival; Invasive vegetation cover	Year 1 (2015)	None	Wetland exceeded Year 1 cover criteria, riparian survival did not meet criterion and replanting will occur, riparian percent cover does not have Year 1 criterion, invasive vegetation cover met criterion.
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 1 (2016)	Vernal pool fairy shrimp	

[1] Final project reports are in preparation for submission to the 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.

Wetland Habitat Restoration and Creation Project Acreage Summaries[1]												
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**	**Riparian**	**Stream Channel Restored (ln ft)**	**Stream Channel Created (ln ft)**
Lentzner Spring Wetland Restoration Project	2008	2015	0.00	0.00	0.00	0.00	0.08	0.23	0.00	0.00	0	0
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	0
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
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
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
Souza II Corral Seasonal Wetland Restoration Project	2012	n/a	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0	0
Vaquero Farms Seasonal Wetlands Creation Project (Pools 1 and 2)	2012	n/a	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0	0
Hess Creek Channel Restoration Project	2015	n/a	0.00	0.00	0.3	0.00	0.00	0.00	0.00	3.13	1,364	730
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	0
TOTAL			**0.00**	**0.54**	**2.33**	**2.47**	**1.25**	**0.87**	**0.06**	**4.04**	**5,060.50**	**730.00**

[1] Acres represented are final created/restored acreages. Projects that have not reached success criteria show project target acreages.

Table 13c. Hess Creek Restoration 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.

Table 13d. Souza II Corral Vernal Pool Restoration Specific Objectives and Performance Criteria

Restoration Specific Objectives	Performance Criteria
SO-1. Create Seasonal Wetland	Create new seasonal wetland.
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.	At the end of five years the seasonal wetland shall support at least 51% total cover. At least 51% of hydrophytic species cover shall be composed of native California wetland species.

Table 13e. Vaquero Farms South Vernal Pool Creation Specific Objectives and Performance Criteria

Restoration Specific Objectives	Performance Criteria
SO-1. Create two new seasonal wetlands.	At the end of the five-year monitoring period the maximum wetland acreage for Seasonal Wetland 1 will be 0.07 acre and it will be 0.15 acre for Seasonal Wetland 2.
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 13f. Upper Hess Habitat Restoration Site Specific Restoration Objectives

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 13d.
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[a] 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

[a] 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 13g. Upper Hess Watershed Habitat Restoration Project Performance Standards

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

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 one 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 other 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/Bryon Vernal Pools Preserve Management Plan* is under development. The Vasco Hills/Bryon Vernal Pools Preserve Management Area is the southeastern portion of the inventory area, covering Acquisition Analysis Zone 5. The management area consists of eight 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, and Coelho.

The Conservancy and EBRPD staff collaborated closely on developing the *Vasco Hills/Byron Vernal Pools Preserve Management Plan*, assembling and reviewing numerous iterations of draft materials. A complete draft of the preserve management plan was provided to the Wildlife Agencies for review in 2016. A public draft is anticipated to be completed in 2017. 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 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 commenced 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, two separate conceptual ecological models for the grassland and wetland/pond communities have been developed for the HCP/NCCP.

The grasslands conceptual ecological model includes all the threats and stressors that may affect grasslands 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 will be on grazing and invasive species management and will expand to address the other threats/stressors as needed. The wetlands conceptual ecological model includes all the threats and stressors that may affect wetlands/ponds over the life of the permit term that can be managed. The initial focus is on grazing, invasive species management, and habitat restoration/enhancement, and will expand to address the other threats/stressors as needed.

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 2016 reporting period, and provides an effort-to-date summary of the extent of land cover types enhanced.

Efforts in 2016

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 Measure 2.2 *Manage Wetlands and Ponds*, Conservation Measure 2.4 *Manage Grassland*, Conservation Measure 2.9 *Manage Streams and Riparian Woodland/Scrub*, and Conservation Measure 3.9 *Conduct Experimental Management to Enhance Covered Plant Populations*.

Natural Resource Maintenance and Enhancement Projects

In 2016, natural resource maintenance and enhancement projects continued on all properties within the Vasco Hills/Bryon Vernal Pools Preserve Management area as well as properties adjacent to Black Diamond Mines Regional Preserve. Projects initiated in previous years continued in 2016.

Invasive Plant Control

There were several invasive plant species sites identified or controlled in 2016 by EBRPD and the Conservancy. Efforts to control invasive plant species continued on all reserve properties during the reporting year and included the following.

- Purple star thistle was removed from Irish Canyon in August and September.
- 10 yearling cattle grazed weeds and grasses at Vaquero Farms Central in a corral area to reduce competition for San Joaquin spearscale.
- Various invasive weeds were trimmed and grubbed in the Vasco area.

Grazing Management

Livestock grazing and exclusion was used for general weed control and to reduce thatch growth to implement Conservation Measure 2.2 *Manage Wetlands and Ponds,* Conservation Measure 2.4 *Manage Grassland,* and Conservation Measure 2.9 *Manage Streams and Riparian Woodland/Scrub*.

All grazing units were monitored, stocking reports reviewed, and grazing tenants met with in 2016. 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 tenants on a number of properties collaborated with the U.S. Department of Agriculture's Natural Resource Conservation Service, EBRPD and the Conservancy to develop plans and install livestock infrastructure on the following Preserve System properties: Hess, Vaquero Farms South, Viera-Perley and Barron.

