East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan Annual Report 2015

East Contra Costa County Habitat Conservancy

June 2016

Cover Photograph: Oak Woodland Hillside on the Viera-Perley Property
Photo Credit: Nomad Ecology

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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
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
Conservancy	East Contra Costa County Habitat Conservancy
Corps	U.S. Army Corps of Engineers
County	Contra Costa County
County Flood Control District	Contra Costa County Flood Control and Water Conservation District
CRPR	California Rare Plant Rank
CWA	Clean Water Act
EBRPD	East Bay Regional Park District
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EQIP	Environmental Quality Incentive Program
GIS	geographic information system
GPS	global positioning system
HCP	habitat conservation plan
HCP/NCCP	*East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan*
HCPA	Habitat Conservation Plan Association
IA	Implementing Agreement
ILF	In-Lieu Fee
Mitigation Rule	*Compensatory Mitigation for Losses of Aquatic Resources*
NRCS	Natural Resources Conservation Service
OHWM	ordinary high water mark
Plan	*East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan*
RDM	Residual dry matter
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

Oak woodlands on the Viera-Perley property.
Photo Credit: East Contra Costa County Habitat Conservancy

This is the seventh 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, 2015, and December 31, 2015, per the conditions of the Plan and Implementing Agreement (IA).

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 (NCCPA). Over the 30-year permit term, impacts from urban development and rural infrastructure projects will be offset

[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.

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 2015, 17 projects received streamlined permits through the HCP/NCCP. The covered projects include infrastructure, transportation, housing, and other economic development activities providing a range of benefits for the communities of eastern Contra Costa County. Highlights of these approved covered activities include the following.

Road Infrastructure: The State Route 4 (SR 4) /Balfour Road Interchange Improvements Project was a significant project covered under the Plan in 2015. The transportation project will consist of widening SR 4 from San Jose Avenue to approximately 3,400 feet south of Balfour Road and construction of an interchange at Balfour Road in the City of Brentwood. The Project addresses current and projected traffic congestion at the at-grade SR 4/Balfour Road intersection and along the segment of SR 4. The project will replace the existing signalized, at-grade intersection at Balfour Road and SR 4 with a full access controlled, grade-separated interchange. SR4 will be raised to cross over Balfour Road, creating a new undercrossing. Freeway access from Balfour Road will be accommodated by providing westbound and eastbound SR 4 loop on ramps and a westbound diagonal on ramp. Freeway exits from SR 4 to Balfour Road will be provided by construction of eastbound and westbound diagonal off ramps. Construction is expected to begin summer 2016.

Residential Development: The Mangini Residential Development Project in the City of Brentwood received permit coverage under the Plan in 2015. The Project involves the subdivision of a 9.77-acre property located south of O'Hara Lane and the terminus of Bond Lane. The subdivision will create 36-single family residential lots and two stormwater treatment areas. Site preparation and construction began fall 2015.

Utility Infrastructure: Another important infrastructure project that received coverage in 2015 was the Phillips 66 Line 200 Pipeline Vasco Road Remediation Project. On August 27, 2011 Phillips 66's 24-inch crude oil Line 200 was punctured by an unknown back hoe excavation that resulted in the release of pressurized crude oil into an undeveloped area east of the intersection of Vasco Road and Dyer Road in east Contra Costa County. The release area was immediately cleaned up and restored by Phillip's 66 under HCP/NCCP coverage. The Regional Water Quality Control Board (Regional Water Board) has requested Phillip's 66 conduct final soil and water testing to determine if the site was fully remediated in 2011. The Phillips 66 Line 200 Pipeline Vasco Road Remediation Project will consist of a temporary work area to drill 12 boring soil sample locations and install four monitoring well locations. The boring and monitoring well locations will allow Phillip's 66 to appropriately assess possible soil and groundwater contamination levels and develop a remediation plan as necessary. Sampling will be conducted on a quarterly calendar basis. After drilling and testing work is complete, all disturbed areas will be restored to pre-project conditions. The Project is anticipated to begin summer 2016.

Altogether, 17 projects received take coverage under the Plan in 2015, including 10 urban development projects, three rural operations and maintenance project, two restoration projects and two Preserve System activities. These covered activities resulted in 102.04 acres of permanent impacts and 9.27 acres of temporary impacts on terrestrial land cover types; 0.22 acre of permanent impacts and 0.25 acre of temporary impacts on aquatic habitats; and 40 linear feet of permanent impacts and 28 linear feet of temporary impacts on streams.

Land Acquisition and Stay-Ahead Provision

During the first 8 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, 29 properties had been acquired for the Preserve System, totaling over 12,280 acres. All acquisitions to date have been completed in partnership with the East Bay Regional Park District (EBRPD). EBRPD owns these lands, and together with the Conservancy, manages the Preserve System lands that have been acquired.

The Conservancy partnered with EBRPD in 2015 to acquire the Viera-Perley and Clayton Radio properties, totaling 266 acres. The two properties are located adjacent to or in close proximity to several acquisitions for the Preserve System including the Galvin, Moss Rock, Schwartz, and Adrienne Galvin properties and EBRPD and California State park land. Acquisition of the properties provide key support in expanding the landscape linkage along within inventory area. Additional highlights of these acquisitions include the following.

- 37 acres of annual grassland were acquired during the reporting period nearly 7,120 acres protected to date (43% of the annual grassland preservation requirement achieved).
- More than 200 acres of oak woodland acquired, and approximately 2,425 acres protected to date (606% of the oak woodland preservation requirement achieved).
- More than 26 acres of riparian woodland/scrub acquired, and over 56 acres protected to date (81% of the riparian woodland/scrub preservation requirement achieved).

The Conservancy is in compliance with the Plan's Stay-Ahead Provision. As displayed in Figure ES-1, the Conservancy has made substantial progress in the first 8 years of implementation toward many of the Plan's Year-30 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). In 2015, one new restoration project was constructed. To date, nine restoration projects have been constructed, and each is monitored and adaptively managed. The nine restoration projects were designed to restore or create the following habitats:

- 0.04 acre of annual grassland
- 0.02 acre of alkali grassland
- 2.4 acres of alkali wetland
- 8.6 acres of seasonal wetland
- 0.2 acre of perennial wetland
- 4.0 acres of riparian woodland
- 0.4 acre of pond
- 3,666.6 feet of stream

The restoration projects constructed to date provide a range of benefits to covered species. The Vaquero Farms Seasonal Wetland 3 project, completed in 2015, restored and created a new seasonal wetland which complements the Conservancy's previous restoration projects on the Vaquero Farms site.

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 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.

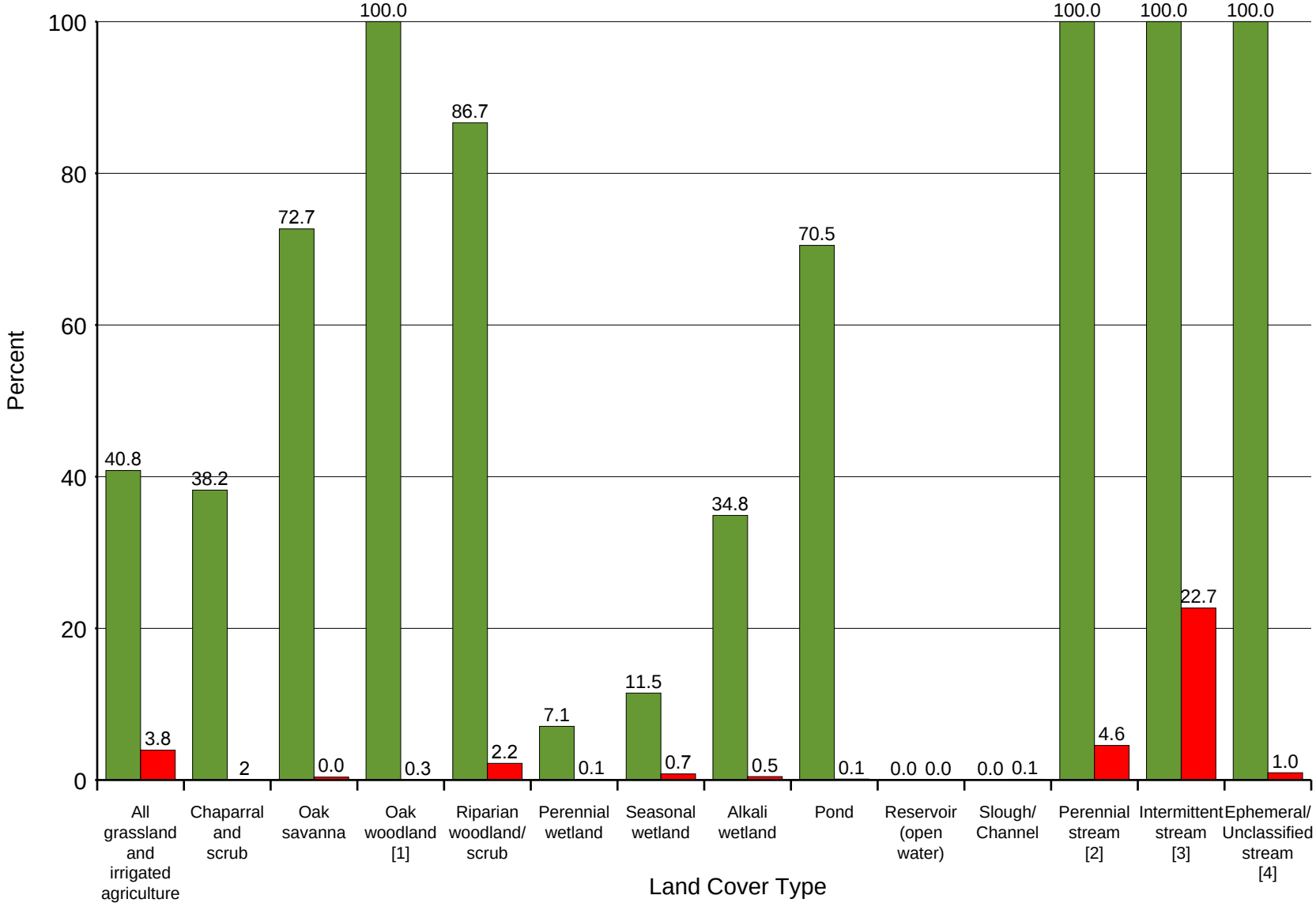
- On May 4, 2012, the Corps issued a Regional General Permit (RGP) related to the HCP/NCCP. The RGP is designed to streamline wetland permitting in the HCP/NCCP inventory area by coordinating the avoidance, minimization, and mitigation measures in the Plan with the Corps' wetland permitting requirements. 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, 10 covered projects and two Conservancy restoration projects have received permit coverage through the RGP.

Funding

The Conservancy successfully pursued and secured grants during the 2015 reporting period. Various federal, state, and private funding sources generously granted $2,234,579 during 2015 to the Conservancy's conservation activities. Mitigation fees and other payments from project proponents totaled $1,417,854. Local matching funds, which include grants awarded to local partners, totaled an estimated $224,250.

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 606% 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 6043% of the total.

[4] Ephemeral/Unclassified stream has exceeded the conservation requirement: it is 540% of the total.