Land Management

This section summarizes all land management activities undertaken on the HCP/NCCP preserves during the 2016 reporting period and discusses management issues on the preserves.

For the 2016 reporting period, management consisted of the enhancement actions described above, as well as ongoing maintenance and recreation planning. Currently the primary management issue facing the Conservancy is the pervasiveness of non-native invasive plants. The Conservancy and EBRPD will continue their aggressive approach to controlling invasive plants in the Preserve System. Land management activities conducted in 2016 are summarized below.

Management Activities and Maintenance

General inspections: General inspections and site maintenance by EBRPD were conducted on Preserve System properties. HCP/NCCP Preserve System properties were patrolled bi-weekly and wildlife sightings were documented.

Property-specific activities included the following.

- Security and Safety
    - Continued ongoing/regular patrol and security checks at all properties.

- Installed a motion sensor camera on Alaimo and Hess Triangle to monitor trespassing and illegal dumping activity.
- Performed monthly and post-incident monitoring, reviewing, and filing of camera images and maintaining SD cards/batteries at Affinito, Alaimo, Clayton Radio, Roddy, and Thomas North.
- Images of teens breaking into Ang House were captured in March. Worked with local high school administration to identify individuals, and Park Police made contact with the subjects and their parents.
- Provided daily security on Affinito.
- Followed up on a report of illegal access by dirt bikes in Horse Valley.
- Responded to a vehicle roll-over in the canyon above Horse Valley. Located an injured individual who reportedly was evading police.
- Responded to 911 distressed hiker call on the Kreiger property.
- Removed trespassers from Fox Ridge in August.
- Completed cistern closure grate installation on the Horse Valley property.
- Installed boulders to prevent vehicle trespassing on the Empire Mine Road/ Deer Valley Road in June.
- Fenced in an open pit well opening on Horse Valley.
- Demolished a porch on Bettencourt House, Ang property.
- Fenced off barn and installed “no trespassing” signs on Ang property.
- Cleaned up Affinito property.
- In March, installed a wood/metal lid to cover the dangerous hand dug-well at the Viera property.

- Grazing
  - Met individually with grazing tenants to discuss past and future seasons.
  - Reviewed stocking reports monthly.
  - Collected residual dry matter samples and photographed and documented sites.
  - Monitored grasslands weekly acres the Preserve System.
- New Infrastructure
  - Prepared fencing contracts (contract packet prep, signing, job walks, bid reviews, etc.) for Deer Valley and Thomas North properties.
  - Installed 7,500 feet of fencing on Roddy Ranch.
  - Installed 1,400 feet of fencing along the Smith/Ginochio boundary.

- Installed 3,500 feet of fencing along the Fox Ridge/Briones Valley Road frontage.
- Installed 3,500 feet of fencing on the Thomas North property.
- Installed solar panels and a pump at the steel tank on the Smith property.
- Repurposed existing shipping container for equipment/tool storage at Roddy Ranch: leveled the ground, created a gravel ramp, installed a work bench and shelving, and stocked it with supplies.
- In March, grazing tenant sought contractor services to fence 2,000+ feet of boundary fencing along Morgan Territory Road on the Viera/Perley property.
- Grazing tenant finished phase one of the water development project on the Viera/Perley property. This phase included direct burial of HDPE line, tank placement, and setting troughs (with escape ramps). The solar pump and plumbing to the remainder of the system will be completed in April 2017.

- General Maintenance
  - Performed road drainage maintenance and clearing on all properties after storms during the winter months.
  - Graded trails on the Ang, Barron, Irish Canyon, and Thomas South properties.
  - Pruned overhead limbs in April and May to allow passage of the grading machine on the Ang, Barron, Irish Canyon, and Thomas South properties.
  - Mowed several miles of fire roads in preparation for trail grading at Vasco.
  - In May, graded 14+ miles of fire roads on the Vasco property.
  - Graded approximately 5 miles of fire roads at the Morgan Territory HCP landbanks.
  - Performed general grounds maintenance at Affinito (pruning, weed-eating) in March, April, and May.
  - Worked on the design of a rainwater catchment system on Vasco throughout the year.
  - Replaced gate locks on the Alaimo, Empire Mine Road, and Smith properties.
  - Repaired fencing at Roddy Ranch and Empire Mine Road.
  - In February, repaired numerous breaks in the e-fence at Souza II.
  - Repaired gate and added new locks to Affinito.
  - Fixed leak in a wooden water tank and hauled water to a fill tank on Affinito.
  - Performed general lawn maintenance (weed-eating) on 3 acres on fuel break along residential frontage on Ang.

- Mowed trails on the Ang, Barron, Irish Canyon, Roddy, and Thomas South properties in preparation for grading.
- Repaired plumbing leaks at the main house on Affinito.
- Installed vent screens to block rodent access to the main house on Affinito in February.
- Cleared driveway drainages on Affinito in April.
- Repaired leak in the upper fire water reserve tank on Affinito.
- Repaired roof leak and cleaned out gutters at Affinito main house.
- Maintained 2 acres of fuel break using a weedeater on Clayton Radio.
- Pruned trees around the well enclosure at Alaimo.
- Monitored the well drilling in the oil well field at Vasco.
- Mapped the livestock water supplies on Hilary's for the Natural Resources Conservation Service Engineers.

- Resource Maintenance
  - Remarked and mapped (using global positioning system [GPS]) fence alignment for riparian corridor on the Ang property.
  - Coordinated with the Contra Costa Water District on shared fencing replacement at Deer Valley.
  - Mapped (using GPS) a buried waterline for the Environmental Quality Incentive Program (EQIP) solar project on Thomas South property.
  - Measured well depth at Alaimo.
  - Assessed a well for a solar pump system on A-frame site at the Affinito property.
  - Performed artifact recovery and survey on the Ang property.
  - Terminated current arrangement for maintenance of Irish Canyon property; assumed daily management responsibilities starting February 2016.
  - Grazing tenant installed electric fence, temporary tank and trough on Nunn property
  - Ongoing active irrigated agriculture on Nunn property
- Debris Removal
  - Continued cleanup efforts on all properties.
  - Delivered dumpsters to Affinito and Alaimo in the spring.
  - Filled 20-yard dumpster with debris, garbage, etc. on Affinito.
  - Collected scrap metals from Affinito and recycled them.

- Demolished and removed the chicken coop from Affinito.
- Coordinated with the owner of a stolen trailer for cleanup of construction debris illegally dumped on Alaimo.
- Reported illegal dumping on the Kirker Pass Road properties.

- Meetings
  - HCP Horse Valley Restoration plan site meeting was held in July.
  - Natural Resources Conservation Service EQIP grant meeting for Affinito was held in July.
  - Residence inspection occurred on Affinito in May.
  - Phillips 66 pipeline encroachment permit meeting for Hanson Hills.
  - PG&E Forrester planning massive tree removals for utility corridor on Thomas south.
  - Site meetings with consultants/surveyors for structure demo at Clayton Radio.
  - Meetings with the Natural Resource Conservation Service occurred several times throughout the year.
- Staffing
  - Two ranger positions were upgraded from .75 FTE to 1.0 FTE for Deer Valley Park and surrounding landbanks.

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. 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 Conservancy updates GIS data. The results of these baseline inventory surveys are incorporated into and reflected in the data presented in this Annual Report.

Plants

HCP/NCCP plant species (covered and no-take species) inventories and focused botanical surveys were conducted in March, April, May, June, and October 2016 (Nomad Ecology 2016b). The 2016 survey effort was primarily focused on the Coelho, Hanson Hills, and Nunn preserves since they were the newest of the acquisitions and had not been previously surveyed for rare plants. Due to the timing of regional winter storm events, which occurred in concentrated short-term events, and higher than average temperatures in December and January, the blooming periods for a majority of spring blooming covered plant species occurred earlier than typical.

Brittlescale observed on Coelho Property
Photo Credit: Nomad Ecology

Surveys for target species were conducted within suitable habitat by walking transects. Visual surveys are considered adequate for determining the presence or absence of covered plant species that have a potential to occur within preserve acquisitions. All plant species in bloom, or otherwise recognizable, were identified to a level necessary to determine their regulatory status. During these surveys an inventory of plant species observed was recorded. If encountered, other special-status species including State-listed and federally listed species or species included in the California Native Plant Society rare plant inventory were also recorded.

Data collected in the field conformed to reporting requirements appearing in Chapter 5 of the HCP/NCCP, *Incorporating Covered Plant Populations in the Preserve System.* 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 GPS point data collected in the field.

During plant surveys conducted in March, April, May, June, and October 2016, two covered species were observed: brittlescale and San Joaquin spearscale. A total of two populations of covered plant species were recorded with an estimated number of over 1,116 individuals represented. The surveys in 2016 resulted in meeting the population goals for brittlescale, as only two populations of this covered plant species had to be secured. To date, 21% of the species-specific biological goals for covered plant populations still needs to be met, which includes two populations each of Mount Diablo manzanita and recurved larkspur. Overall, populations of covered plant species are considered healthy based on observations of physical condition, reproductive success, and abundance and diversity of suitable habitat. None of the populations of covered species recorded in 2016 appeared to be immediately threatened by biotic or abiotic stressors.

Other special-status plant species observed included crownscale (*Atriplex coronata* var. *coronata*), which was observed on the Nunn and Coelho properties. Although not a covered or no-take species, crownscale is considered rare by the California Native Plant Society and is therefore included in this inventory.

A chart of all HCP/NCCP covered plants that have been identified on the Preserve System is in Table 10.

Wetland Mapping

A wetland assessment and refined mapping was conducted on the Coelho, Hanson Hills, and Nunn properties (Nomad Ecology 2016c). The overall results of the 2016 wetlands assessment have produced a refined map (for the three acquisition properties mapped in 2016) with numerous additional features. The total wetland acreage added to the Preserve System was 8.04 acres. Approximately 2.86 acres of alkali wetlands were present on the Coelho and Nunn properties. Alkali wetlands were also mapped in agricultural fields on the Nunn property. These alkali wetlands (cropland) could provide opportunities for enhancement/restoration once the site is taken out of agricultural production as these locations already pond water, are on Marcuse clay (which is alkaline), and exhibit visual alkali soil indicators. Alkali habitats are not likely to be created in the absence of existing natural alkali soils, therefore these locations should be taken advantage of to increase the acreage of alkali wetlands onsite.