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

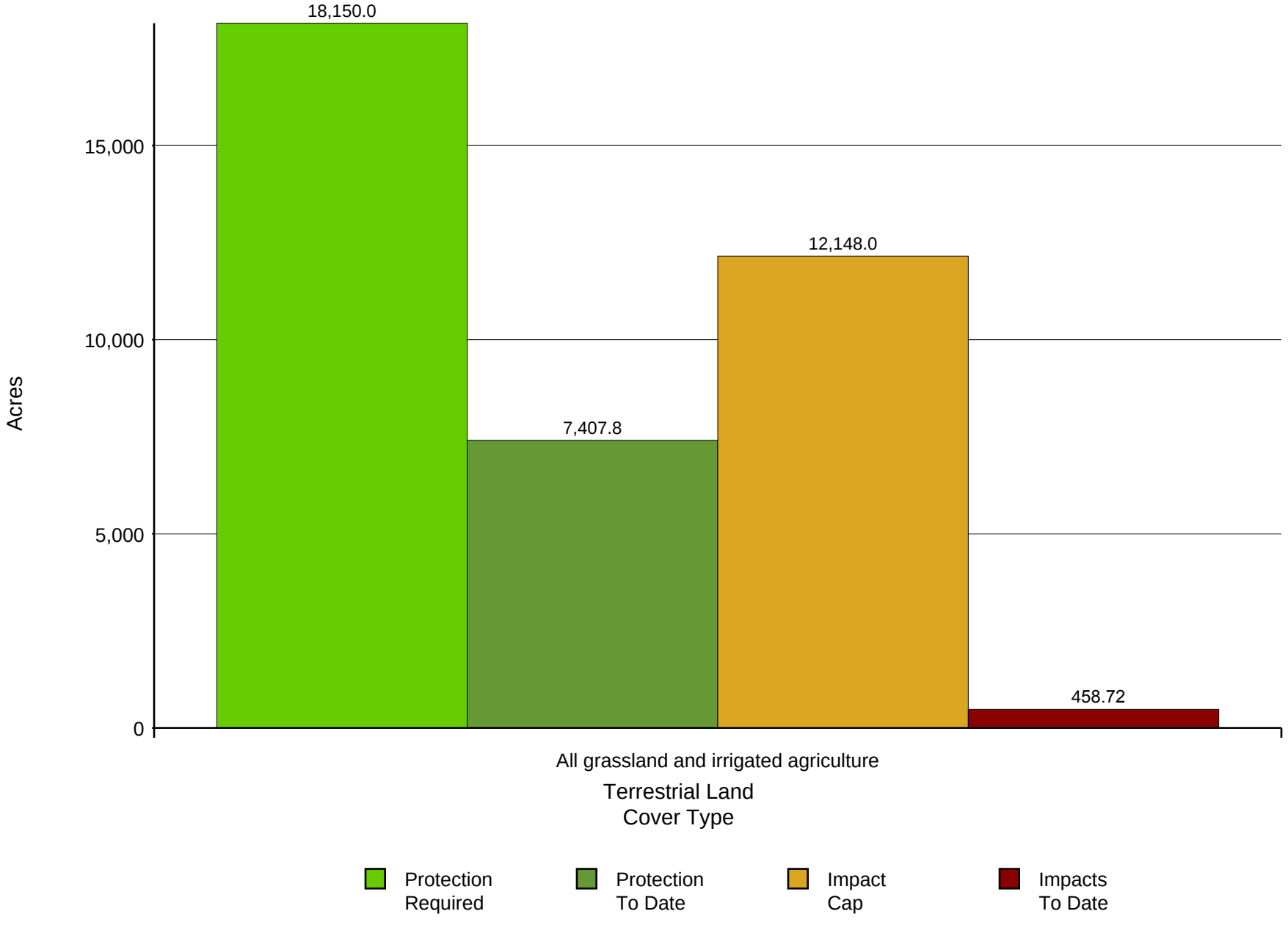


Figure ES-2b. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Terrestrial Land Cover Types

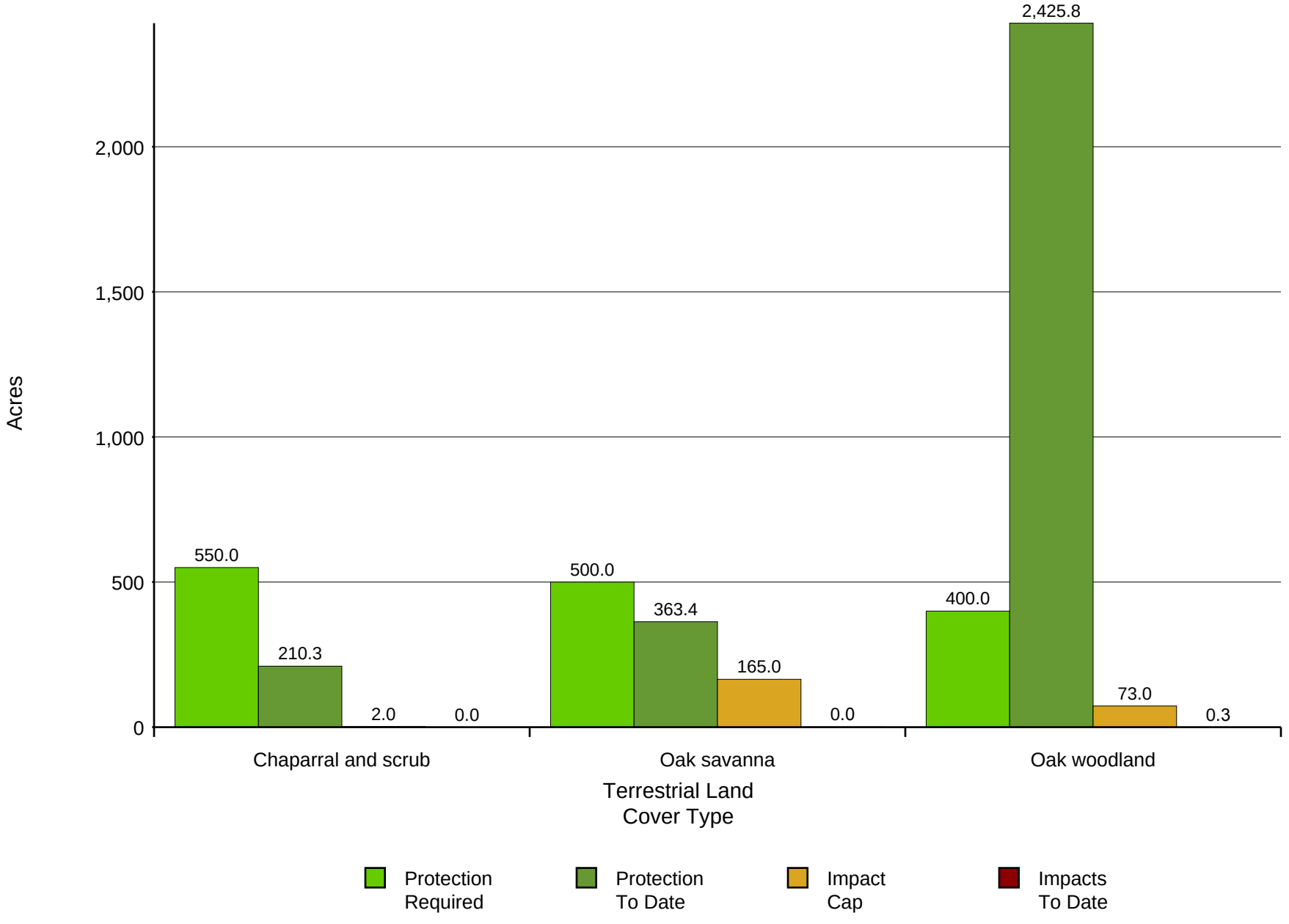


Figure ES-3a. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Aquatic Land Cover Types

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.

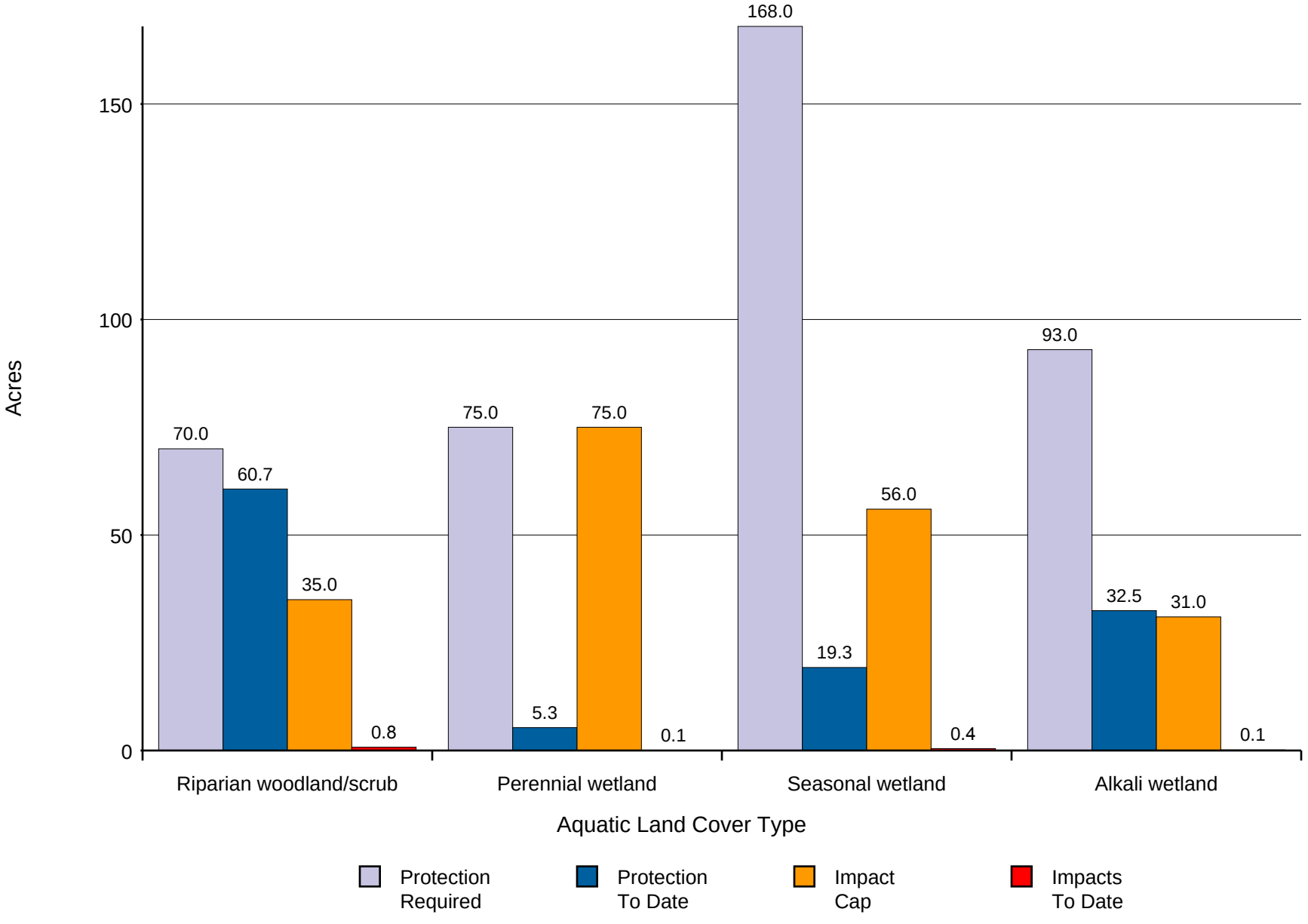


Figure ES-3b. Detailed Comparison of Conservation Required and Achieved to Impact Limit and Incurred for Aquatic Land Cover Types

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.