In-stream Permanent Wetland on Hanson Hills
Photo Credit: Nomad Ecology

Permanent wetland (0.21 acre) was present on the Hanson Hills property in the creek channel and on the Nunn property in some of the drainage ditches that paralleled agricultural fields. Slough/channel (3.10 acres) was present on the Nunn property. These features were documented in the slough at the southern boundary of the property and in drainage ditches that paralleled agricultural fields.

Riparian oak woodland (1.78 acres) was recorded on the Hanson Hill property. Characteristic tree species were coast live oak and California buckeye which form a closed canopy. The remaining polygons were on the Nunn property and consisted of stands of narrowleaf willow (*Salix exigua*) and Fremont cottonwood. Other unique features found on the 2016 acquisition properties include alkali grasslands, scalds, remnant interior dunes, seeps, and native grasslands.

Long-term Preserve Monitoring Phase

As of December 2016, long-term preserve monitoring had not yet commenced. The long-term monitoring phase will commence once a comprehensive strategy has been developed (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 natural community response to management is uncertain. The Plan's Table 7-2 contains a list of potential directed research projects. This list is unchanged from the Plan. The Conservancy has initiated a small grant program that will funds research projects. Active research projects on Preserve System lands are discussed below.

Golden Eagle Research

In 2016, EBRPD completed the initial phase of its research to study golden eagle behavior in the Altamont Pass Wind Resource Area (APWRA) and map collision hazards (East Bay Regional Park District 2016). The initial study included five main tasks:

- Trap and attach transmitters on up to six golden eagles.
- Track eagles, including mapping using GIS.
- Validate current collision hazard maps (based on only observational data) by comparing newly collected transmitter data against existing collision hazard maps to determine whether eagles use the landscape as modeled.

- Revise collision hazard maps for Tres Vaqueros using new data and developing new golden eagle collision hazard maps for the remainder of the APWRA.
- Develop one or more peer-reviewed, publication-ready papers discussing the outcomes of this research.

However, the original objectives appeared too narrow. For example, an original objective was to "Validate existing collision hazard maps by comparing newly collected transmitter data against existing collision hazard maps to determine whether eagles use the landscape as modeled." It was discovered that a model based on both transmitter data and newly acquired behavioral data was the more robust model to test against the original collision hazard maps rather than a model based on either transmitter data or behavioral data alone. Therefore the objectives were revised and broadened.

- Refine and expand golden eagle collision hazard maps (or "risk maps") throughout the APWRA based on best available data, including data from tracking golden eagles with GPS satellite transmitters.
- Explore using observational data already collected by a biologist who performed post-construction monitoring at Buena Vista, but using the best available data—whether the onsite observational data or other data—to develop collision hazard maps for golden eagle, red-tailed hawk, and American kestrel.
- Develop collision hazard maps for the Tres Vaqueros repowering project using the best available data for golden eagle, red-tailed hawk, and American kestrel.
- Develop one or more peer-reviewed, publication-ready papers discussing the outcomes of this research towards collision hazard models.

Golden Eagle
Photo Credit: Doug Bell (EBRPD)

- Determine possible effects of the expansion of the Los Vaqueros Reservoir on golden eagle habitat and territory use, based on relating GPS/GSM telemetry positions to terrain measurements across the Los Vaqueros Reservoir watershed.

An initial report on the first phase of the study was completed and published in February 2017. Results of the initial phase of the study include the production of a third-generation, map-based collision hazard model (Objectives 1–3) for golden eagles, red-tailed hawks, and American kestrels hovering in the APWRA. Based on the results of the risk maps, it is recommended that new wind projects be carefully macro-sited (regional scale) and then carefully micro-sited (layout and size of wind farm) to minimize impacts on birds and bats. Much greater care is needed in preconstruction studies leading to macro- and micro-siting decisions, and greater care is needed in making these decisions. Rather than relying on simple utilization surveys for micro-siting,

qualified behavioral ecologists should perform sufficient surveys over a sufficient period to understand how raptors and other birds are using the airspace and landscape of a proposed wind project.

Golden eagles are likely affected by the expansion of the Los Vaqueros Reservoir, which concerned Objective 5. The study concluded that the reservoir expansion resulted in the loss of some golden eagle foraging habitat and that habitat may have been principally lost as ground squirrel habitat. In addition, habitat in the expansion areas that was used by a female golden eagle occupying the Los Vaqueros Territory was reduced, and that habitat will not be available for golden eagle use in the future. Results from the stud indicate that one golden eagle territory, the Windy Valley Territory, has been subsumed by eagles occupying the Los Vaqueros and Windy Valley territories, respectively, but it is unknown if this was a result of the reservoir expansion.

Additional papers on the remaining objectives will be prepared.

Special Status and Invasive Plant Management Pilot Project

In 2014 the Conservancy conducted a literature review on medusahead (*Taeniatherum caput-medusa*) and determined that current information on these species does not provide the assurances needed by preserve managers to meet the HCP/NCCP's biological goals and objectives related to protecting and recovering rare plant populations. Additional research into rare plant germination timing and medusahead grass control was continued into 2016.

The study was a high priority for the HCP/NCCP in 2016 as it provides critical information to land managers in controlling medusahead grass and will provide more specificity in timing and methods as they impact special status plant species. The lessons learned will be useful to land managers not only in the HCP/NCCP inventory area, but across California, who are working to control invasive weeds and conserve special status plan populations. The project will be divided into two parts.