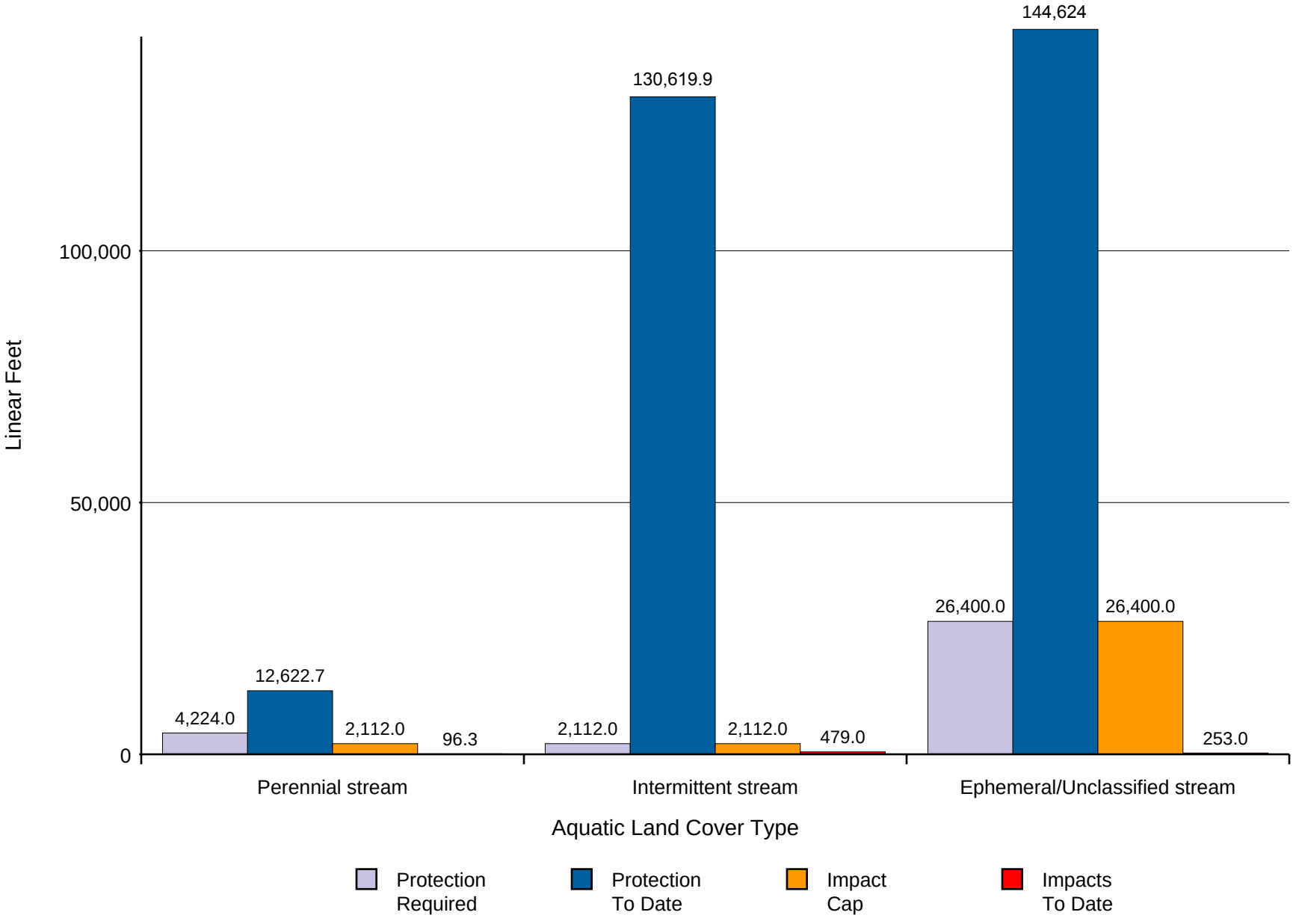
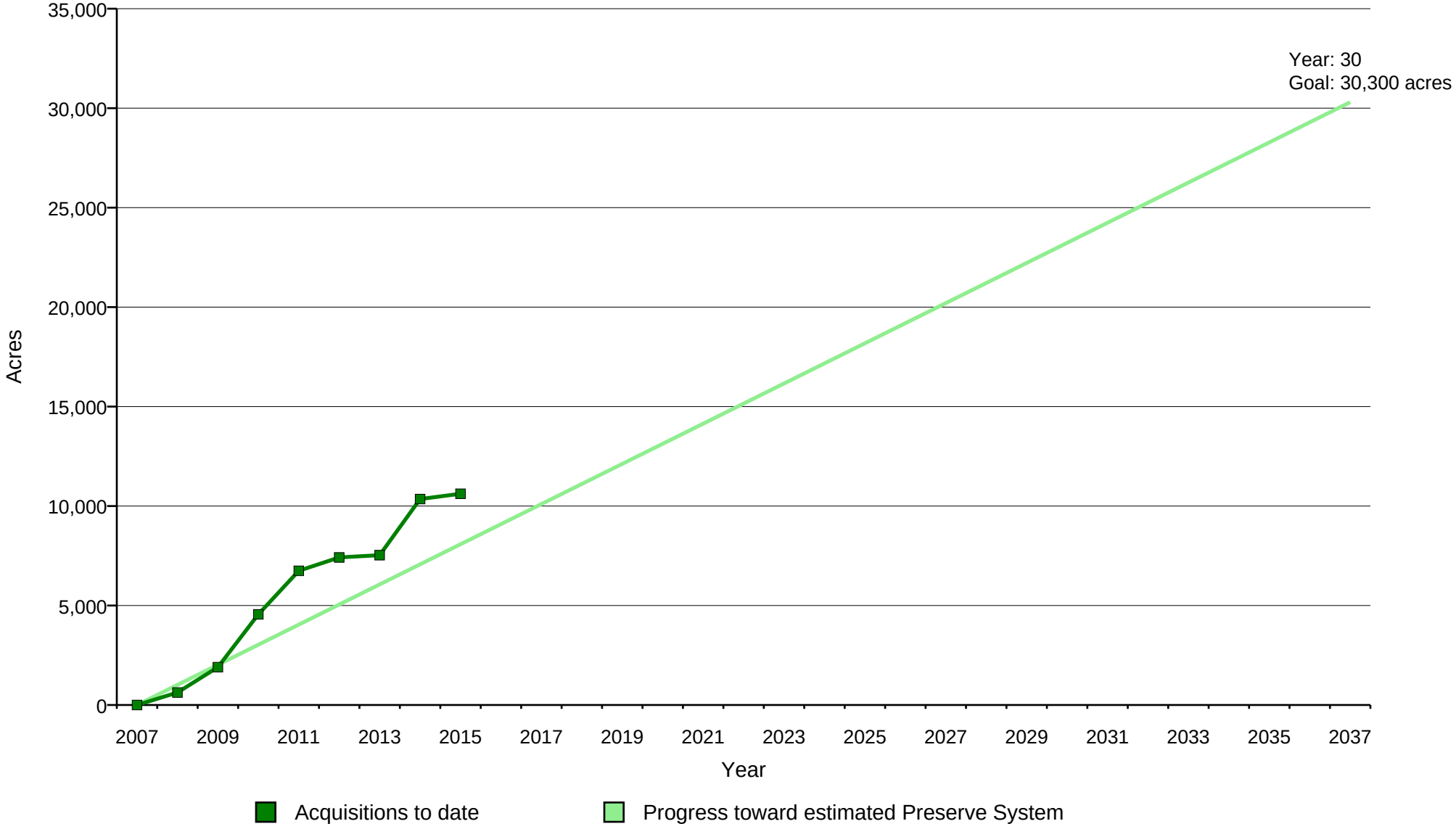


Figure ES-4. Progress Toward Assembling the Preserve System

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

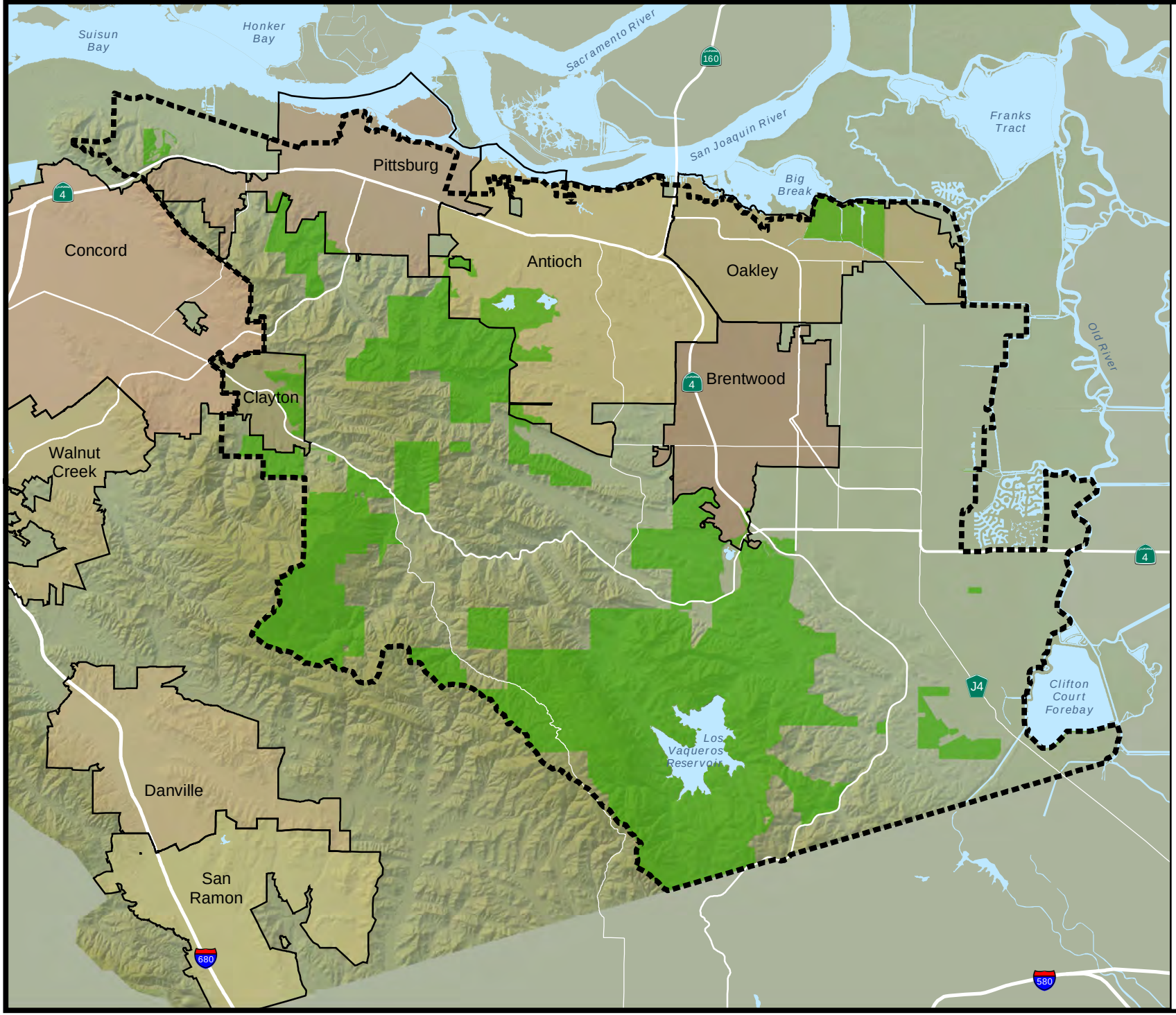
East Contra Costa County HCP/NCCP Background

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 (NCCPA) 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.