1. ***Seed Germination***: Germination timing and morphology of early cotyledons of three HCP/NCCP covered plant species and one non-native grass will be documented. Seeds will be collected from wild populations and germinated in an outdoor setting allowing for ambient temperature and precipitation conditions to dictate and drive germination which may be extrapolated into understanding specific germination triggers. Two years will be dedicated to this study to account for variation in seasonal weather patterns. Weather data will also be analyzed for this period (2015–2016). The Conservancy initiated the first year of germination study in spring of 2015.

2. ***Weed Control Monitoring***: The effectiveness of weed control methods (e.g., grazing, mowing, raking, herbicide application) will be investigated using experimental plots (established in 2015). Experimental weed treatments will be conducted during 2016 and 2017. Vegetation data sampling will be conducted before the treatments are implemented and for 2 years after (2015–2018).

The methodology and results of seed germination and weed control and monitoring are the most important aspects of this project as they can help inform rare plant management and weed control for these species within the local distribution but also throughout their range in California. At the close of the study, a report will be included, detailing the seed germination study, weed control efforts, and post-weed control monitoring. This report will include methods employed; results of the seed germination study related to germination timing and germination rates; results of weed control efforts by control type; recommendations for weed treatment timing and control method, and identify any need for further investigations.

Bat Fatalities in the Altamont Pass Wind Resource Area

This proposed research study, which is scheduled to begin in 2017. Recent research in the APWRA has revealed high fatality rates of bats. Nocturnal surveys accumulated hundreds of near misses and possible collisions with wind turbine blades or with the atmospheric pressure waves and wake turbulence created by the blade sweeps. Bats were often seen to tumble through the air and sometimes disappearing around the blade sweeps. Bats were also observed targeting wind turbines, making multiple passes through operating wind turbine rotors, and chasing blades as they swept through their rotations.

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.

The study will achieve 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 correlated with nocturnal mammalian and diurnal avian scavenger activity levels.

The analysis and reporting is expected to be available in 2018.

Longhorn Fairy Shrimp Study

In 2016, the EBRPD along with the Conservancy and Vollmar Consulting submitted a proposal to the U.S. Bureau of Reclamation and USFWS to study longhorn fairy shrimp. While the sites selected for the study are not on Conservancy Preserve properties—they are adjacent, 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 began 2016 and will run through 2019.

Evaluation of Efficacy of Wildlife Undercrossings

This study began in 2016 and is evaluating the efficacy of wildlife undercrossings as part of the Vasco Road safety improvements. The study will also refine camera trapping strategies targeted at amphibians. The study is being conducted by Sapare Environmental and will run through 2018.

Invasive Species Weed Mapping

Set to begin in 2017, Nomad Ecology will pilot using remote sensing to map invasive weeds and native bunch grasses on the Preserve System. The project will run through 2019.

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 will begin in 2017 and continue through 2018, with final papers completed by June 2019. Shawn Smallwood and Doug Bell (EBRPD) are monitoring the impact of different grazing strategies on ground burrows for prey base for raptors and other focal species.

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 2016, 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). For all land cover types, the percent ahead ranges from 0% to over 100%. Overall, the conservancy is 10,911.2 acres ahead across all land cover types and 306,936.2 linear feet ahead in stream land cover. The Conservancy is 7,709.8 acres ahead of the stay-ahead requirement for grassland and irrigated agriculture land cover types (the requirement is 789.9 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.

Table 16 details the cumulative impacts on and compensation for vernal pool shrimp 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 & irrigated agriculture	18,150	8,238.41	45%	12,148	528.62	4%	789.80	7,709.79	41%
Chaparral and scrub	550	210.26	38%	2	0.04	2%	11.00	210.22	36%
Oak savanna	500	390.47	78%	165	0.02	0%	0.06	390.45	78%
Oak woodland	400	2,465.86	616%	73	0.50	1%	2.74	2,465.36	616%
Subtotal terrestrial	*19,600*	*11,305.00*	*58%*	*12,388*	*529.18*	*4%*	*837.26*	*10,775.82*	*53%*
Aquatic									
Riparian woodland/scrub	70	62.46	89%	35	1.02	3%	2.04	61.44	86%
Perennial wetland[1]	75	5.43	7%	75	0.07	0%	0.07	5.36	7%
Seasonal wetland	168	19.37	12%	56	0.38	1%	1.15	18.99	11%
Alkali wetland	93	35.26	38%	31	0.14	0%	0.42	35.12	37%
Pond	16	11.45	72%	8	0.01	0%	0.02	11.44	71%
Reservoir (open water)[2]	12	0.00	0%	12	0.00	0%	0.00	0.00	0%
Slough/Channel	36	3.10	9%	72	0.07	0%	0.04	3.03	9%
Subtotal aquatic	*470*	*137.07*	*29%*	*289*	*1.70*	*1%*	*2.76*	*135.37*	*29%*
Stream (length in linear feet)									
Perennial stream	4,224	12,625.07	299%	2,112	96.31	5%	192.62	12,528.76	294%
Intermittent stream	2,112	130,619.58	6185%	2,112	529.00	25%	529.00	130,090.58	6160%
Ephemeral stream[4]	26,400	164,614.84	624%	26,400	298.00	1%	298.00	164,316.84	622%
Subtotal stream length	*32,736*	*307,859.49*	*940%*	*30,624*	*923.31*	3%	*986.99*	*306,936.18*	*937%*
Totals									
Acres	38,820	11,442.07	29%	24,825	530.88	2%	840.01	10,911.19	27%
Linear feet	32,736	307,859.49	940%	30,624	923.31	3%	986.99	306,936.18	937%

[1] Perennial wetlands are equivalent to permanent wetlands.

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

[3] 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.

[4] 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.

Table 15. Stay-Ahead Assessment: Plants

Common Name	*Scientific Name*	Conservation	Impacts	Difference	% Ahead
Mount Diablo manzanita	*Arctostaphylos auriculata*	*0*	*0*	*0*	100%
Brittlescale	*Atriplex depressa*	*2*	--	*2*	100%
San Joaquin spearscale	*Atriplex joanquiniana*	*10*	*[see note [1]]*	*10*	100%
Big tarplant	*Blepharizonia plumosa*	*12*	*0*	*12*	100%
Mount Diablo fairy lantern	*Calochortus pulchellus*	*5*	*0*	*5*	100%
Recurved larkspur	*Delphinium recurvatum*	*0*	*0*	*0*	--
Round-leaved filaree	*Erodium macrophyllum*	*2*	*[see note [2]]*	*2*	--
Diablo helianthella	*Helianthella castanea*	*12*	*0*	*12*	100%
Brewer's dwarf flax	*Hesperolinon breweri*	*3*	*0*	*3*	--
Showy madia	*Madia radiata*	*0*	*0*	*0*	--
Adobe navarretia[3]	*Navarretia nigelliformis* ssp. *nigelliformis*	*(7)*	*0*	*0*	--
Total		**46**	**0**	**46**	**--**

[1] Vasco Project population translocated and impact avoided (2011).

[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).

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

Project Name/ Preserve Property Name	Species	Impacts to Date (acres)	Preserved Occupied to Date (acreage)	Restored/ Created Occupied to Date (acreage)
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	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
Total		**0.067**	**1.153**	**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 innoculated 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.

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

There were no changed circumstances to note during the reporting year.

IX. FINANCES

Budget

The Conservancy analyzed cost projections from the HCP/NCCP, the previous years' actual costs and the anticipated 2016 work plan to develop the 2016 Budget (Table 17). The Conservancy stayed within the budgeted amount for each cost category except in the category of Program Administration. For Program Administration, the preliminary finance numbers (un-audited), though exceeded our budgeted amount, remained within the contingency fund in the budget. The Conservancy stayed within the budget amount of the total 2016 Budget. Overall, expenditures totaled $8,853,647.

During the reporting period, the largest budgeted item was land acquisition followed by program administration, habitat restoration/creation, monitoring/research/adaptive management, and planning and design for restoration/management/recreation. 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.

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 received and held by the East Bay Regional Park District and used for Preserve System management activities, land acquisition, and long-term management.

A total of $8.4 million in revenues were received by the Conservancy in 2016 (Tables 18 and 19). This amount includes development fees from covered activities ($830,183), wetland and stream mitigation fees from covered activities ($67,651), temporary impact fees ($84,252), Contributions to Recovery payments from covered activities ($20,160), administrative/staff time fees ($8,658), and other revenues ($20,148), and grants ($7,363,644). Local funding from partners totaled $1,341,074.

All grants awarded to date are summarized in Table 20. Since it began implementing the HCP/NCCP through the end of 2016, the Conservancy has been awarded $63,802,153 in grants. Of this amount, $58,823,036 has been spent and $4,818,147 remains. These amounts do not include match funding provided by partners. Since Plan implementation, EBRPD has contributed an estimated $20 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 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. In addition, the Conservancy has begun to secure potential sources for long-term funding. A number of Preserve System properties provide lease revenues. The Conservancy and EBRPD have agreed to dedicate a portion of the revenue from the existing leases to long-term management of the Preserve System.

[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.

Table 17. 2016 Conservancy Budget: Expenditures and Comparison to Budget Projections

	HCP/NCCP Projected Cost Estimate			2016 Budget by Revenue Source					2016 Expenditures
Cost Category	Years 6-10	Average Cost Per Year (Years 6-10)	% of Total	Development Fee Account	Wetland Mitigation Fee Account	Grant Funding	TOTAL	% of Total	TOTAL
Program Administration and Permitting Program	$2,317,255	$436,451	5%	$852,408	$0	$130,000	$982,408	6%	$856,097
Land Acquisition	$23,224,521	$4,644,904	55%	$200,000	$0	$13,981,387	$14,181,387	83%	$7,564,708
Management, Restoration and Recreation Planning and Design	$1,365,238	$473,835	3%	$195,609	$275,000	$0	$470,609	3%	$84,347
Habitat Restoration/ Creation	$7,015,158	$1,403,032	17%	$0	$322,672	$0	$322,672	2%	$122,948
Environmental Compliance	$567,600	$113,520	1%	$123,527	$30,882	$0	$154,409	1%	$46,312
HCP/NCCP Preserve Management and Maintenance	$4,772,670	$954,534	11%	$402,040	$0	$0	$402,040	2%	$27,105
Monitoring, Research, and Adaptive Management	$2,074,364	$414,873	5%	$60,257	$148,152	$144,333	$352,742	2%	$152,130
Remedial Measures	$30,000	$6,000	0%	$6,000	$0	$0	$6,000	0%	$0
Contingency Fund (5% of non-land acquisition costs)	$806,197	$161,239	2%	$134,244	$0	$0	$134,244	1%	$0
TOTAL	$42,173,003	$8,608,388	100%	$17,006,511	$776,706	$14,255,721	$17,006,512	100%	$8,853,647