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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Miles

2 1 0 2

03/17/2015

The Preserve System will 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 performed 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 primary 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 will 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 IA, and the take permits.
- Disclosing and documenting issues with Plan implementation that require consultation and resolution with CDFW, USFWS, and/or the Permittees.
- 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 primarily focused on implementation actions taken during the reporting period of January 1, 2015, through December 31, 2015. However, this Annual 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, 2015. 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 conservation measure implemented is identified, and a summary of natural community protection 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 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 Plan preserves and discusses the management issues facing the Conservancy at each preserve unit. Habitat enhancement measures implemented are 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 all revenues received by type (e.g., development fees, wetland fees, grants) 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; utility construction and maintenance; and neighboring landowner activities that occur within the Preserve System.

Covered Activities Receiving Take Coverage

A total of 17 projects received take coverage under the Plan during the reporting period (Table 1 and Figures 3a and 3b). Covered activities include the following:

- 10 Urban Development Area Projects
- 3 Rural Operations and Maintenance Project
- 2 Restoration Projects
- 2 Preserve System Activities

All covered activities mitigated impacts through the payment of HCP/NCCP fees. In 2015, mitigation fees, contribution to recovery charges, and administrative fees related to covered projects totaled $1,419,878. See Section IX for more details.

Conditions on Covered Activities

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

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

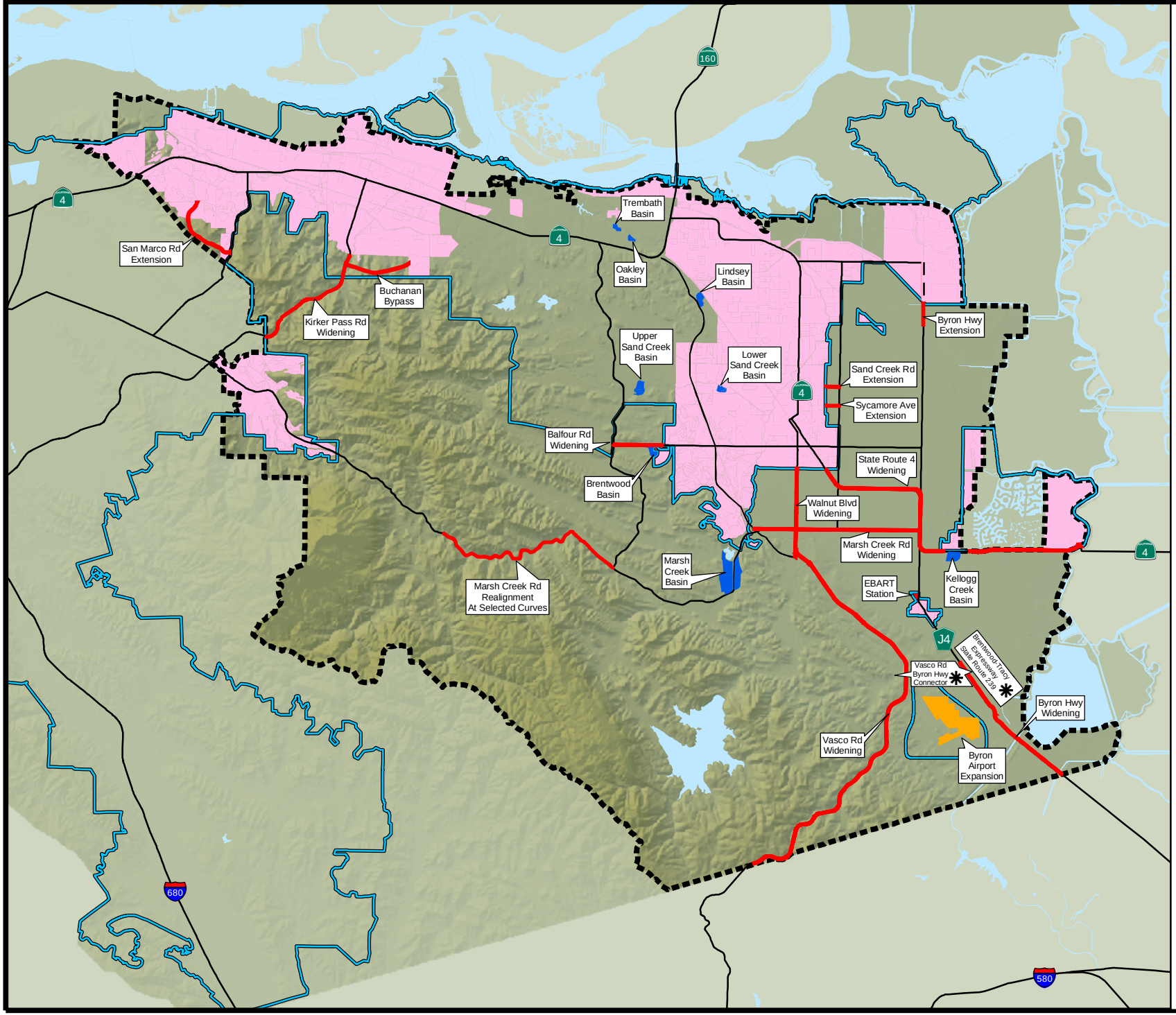
Specific project circumstances determine which conditions apply to each project. For example, Condition 1.12 *Implement Best Management Practices for Rural Road Maintenance* only applies to rural road maintenance projects. Compliance with the conditions on covered activities is an important part of the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

As shown in Tables 2 and 3, landscape, natural community, and species level conditions were applied to all 17 covered activities implemented during the 2015 reporting period.

Impacts on Land Cover Types and Covered Plants

Covered activity impacts were 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 102.04 acres of permanent and 9.27 acres of temporary impacts (Table 4). Both permanent and temporary impacts occurred on streams—40 linear feet of permanent impacts and 28 linear feet of temporary impacts. No covered plants were removed by covered projects (Table 5). Impacts on aquatic land cover types during the reporting period occurred in two watersheds—East County Delta and Lower Marsh Creek (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.

N

Miles

2 1 0 2

05/04/2010

Figure 3a. Location and Impact Acreage for Projects that Received Coverage in 2015

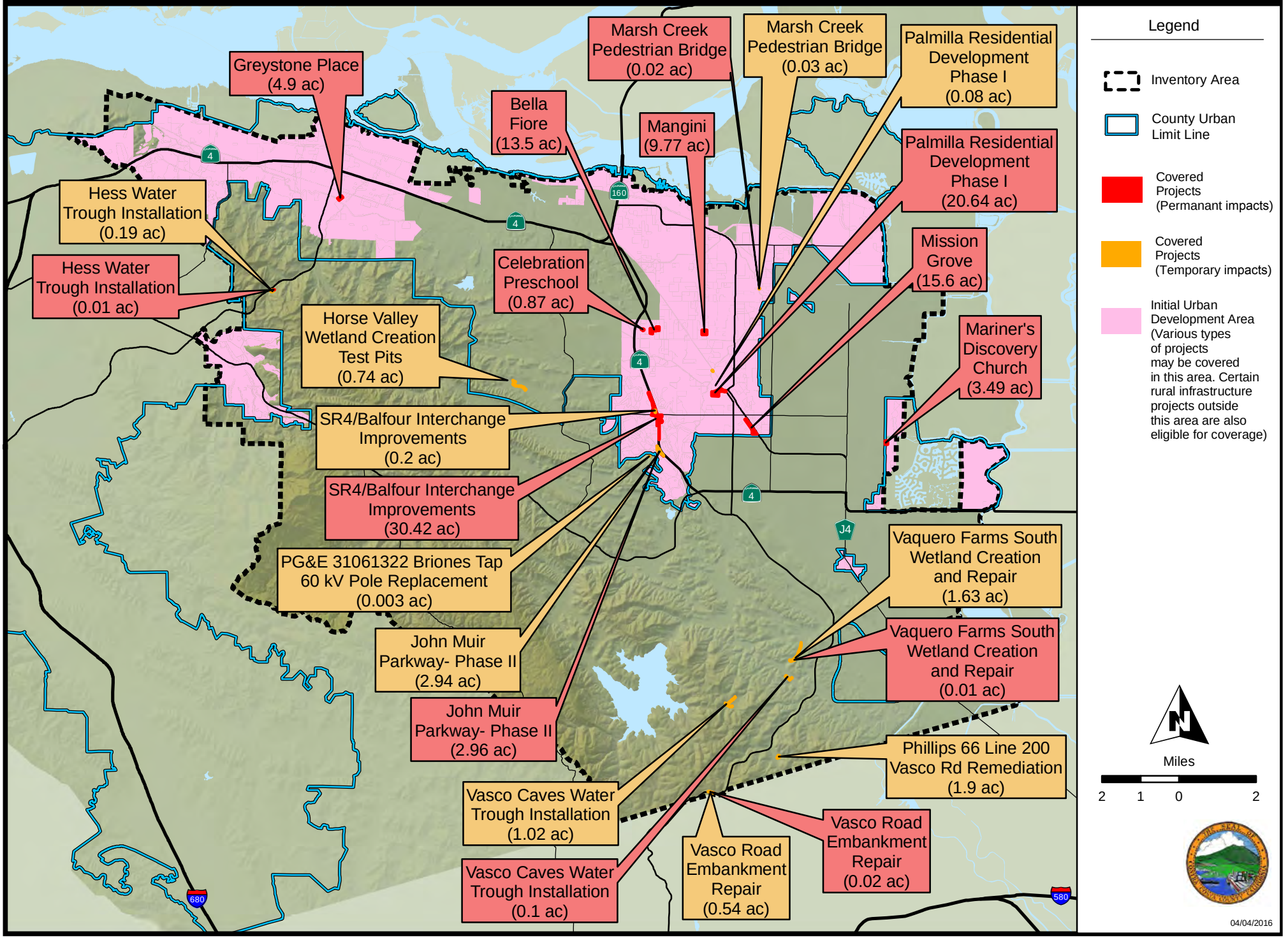
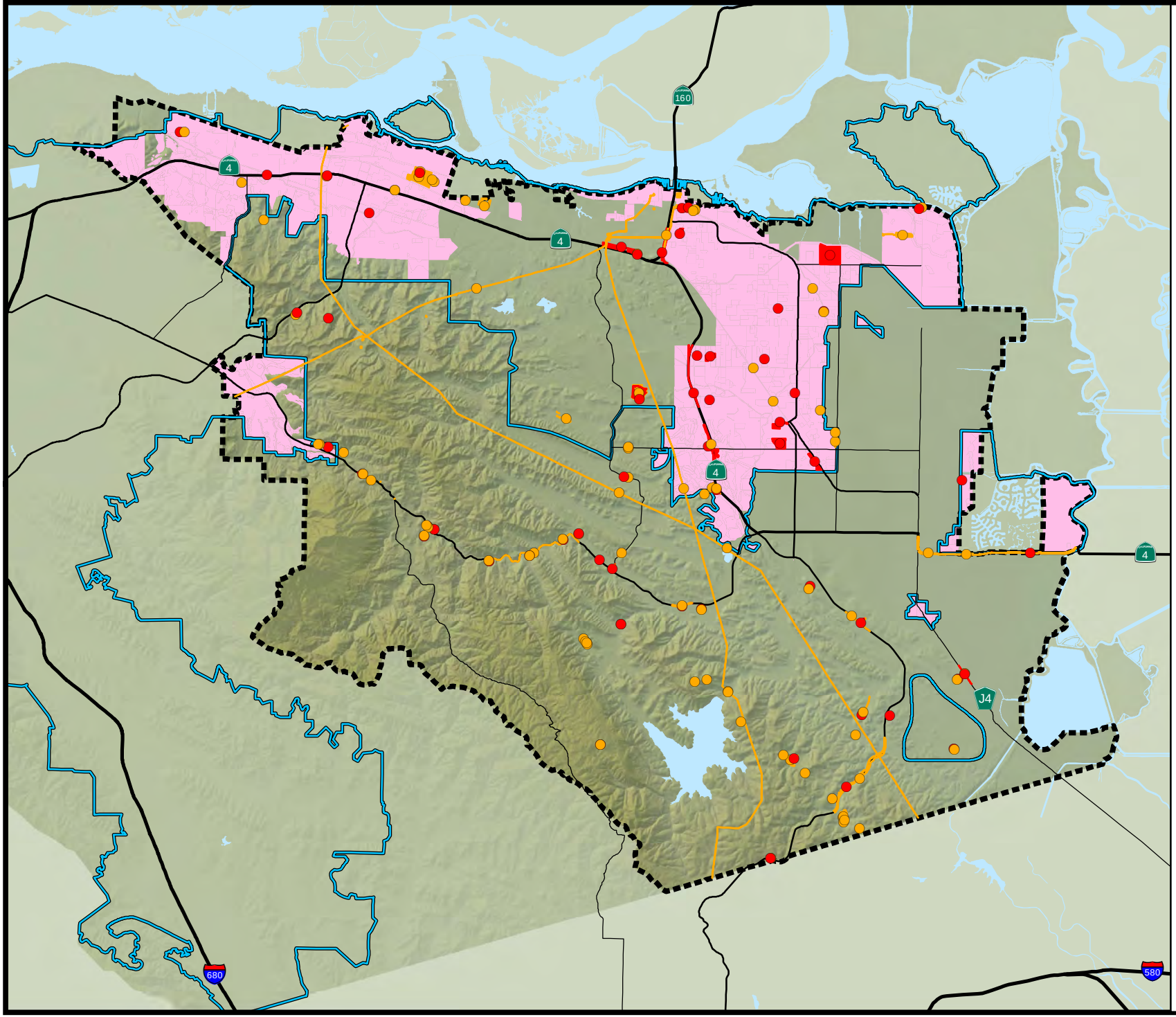


Figure 3b. Location of Covered Projects to-date (2008-2015)



Legend

Inventory Area

County Urban Limit Line

Covered Projects

Symbol	Impact Type
	Permanent
	Temporary

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

N

Miles

2 1 0 2

04/04/2016

Table 1. Reporting Summary of Covered Activities for 2015

Project Name	Activity Type	Covered By	Location	Description
Activities within the HCP/NCCP Preserve System				
Horse Valley Wetland Creation Test Pits	Restoration Project	ECCC Habitat Conservancy	Roddy Ranch Property	Eight test pits were excavated in Horse Valley on the Roddy Ranch Preserve for the purpose of collecting hydrologic data for future potential wetland restoration projects. Each test pit measures approximately 30 feet by 15 feet and will be 10 to 15 inches in depth. An area surrounding the test pits included space for stockpiling of excavated soil and equipment work area and access. Initial construction began in October 2015 and the pits will remain open for approximately 6 months.
Vaquero Farms South Wetland Creation and Repair	Restoration Project	ECCC Habitat Conservancy	Vaquero Farms South	The Conservancy created a 0.15 acre wetland suitable for vernal pool branchiopods within the Vaquero Farms South parcel. The site is immediately between two other wetlands on site. It is downstream of one historic seasonal wetland that is occupied with vernal pool branchiopod species and it is upstream of a wetland that was created in 2013 which does not contain vernal pool branchiopods. The project included the repair of an eroded area immediately adjacent to the wetland created in 2013.
Vasco Caves Trough Installation	Other	ECCC Habitat Conservancy	Souza 1 and Vaquero Farms South properties	A grazing tenant installed a pipeline and other associated infrastructure to distribute water for livestock on the Souza 1 and Vaquero Farms South properties. The pipeline was installed in Swanson Field on the Vaquero Farms South property. In Oil Well Field, the following were installed: two 450 gallon troughs, approximately 1,200 feet of pipeline above ground, approximately 1,200 feet of pipeline below ground, tying pipeline into an existing water pump and new trough. In Swanson Field the following was installed: approximately 400 feet of pipeline above ground, approximately 1,00 feet of pipeline below ground, one 450 gallon water trough, one 10,000 gallon water tank, one 200 foot deep water well, and one solar pump.
Hess Water Trough Installation	Other	ECCC Habitat Conservancy	Land Waste Management Property	The Conservancy installed approximately 600 feet of water pipeline and a water trough on the Land Waste Management Property near the Hess Creek Restoration Project site. The pipeline ties into an existing water pipeline that is connected to an existing water tank. This project provides a water source for cattle to allow for more appropriate grazing management of the property.

Project Name	Activity Type	Covered By	Location	Description
Activities within Urban Development Area				
Palmilla - Phase I (south of Central Blvd)	Residential	City of Brentwood	East and adjacent to Marsh Creek, north of Dainty Avenue, southwest of railroad tracks, east of Griffith Lane in the City of Brentwood	The project is located on both sides of Central Boulevard in the City of Brentwood and is a 59-acre residential development project. The project will result in a total of 296 homes and includes the repair and replacement of an existing storm drain outfall into Marsh Creek
State Route 4/Balfour Road Interchange Improvements	Transportation	ECCC Habitat Conservancy	Intersection of SR4 and Balfour Road in the City of Brentwood	The project widens SR4 from San Jose Avenue to approximately 3,400 feet south of Balfour Road and the construction of a full interchange at grade of the existing intersection of SR4 and Balfour Road.
Mariner's Discovery Church	Residential	Contra Costa County	1619 Bixler Road, Discovery Bay, CA	The Mariner's Discovery Church residential development project was constructed in two phases. In Phase I, the applicant remodeled and expanded the existing 6,608 sq. ft. corrugated metal barn onsite for use as a church. In Phase 2, the applicant constructed an additional 6,642 sq. ft. building that attaches to the barn on the northern side which expanded the church. Project development also included the removal of uninhabited trailers on the project site and demolition of four of the five existing houses in order to add additional parking and landscaping.
Greystone Place	Residential	City of Pittsburg	Southwest side of Harbor Street, near Atlantic Avenue in the City of Pittsburg	The Greystone Place residential development project subdivides the 4.9-acre site into 38 residential lots, each with a new home and ancillary services.
John Muir Parkway - Phase II	Transportation	City of Brentwood	From John Muir Parkway at Briones Valley Road to approximately 1,600 feet to the northeast in the City of Brentwood	The City of Brentwood realigned Concord Avenue east of its existing location, extending from John Muir Parkway at Briones Valley Road to the existing Concord Avenue at a site approximately 1,600 feet northeast of the intersection of Briones Valley Road and John Muir Parkway. The project provides two 12-foot travel lanes, a center landscaped median, shoulder/bike lanes, curb, gutter, and sidewalk on the west side, streetlights, two ditches, and water lines in the ROW.

Project Name	Activity Type	Covered By	Location	Description
Mangini	Residential	City of Brentwood	South of O'Hara Lane and terminus of Bond Lane in the City of Brentwood	The Mangini residential development project subdivides the 9.77-acre site into 36 single-family residential parcels, two stormwater treatment parcels, and related improvements.
Celebration Preschool	Residential	City of Brentwood	2550 Jeffery Way, Brentwood, CA	The Celebration Preschool project involved the construction of an administration and classroom building just north of the existing church and a future classroom building to the northeast of the church. Part of the construction will occur in areas that are already urbanized, including the northeast part of the church parking lot and some landscaped and play areas just north of the church. Play areas will be constructed adjacent to the buildings. An existing gravel fire road along the south side of the church building will be extended along the east side of the church building.
Mission Grove - Phase II	Residential	City of Brentwood	South end of Armstrong Way, just south of Balfour Road in the City of Brentwood	The Mission Grove residential development project subdivides the parcel into 132 residential lots, each with a new home and ancillary services. A park will also be developed in the southwest tip of the site and will be dedicated to the City of Brentwood.
Bella Fiore	Residential	City of Brentwood	North of Amber Lane between Shady Willow Lane and Empire Ave in the City of Brentwood	The Bella Fiore residential development project subdivided the parcel into 98 residential lots, each with a new home and ancillary services; a 4.01 +/-acre remainder parcel has an existing home and will not be disturbed by the proposed project.
Marsh Creek Pedestrian Bridge	Residential	City of Oakley	401 Hill Avenue, Oakley, CA	The City of Oakley Public Works Department is funding the Capital Improvement Project for a pedestrian bridge crossing Marsh Creek east of the Marsh Creek Glen Park at Hill Avenue.

Project Name	Activity Type	Covered By	Location	Description
Rural Operations and Maintenance				
PG&E 31061322 Briones Tap 60 kV Pole Replacement	Utility	ECCC Habitat Conservancy	Located in John Marsh Home/Cowell Ranch State Historic Park within Briones Valley Road ROW	The project consisted of replacing one wooden electric transmission pole (pole # 001/020) on the Briones Tap 60KV line.
Vasco Road Embankment Repair	Transportation	Contra Costa County-Public Works	Vasco Road, Byron, CA	The project replaced two sections of a concrete ditch that had been undermined and broken. The concrete was excavated and the eroded areas filled. The ditch was rebuilt and riprap was placed at the west end location to restore the drainage pattern away from a nearby stock pond, and back toward a perennial tributary of Brushy Creek. This required one staging area in a graveled pull out, and a temporary access area for equipment.
Phillips 66 Line 200 Vasco Road Remediation	Utility	ECCC Habitat Conservancy	Project site is located off Vasco Road in Byron	Phillips 66 drilled 12 boring sample locations and 4 monitoring well locations to test soil and ground water contamination from an August 27, 2011 Line 200 crude oil pipeline leak in the area of Vasco Road.

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
Horse Valley Wetland Creation Test Pits		✓						✓			
Vaquero Farms South Wetland Creation and Repair		✓						✓			
Vasco Caves Trough Installation		✓						✓			
Hess Water Trough Installation								✓			
Palmilla - Phase I (south of Central Blvd)		✓		✓			✓	✓			
State Route 4/Balfour Road Interchange Improvements		✓					✓	✓			
Mariner's Discovery Church							✓	✓			
Greystone Place							✓	✓			
John Muir Parkway - Phase II							✓	✓			
Mangini							✓	✓			
Celebration Preschool							✓	✓			
Mission Grove - Phase II							✓	✓			
Bella Fiore							✓	✓			
Marsh Creek Pedestrian Bridge		✓		✓			✓	✓			
PG&E 31061322 Briones Tap 60 kV Pole Replacement							✓	✓			
Vasco Road Embankment Repair		✓						✓	✓		
Phillips 66 Line 200 Vasco Road Remediation		✓						✓			

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				CA Tiger Salamander		CA Red-Legged Frog		Covered Shrimp			
Project Name	Planning Surveys	Preconstruction Surveys	AMM	Construction Monitoring	Planning Surveys	Preconstruction Surveys	AMM	Construction Monitoring	Planning Surveys	Preconstruction Surveys	AMM	Construction Monitoring	Planning Surveys	Preconstruction Surveys	AMM	Construction Monitoring	Planning Surveys	Preconstruction Surveys	AMM	Construction Monitoring	Planning Surveys	Preconstruction Surveys	AMM	Construction Monitoring	Planning Surveys	Minimization	Planning Surveys	Minimization	Planning Surveys	Preconstruction Surveys	AMM	Construction Monitoring
Horse Valley Wetland Creation Test Pits					X	X	X	X	X	X	X	X	X	X	X	X																
Vaquero Farms South Wetland Creation and Repair					X	X	X	X	X	X	X	X	X	X	X	X																
Vasco Caves Trough Installation					X	X	X		X	X	X			X	X																	
Hess Water Trough Installation					X	X	X		X	X	X			X	X																	
Palmilla - Phase I (south of Central Blvd)													X	X	X	X	X	X	X	X												
State Route 4/Balfour Road Interchange Improvements					X	X	X		X	X	X			X	X										X	X	X	X				
Mariner's Discovery Church	X	X			X	X								X			X	X														
Greystone Place					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
John Muir Parkway - Phase II					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Mangini														X	X		X	X	X													
Celebration Preschool									X	X	X				X				X													
Mission Grove - Phase II					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Bella Fiore					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Marsh Creek Pedestrian Bridge									X	X	X			X	X		X	X	X													
PG&E 31061322 Briones Tap 60 kV Pole Replacement					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
Vasco Road Embankment Repair					X	X	X		X	X				X	X		X	X							X	X						
Phillips 66 Line 200 Vasco Road Remediation					X	X								X											X	X						

[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.