Table 18. Summary of All Revenues Received

Type	Reporting Period	Cumulative
Development Mitigation Fees[1]	$830,183	$6,652,003
Wetland Mitigation Fees	$67,651	$679,825
Temporary Impacts Mitigation Fees	$84,252	$1,687,464
Contributions to Recovery	$20,160	$1,158,979
Administrative Fees/Staff Time Fees	$8,658	$314,379
Other[2]	$20,148	$3,386,511
Grants	$7,363,644	$58,823,036
Local Funding[3]	$1,341,074	$20,561,867
Total	**$9,735,770**	**$93,264,064**

[1] Development Mitigation Fees includes Rural Infrastructure Fees. Some mitigation fees are held by the cities and are not included in this table.

[2] "Other" includes interest, reimbursements, and payments for non-covered activities.

[3] Local Funding are not revenues recieved by the Conservancy. They include grants awarded to local partners. Grants awarded to the Conservancy are shown in the Grants category. EBRPD land acquisition costs and preserve management expenditures are also included. The cumulative amount is adjusted as the Conservancy collects additional information.

Note: This table differs from prior annual reports due to refinements to revenue categorization

Table 19. Summary Accounting of Fee and Grant Revenues Received in Reporting Period

Type	Amount
Development Mitigation Fees	
Palmilla Residential Development - Phase II (City of Brentwood)	$515,445
Verizon Wireless Empire Oakley Road (City of Oakley)	$4,266
Port Chicago Hwy & Willow Pass Road Sidewalk Improvement	$2,909
Canal Road Sidewalk and Bike Lanes	$6,522
Tractor Supply (City of Brentwood)	$19,513
Sparrow at Marsh Creek (City of Brentwood)	$93,517
Cornerstone Fellowship Project (City of Brentwood)	$62,856
Elite (Pacific Union) Storage (City of Brentwood)	$55,748
Sonic Drive-In Restaurant (City of Pittsburg)	$8,502
Delta Gateway Pad 12 (City of Pittsburg)	$25,087
Jim Moita (Contra Costa County)	$35,121
Point of Timber Road Communication Facility (Contra Costa County)	$697
Development Fees subtotal	***$830,183***
Wetland Mitigation Fees	
Moita Road Improvemnt (Contra Costa County)	$27,085
Canal Road Sidewalk and Bike Lanes	$12,500
Palmilla Residential Development - Phase II (City of Brentwood)	$20,989
SR4/Balfour Road Interchange Improvements Project-1st Amendmnt CCTA	$7,077
Wetland Mitigation Fees subtotal	***$67,651***
Temporary Impacts Mitigation Fees	
Verizon Wireless Empire Oakley Road (City of Oakley)	*$9,566*
Oakley Generating Station, 2nd and 3rd Amendments	$3,843
Moita Road Improvement (Contra Costa County)	$4,311
Point of Timber Road Communication Facility (Contra Costa County)	$6,982
Clifton Court Road Bridge	$176
Port Chicago Hwy & Willow Pass Road Sidewalk Improvement	$131
Canal Road Sidewalk and Bike Lanes	$1,119
PG&E T-1047A Hydrotest Project	$8,713
Columbia Solar (City of Pittsburg)	$49,411
Temporary Impact Fees subtotal	***$84,252***
Contributions to Recovery	
PG&E T-1047A Hydrotest Project	$8,713
SR4/Balfour Road Interchange Improvements Project-1st Amendment CCTA	$7,077
Oakley Generating Station, 2nd and 3rd Amendments	$4,370
Contribution to Recovery subtotal	***$20,160***
Administrative Fees/Staff Time Fees and Other Exactions	
Chevron Transfer to Crimson California Pipeline - Sites 1357 and32	$1,314
Oakley Generating Station, 2nd and 3rd Amendments	$2,032
Phillips 66 Line 200 Pipeline Vasco Road Remediation	$313
PG&E T-1047A Hydrotest Project	$5,000
Administrative Fees/Staff Time Fees and Other Exactions subtotal	***$8,658***
Other	
Pooled Interest Earnings	$19,905
Reimbursements	$243
Other subtotal	***$20,148***

Table 19. Summary Accounting of Fee and Grant Revenues Received in Reporting Period

Type		Amount
Grants		
USFWS Section 6 for Nunn Acquisition	Federal	$2,732,400.00
WCB Prop 84 for Nunn Acquisition	State	$2,732,400.00
USFWS Section 6 for Hanson Hills Acquisition	Federal	$547,500.00
CDFW LAG Grant P1582104, Plant Surveys and Invasive Plants Management	State	$23,169.00
USFWS Section 6 for Coelho Acquisition	Federal	$873,936.00
WCB Prop 84 for Coelho Acquisition	State	$454,239
Grants subtotal		***$7,363,644***
Local Funding		
EBRPD (Nunn Acquisition)		$607,200
EBPRD (Hanson Hills Acquisition)		$182,500
EBRPD (Coelho Acquisition)		$147,575
EBRPD Land Acquisition - Due Diligence, Closing Costs, Staff Costs		$30,960
EBPRD Preserve System Management		$372,839
Local funding subtotal		***$1,341,074***
Total		**$9,735,770**