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

	Species-Level Measures[1]												
Project Name	**Alkali milkvetch**	**Big Tarplant**	**Brewers dwarf flax**	**Contra Costa goldfields**	**Diamond-petaled poppy**	**Large-flowered fiddleneck**	**Mount Diablo buckwheat**	**Mount Diablo fairy-lantern**	**Round-leaved filaree**	**Showy madia**	**Adobe navarretia**	**Brittlescale**	**San Joaquin Spearscale**
	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys
Horse Valley Wetland Creation Test Pits	X	X	X	X	X	X	X	X	X				
Vaquero Farms South Wetland Creation and Repair	X	X	X	X	X	X	X	X	X		X	X	
Vasco Caves Trough Installation	X	X	X	X	X	X	X	X	X		X	X	
Hess Water Trough Installation	X	X	X	X	X	X	X	X	X				
Palmilla - Phase I (south of Central Blvd)													
State Route 4/Balfour Road Interchange Improvements	X	X	X	X	X	X	X	X	X			X	
Mariner's Discovery Church													
Greystone Place													
John Muir Parkway - Phase II													
Mangini	X	X	X	X	X	X	X	X	X				
Celebration Preschool													
Mission Grove - Phase II													
Bella Fiore													
Marsh Creek Pedestrian Bridge													
PG&E 31061322 Briones Tap 60 kV Pole Replacement													
Vasco Road Embankment Repair	X	X	X	X	X	X	X	X	X				
Phillips 66 Line 200 Vasco Road Remediation	X	X	X	X	X	X	X	X	X				

[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.

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

	Species-Level Measures[1]			
	Diablo Helianthella	Caper fruited tropidocarpum	Mount Diablo Manzanita	Recurved larkspur
Project Name	Planning Surveys	Planning Surveys	Planning Surveys	Planning Surveys
Horse Valley Wetland Creation Test Pits		X		
Vaquero Farms South Wetland Creation and Repair	X	X	X	
Vasco Caves Trough Installation	X	X	X	
Hess Water Trough Installation		X		
Palmilla - Phase I (south of Central Blvd)				
State Route 4/Balfour Road Interchange Improvements		X		
Mariner's Discovery Church				
Greystone Place				
John Muir Parkway - Phase II				
Mangini		X		
Celebration Preschool				
Mission Grove - Phase II				
Bella Fiore				
Marsh Creek Pedestrian Bridge				
PG&E 31061322 Briones Tap 60 kV Pole Replacement				
Vasco Road Embankment Repair		X		
Phillips 66 Line 200 Vasco Road Remediation		X		

[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.

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

	Reporting Period		Cumulative[3]	
	Impacts (acres, unless otherwise noted)		Impacts (acres, unless otherwise noted)	
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Terrestrial				
Annual grassland	9.90	4.40	94.84	115.29
Alkali grassland	0.01	0.05	2.14	1.59
Ruderal	91.91	4.57	208.84	247.01
Chaparral and scrub	0.00	0.00	0.04	0.00
Oak savanna	0.00	0.00	0.00	0.69
Oak woodland	0.00	0.00	0.25	0.05
Subtotal terrestrial	*101.82*	*9.02*	*306.11*	*364.63*
Aquatic				
Riparian woodland/scrub	0.22	0.25	0.77	1.60
Perennial wetland[1]	0.00	0.00	0.07	0.59
Seasonal wetland	0.00	0.00	0.38	2.22
Alkali wetland	0.00	0.00	0.14	0.84
Pond	0.00	0.00	0.01	0.04
Reservoir (open water)[2]	0.00	0.00	0.00	0.20
Slough/Channel (includes stream)	0.00	0.00	0.07	0.14
Subtotal aquatic	*0.22*	*0.25*	*1.43*	*5.63*
Stream (length in linear feet)				
Total stream length	40.00	28.00	828.31	4,482.70
Stream length by width category				
≤ 25 feet wide	0.00	0.00	582.00	4,074.50
> 25 feet wide	40.00	28.00	246.31	408.20
Stream length by type and order				
Perennial	40.00	28.00	96.31	454.20
Intermittent	0.00	0.00	479.00	3,917.50
Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
Ephemeral, 1st or 2nd order	0.00	0.00	253.00	111.00
Subtotal stream length	*40.00*	*28.00*	*828.31*	*4,482.70*
Irrigated agriculture				
Cropland	0.00	0.00	128.09	32.30
Pasture	0.00	0.00	0.00	1.36
Orchard	0.00	0.00	1.73	0.00
Vineyard	0.00	0.00	23.08	5.88
Subtotal irrigated agricultural	*0.00*	*0.00*	*152.90*	*39.54*
Other				
Nonnative woodland	0.00	0.00	0.20	1.81
Wind turbines	0.00	0.00	0.00	0.57
Subtotal other	*0.00*	*0.00*	*0.20*	*2.38*

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

	Reporting Period		Cumulative[3]	
	Impacts (acres, unless otherwise noted)		Impacts (acres, unless otherwise noted)	
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Uncommon Vegetation Types (subtypes of above land cover types)				
Purple needlegrass grassland	0.00	0.00	0.00	0.19
Wildrye grassland	0.00	0.01	0.03	0.02
Wildflower fields	0.00	0.00	0.00	0.00
Squirreltail grassland	0.00	0.00	0.00	0.00
One-sided bluegrass grassland	0.00	0.00	0.00	0.00
Serpentine grassland	0.00	0.00	0.00	0.00
Saltgrass grassland (alkali grassland)	0.01	0.05	0.21	0.39
Alkali sacaton bunchgrass grassland	0.00	0.00	0.00	0.00
Other uncommon vegetation types	0.00	0.00	0.06	0.00
Subtotal uncommon vegetation types	*0.01*	*0.06*	*0.30*	*0.60*
Uncommon Landscape Features or Habitat Elements				
Rock outcrop	0.00	0.00	0.15	0.13
Cave	0.00	0.00	0.00	0.00
Springs/seeps	0.00	0.00	0.00	0.00
Scalds	0.00	0.00	0.00	0.00
Sand deposits	0.00	0.00	0.00	0.00
Turf	5.33	0.00	5.33	0.49
Buildings - Bat Roosts (number)	0.00	0.00	0.00	0.04
Mines (number)	0.00	0.00	0.00	0.00
Buildings (number)	0.00	0.00	0.00	0.00
Potential nest sites (number)	0.00	0.00	0.00	0.00
Subtotal uncommon landscape features (acres)	5.33	0.00	5.48	0.62
Subtotal uncommon landscape features (number)	*0.00*	*0.00*	*0.00*	*1.00*
Totals (excludes subtypes)				
Acres	102.0	9.3	460.6	412.2
Linear feet	40.0	28.0	828.3	4,482.7

[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 to 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 to the Souza II property and impacts were 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 to Aquatic and Stream Land Cover Types by Watershed: Reporting Period and Cumulative

		Impacts			
		Reporting Period		Cumulative[1]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Brushy	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.01	0.12
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.01	0.60
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.01*	*0.72*
	Stream (linear feet)				
	Total stream length	0.00	0.00	132.00	348.50
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	110.00	230.50
	> 25 feet wide	0.00	0.00	22.00	118.00
	Stream length by type and order				
	Perennial	0.00	0.00	56.00	282.50
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	76.00	66.00
	Subtotal stream length	*0.00*	*0.00*	*132.00*	*348.50*
Clifton Court Forebay	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	47.00	112.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	112.00
	> 25 feet wide	0.00	0.00	47.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	47.00	112.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*47.00*	*112.00*

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

		Impacts			
		Reporting Period		Cumulative[1]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Deer	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	12.00	43.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	15.00
	> 25 feet wide	0.00	0.00	12.00	28.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	12.00	43.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*12.00*	*43.00*
East County Delta	**Aquatic (acres)**				
	Riparian woodland/scrub	0.22	0.20	0.22	0.20
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.20
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.22*	*0.20*	*0.22*	*0.40*
	Stream (linear feet)				
	Total stream length	0.00	0.00	0.00	0.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	0.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	0.00	0.00	0.00	0.00

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

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

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

		Impacts			
		Reporting Period		Cumulative[1]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Lower Marsh	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.04
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.13	0.24
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.13*	*0.28*
	Stream (linear feet)				
	Total stream length	40.00	28.00	40.31	66.70
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	0.00
	> 25 feet wide	40.00	28.00	40.31	66.70
	Stream length by type and order				
	Perennial	40.00	28.00	40.31	66.70
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*40.00*	*28.00*	*40.31*	*66.70*
Lower Mt. Diablo	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	148.00	0.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	148.00	0.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	0.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	148.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*148.00*	*0.00*

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

		Impacts			
		Reporting Period		Cumulative[1]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Sand	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.30	0.73
	Perennial wetland[1]	0.00	0.00	0.04	0.47
	Seasonal wetland	0.00	0.00	0.02	2.18
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.36*	*3.38*
	Stream (linear feet)				
	Total stream length	0.00	0.00	295.00	3,639.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	295.00	3,639.00
	> 25 feet wide	0.00	0.00	0.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	295.00	3,639.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*295.00*	*3,639.00*
Upper Marsh	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.15	0.25
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.06	0.03
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.01	0.04
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.22*	*0.32*
	Stream (linear feet)				
	Total stream length	0.00	0.00	89.00	219.50
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	29.00	57.00
	> 25 feet wide	0.00	0.00	60.00	162.50
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	105.00
	Intermittent	0.00	0.00	60.00	90.50
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	29.00	24.00
	Subtotal stream length	*0.00*	*0.00*	*89.00*	*219.50*