Note: This table differs from prior annual reports due to refinements to revenue categorization

Table 20. Grants Awarded to Conservancy for Implementation of East Contra Costa County HCP/NCCP[1]

Funding Source	Agency	Purpose	Amount	Required Match	Expended through 2016	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	$567,400	$432,600	March 2017	
Section 6 (2014)	USFWS, through WCB	Acquisition	$2,000,000	$2,444,444	$0	$2,000,000	Dec 2017	
Section 6 (2015)	USFWS, through WCB	Acquisition	$2,000,000	$2,444,444	$0	$2,000,000	Oct 2018	
CVPIA (HRP)	USBR	Acquisition of Schwartz and Souza 2	$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 (2006)	CDFW	Start-up staffing	$40,000	$0	$40,000	$0	June 2008	Y
NCCP Local Assistance P0630019 (2006)	CDFW	Historical Ecological Assessement and Plan Implementation	$120,000	$0	$120,000	$0	March 2009	Y
NCCP Local Assistance P0730010 (2007)	CDFW	Wetland Restoration	$60,000	$0	$60,000	$0	June 2009	Y
NCCP Local Assistance P0882016 (2008)	CDFW	Wetlands restoration at Souza 2	$150,000	$0	$125,100	$0	April 2011	Y
NCCP Local Assistance P0982030 (2009)	CDFW	Hess Construction	$150,000	$0	$150,000	$0	Mar 2012	Y
NCCP Local Assistance P1082019 (2010)	CDFW	Baseline Inventory for Wetlands and Rare Plants	$27,000	$0	$27,000	$0	April 2013	Y
NCCP Local Assistance P1082020 (2010)	CDFW	Development of Effectiveness Monitoring Program	$50,000	$0	$50,000	$0	April 2013	Y
NCCP Local Assistance P1082021 (2010)	CDFW	Monitoring of Constructed Wetland and Riparian Projects	$85,000	$0	$85,000	$0	April 2013	Y
NCCP Local Assistance P1182103 (2011)	CDFW	Baseline Inventory for Wetlands and Special Status Plants	$40,000	$0	$40,000	$0	April 2014	Y
NCCP Local Assistance P1182104 (2011)	CDFW	Monitoring of Constructed Wetland and Riparian Projects	$50,000	$0	$50,000	$0	April 2014	Y
NCCP Local Assistance P1182105 (2011)	CDFW	Development of Preserve Management Plan	$75,000	$0	$75,000	$0	April 2014	Y
NCCP Local Assistance P1282108 (2012)	CDFW	Ang Riparin Habitat and Pond Restoration	$95,000	$0	$24,816	$0	April 2015	Y
NCCP Local Assistance P1382112 (2013)	CDFW	Baseline Inventory	$60,157	$0	$60,157	$0	March 2016	Y
NCCP Local Assistance P1582104 (2015)	CDFW	Rare and Invasive Plant Management	$50,000	$0	$23,169	$26,831	March 2018	
NCCP Local Assistance P1682905 (2016)	CDFW	Native Bunchgrass and Invasive Weed Mapping	$50,100	$0	$0	$50,100	April 2019	
NCCP Local Assistance P1682906 (2016)	CDFW	Byron-Vasco Pond Surveys	$50,000	$0	$0	$50,000		
EQIP	NRCS	Ang riparian planting, fencing, cattle trough	$75,585	$0	$0	$75,585	Dec 2017	
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	$2,066,969	$183,031	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
Prop 84 NCCP account	WCB	Acquisition of Thomas North	$388,755	$0	$388,755	$0	Aug 2013	Y

Table 20. (Continued)

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
[1] Funding from partners not included. EBRPD has contributed ~$20 million of its own funds or grant funds to land acquisitions and preserve management.			**$63,802,153**	**$47,706,420**	**$58,823,036**	**$4,818,147**		

Acronyms:

CDFW: California Department of Fish and Wildlife
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
NRCS: Natural Resource Conservation Service
CVPIA HRP: Central Valley Project Improvement Act Habitat Restoration Program
Section 6: Cooperative Endangered Species Conservation Fund, HCP Land Acqusition (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 2016 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 (EPA), 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. To date, 12 covered projects and 2 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.

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 (CWA) 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 EPA (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 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.

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 started gathering data and anticipate on completing work in mid-2017.

Other Activities

Public Outreach/Engagement

Public Hikes

- In 2016, Save Mount Diablo led one hike on Conservancy preserve properties (Chaparral Springs), with a total of 14 attendees.

Volunteer Engagement

- Over 45 volunteers providing 187.5 man hours working with Save Mount Diablo continued on fire abatement at Irish Canyon and monitoring and maintaining Irish Canyon riparian plantings.

Public Land Tour
Photo Credit: ECCC Habitat Conservancy

XI. REFERENCES

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XII. LIST OF PREPARERS

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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 (ESA).

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 ESA (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 CWA 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.