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

		Impacts			
		Reporting Period		Cumulative[1]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Upper Mt. Diablo	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.00	0.00
	Perennial wetland[1]	0.00	0.00	0.00	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
	Stream (linear feet)				
	Total stream length	0.00	0.00	23.00	21.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	21.00
	> 25 feet wide	0.00	0.00	23.00	0.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	23.00	0.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	21.00
	Subtotal stream length	*0.00*	*0.00*	*23.00*	*21.00*
Willow	**Aquatic (acres)**				
	Riparian woodland/scrub	0.00	0.00	0.04	0.01
	Perennial wetland[1]	0.00	0.00	0.02	0.00
	Seasonal wetland	0.00	0.00	0.00	0.00
	Alkali wetland	0.00	0.00	0.00	0.00
	Pond	0.00	0.00	0.00	0.00
	Reservoir (open water)[2]	0.00	0.00	0.00	0.00
	Slough/Channel[3] (includes stream)	0.00	0.00	0.00	0.00
	Subtotal aquatic	*0.00*	*0.00*	*0.06*	*0.01*
	Stream (linear feet)				
	Total stream length	0.00	0.00	36.00	33.00
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	0.00	0.00
	> 25 feet wide	0.00	0.00	36.00	33.00
	Stream length by type and order				
	Perennial	0.00	0.00	0.00	0.00
	Intermittent	0.00	0.00	36.00	33.00
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	0.00	0.00
	Subtotal stream length	*0.00*	*0.00*	*36.00*	*33.00*

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

		Impacts			
		Reporting Period		Cumulative[1]	
Watershed/ Basin	Land Cover Type	Permanent	Temporary	Permanent	Temporary
Total	**Aquatic (acres)**				
	Riparian woodland/scrub	0.22	0.25	0.77	1.59
	Perennial wetland[1]	0.00	0.00	0.07	0.59
	Seasonal wetland	0.00	0.00	0.38	2.22
	Alkali wetland	0.00	0.00	0.14	0.84
	Pond	0.00	0.00	0.01	0.04
	Reservoir (open water)[2]	0.00	0.00	0.00	0.20
	Slough/Channel[3] (includes stream)	0.00	0.00	0.07	0.14
	Total aquatic	***0.22***	***0.25***	***1.43***	***5.62***
	Stream (linear feet)				
	Total stream length	40.00	28.00	828.31	4,482.70
	Stream length by width category				
	≤ 25 feet wide	0.00	0.00	582.00	4,074.50
	> 25 feet wide	40.00	28.00	246.31	408.20
	Stream length by type and order				
	Perennial	40.00	28.00	96.31	454.20
	Intermittent	0.00	0.00	479.00	3,917.50
	Ephemeral, 3rd or higher order	0.00	0.00	0.00	0.00
	Ephemeral, 1st or 2nd order	0.00	0.00	253.00	111.00
	Total stream length	***40.00***	***28.00***	***828.31***	***4,482.70***

[1] 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 areas in Zones 1, 2, and 3.

Figure 4. Acquisition Analysis Zones and Sub-Zones

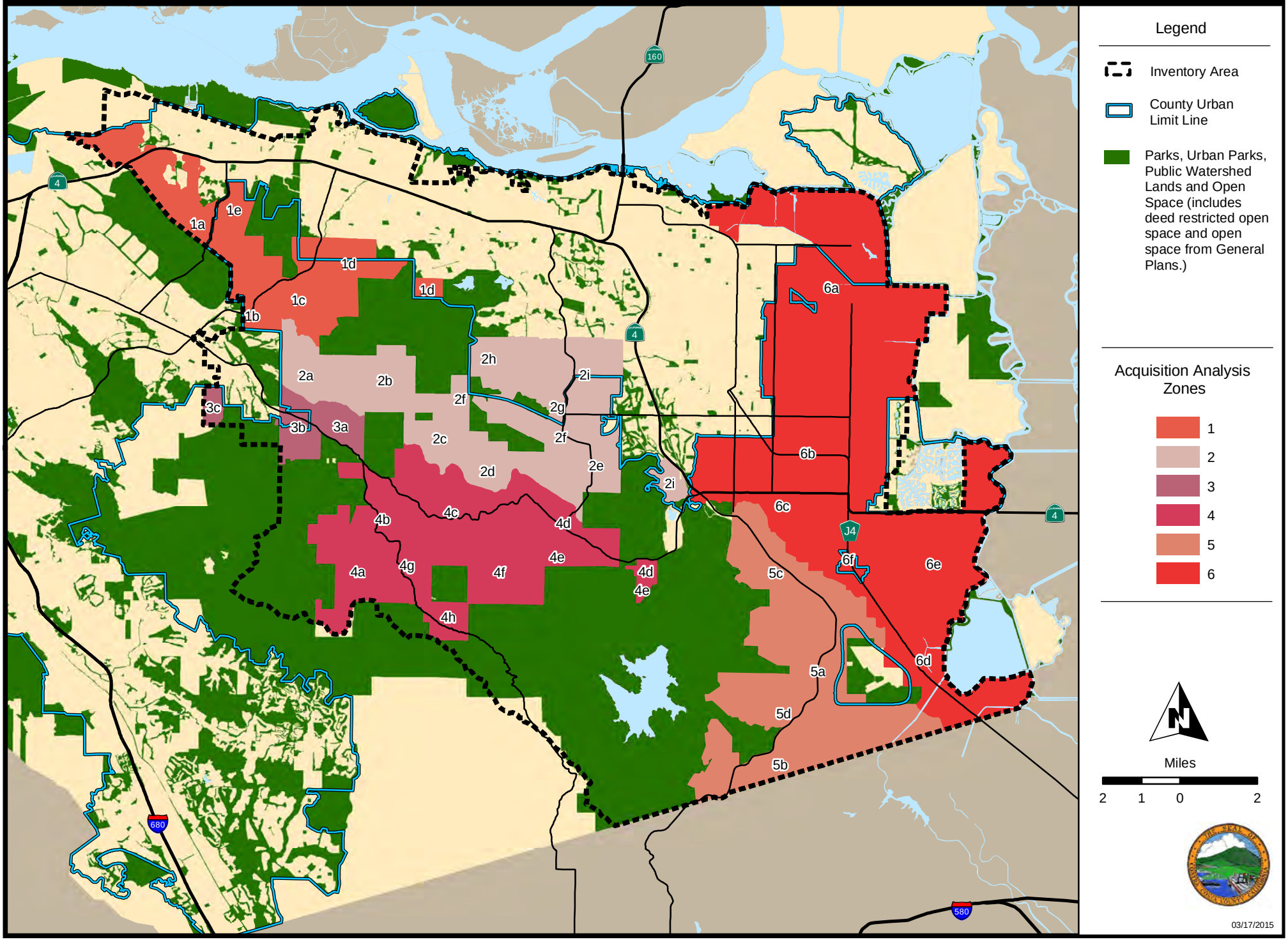


Figure 5. Acquisition Priorities with Initial Urban Development Area

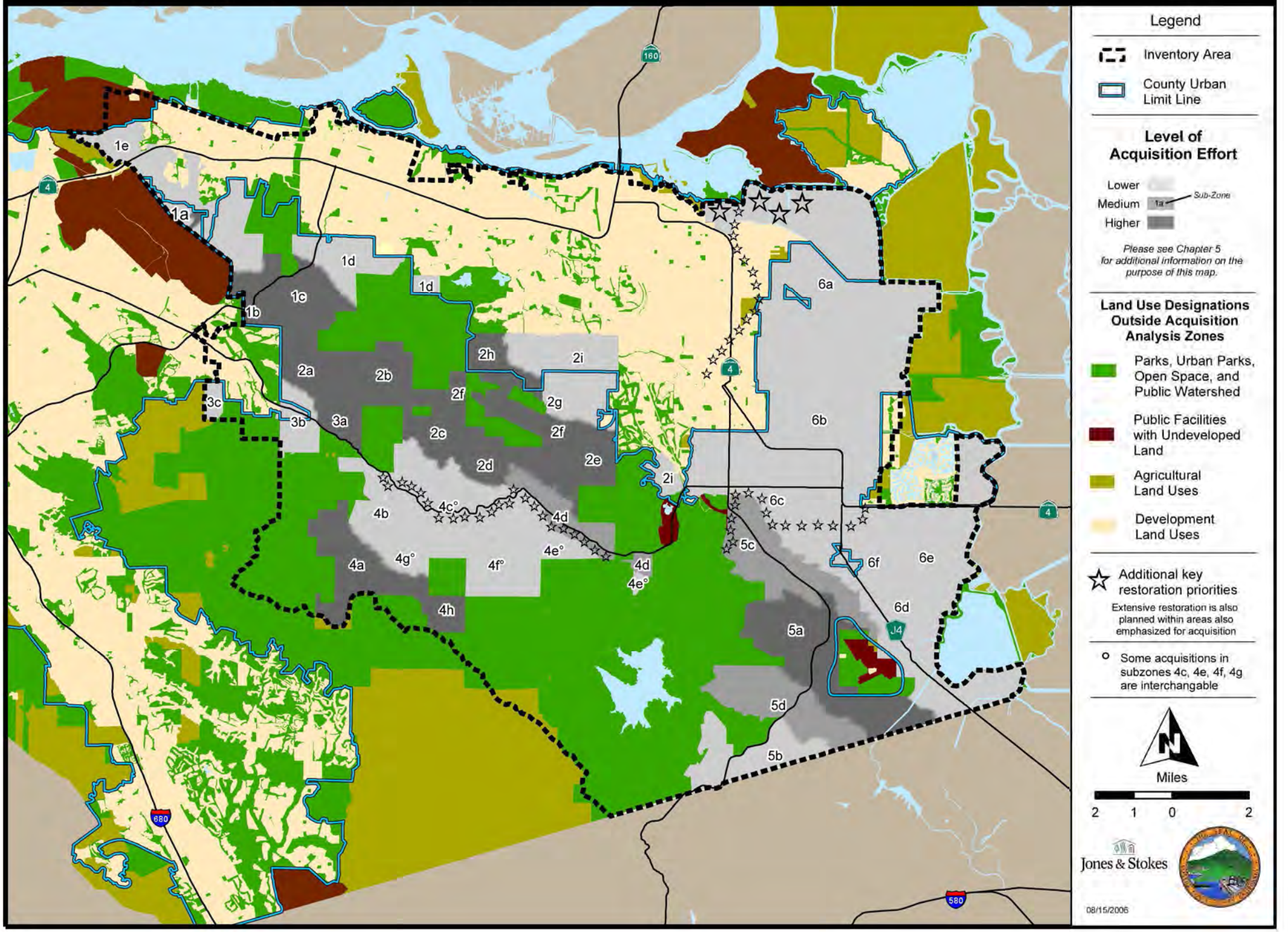
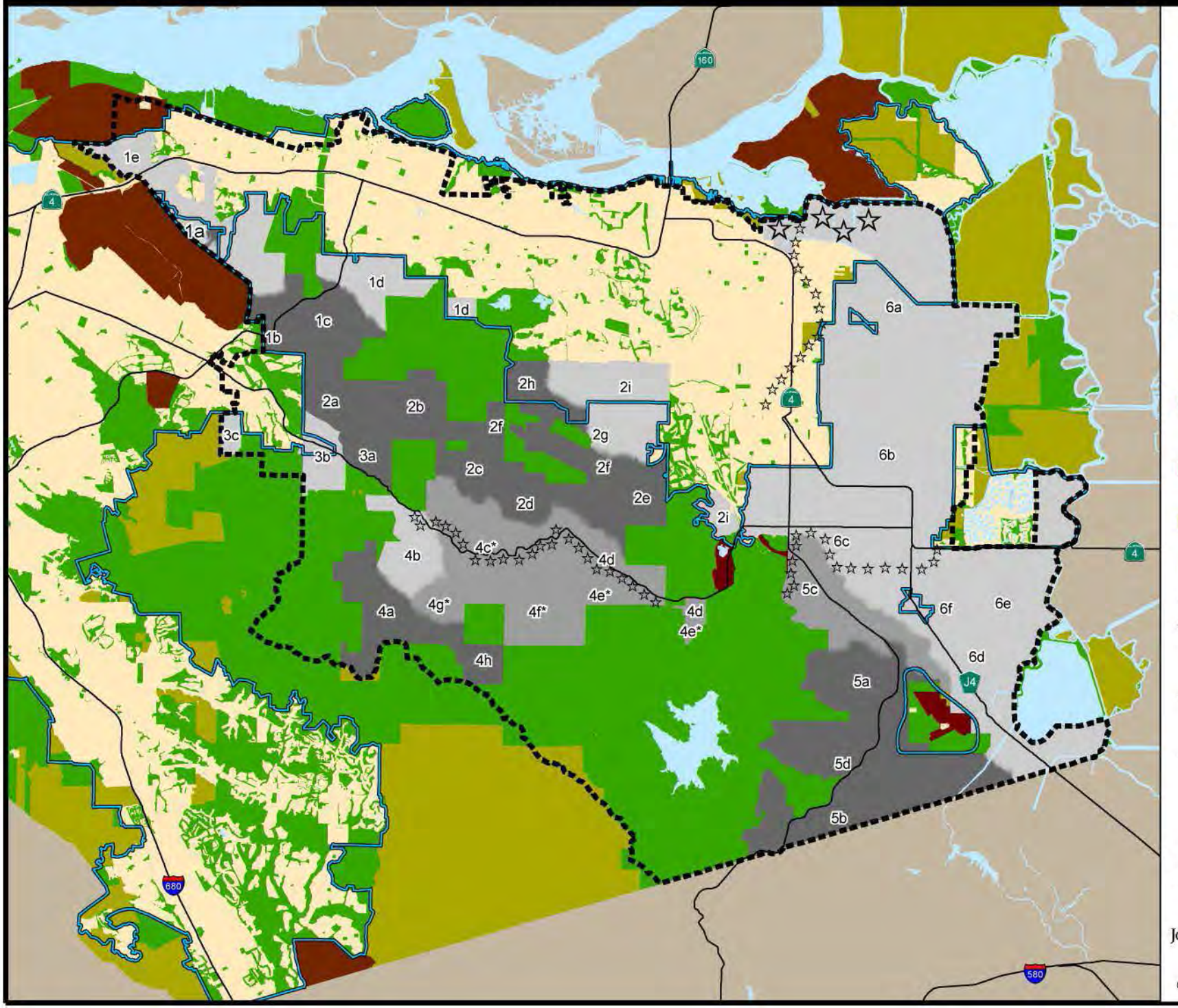


Figure 6 . Acquisition Priorities with Maximum Urban Development Area



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

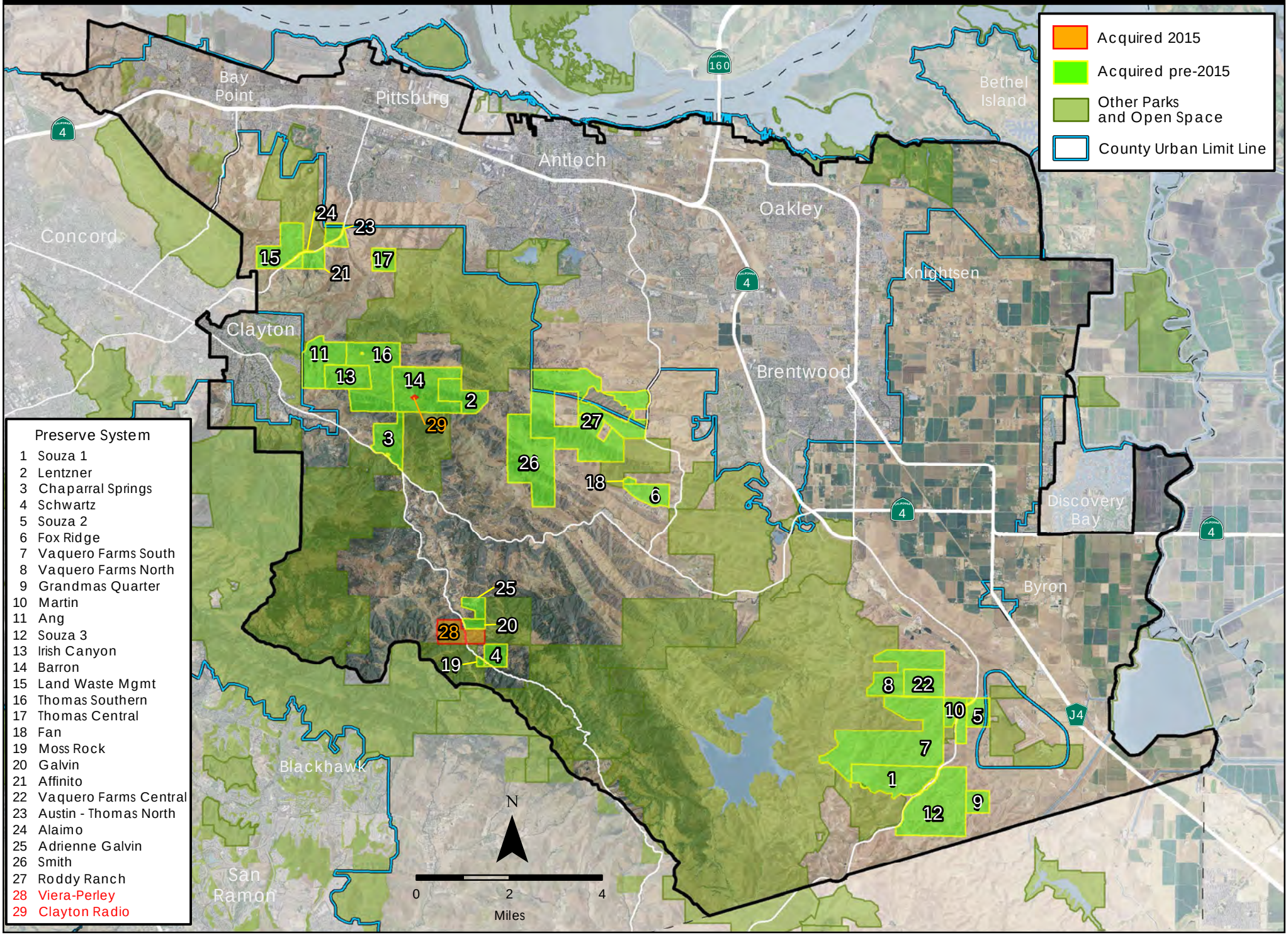
Miles

2 1 0 2

Jones & Stokes

07/14/2006

Figure 7. ECCC HCP/NCCP Preserve System Acquisitions



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 could be required.

2015 Land Acquisition

This section summarizes the progress toward land acquisition requirements during this reporting period. Working with EBRPD, the Conservancy acquired two properties in 2015 for the Preserve System, totaling 266.39 acres: the Viera-Perley (264.37 acres) and Clayton Radio properties (2.02 acres). The two properties are shown in Figure 7, and details of the properties are shown in Figures 8 through 11. Table 7 shows the cumulative summary of acquired properties and their funding Sources.

These two properties represent important contributions to the Stay-Ahead Provision requirements, wildlife corridors, and recreational opportunities in high priority conservation areas—Zones 2 and 4. Stay-Ahead Measurement Method #2, as described in Chapter 8 of the HCP/NCCP, was created to encourage land acquisition in Zone 2 early in Plan implementation because it has a high conservation value and risk for development compared to other Zones—owners tend to sell to real estate speculators or develop the land themselves rather than selling for public open space. Collectively, these two acquisitions contribute to 28% of the Stay-Ahead Measurement Method #2.

The Viera-Perley property provides a link to existing Preserve System lands or other open space. Mount Diablo State Park borders the property to the south and a portion of the Morgan Territory Regional Preserve abuts the south property line in the easternmost area. Three properties located immediately to the north of the eastern portion of the property have recently been acquired by EBRPD for the Preserve System (Adrienne Galvin in 2013, and Galvin and Moss Rock in 2012).

High priority Zone 2 acquisitions are of critical importance because the area supports a variety of high quality habitat for several key species and serves a critical connectivity function for San Joaquin kit fox. The Clayton Radio property adds to the conservation corridor between Black Diamond Mines Regional Preserve, Marsh Creek State Park, Round Valley Regional Preserve, and Los Vaqueros Reservoir watershed lands.

Tables 8a, 8b, and 9 show the land cover types protected by the two acquisitions. Key highlights from the tables are listed below.

- 37 acres of annual grassland were acquired during the reporting period with nearly 7,120 acres protected to date (43% of the annual grassland preservation requirement achieved).
- 202 acres of oak woodland were acquired during the reporting period with 2,426 acres protected to date (606% of the oak woodland preservation requirement achieved).

- 0.2 acres of pond were acquired during the reporting period with nearly 10.9 acres protected to date (68% of the pond preservation requirement achieved).
- 2,022 linear feet of perennial stream were acquired during the reporting period with 12,623 linear feet protected to date (299% of the perennial stream preservation requirement achieved).
- 9,979 linear feet of intermittent stream were acquired during the reporting period with 127,637 linear feet protected to date (6,000% of the intermittent stream requirement achieved).

Table 10 summarizes progress toward preservation requirements of covered plant populations.[3] During the reporting period, the Viera-Perley acquisition was surveyed for covered plants. A single population of Mount Diablo fairy lantern (*Calochortus pulchellus)* was observed on the property. The Viera-Perley property also contains suitable habitat for several covered plant species including big tarplant (*Blepharizonia plumosa*), round-leaved filaree (*Erodium macrophyllum*), Diablo manzanita (*Arctostaphylos auriculata*), and Brewer's dwarf flax (*Hesperolinon breweri*).

To date, 40 known occurrences of covered plant populations have been protected in the Preserve System: one occurrence of each of brittlescale (*Atriplex depressa*) and Mount Diablo manzinita (*Arctostaphylos auriculata*); two occurrences of round-leaved filaree; four occurrences each of Brewer's dwarf flax and Mount Diablo fairy lantern; six occurrences of big tarplant; nine occurrences of San Joaquin spearscale (*Atriplex joaquiniana*); and thirteen occurrences of Diablo helianthella (*Helianthella castanea*). In addition, although not a covered plant, seven occurrences of shining navarretia *(Navarretia nigelliformis subsp. radians*) have also been protected.

The 2015 acquisitions are known to support or have a strong potential to support several covered species, including the following:

- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- California tiger salamander (*Ambystoma californiense*)
- California red-legged frog (*Rana aurora draytonii*)
- Western pond turtle (*Actinemys marmorata*)
- Golden eagle (*Aquila chrysaetos*)
- Foothill yellow-legged frog (*Rana boylii*)
- San Joaquin kit fox (*Vulpus macrotis mutica*)
- Big tarplant (*Blepharizonia plumosa*)
- Mount Diablo fairy lantern (*Calochortus pulchellus*)

[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.

- Diablo manzanita (*Arctostaphylos auriculata*)
- Brewer's dwarf flax (*Hesperolinon breweri*)
- Round-leaved filaree (*Erodium macrophyllum*)

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

- 37% of Subzone 1b/c annual grassland requirements and 42% of 1d total area requirements were met.
- 49% of Subzone 2d and 10% of Subzone 2e requirements to protect 800 acres of annual grassland in each Subzone were met.
- 63% of Subzone 4h requirement to protect 75% of natural land cover types was met.
- 44% of Zone 5 requirement to protect 40 acres of alkali wetland was met.
- 41% of the estimated minimum overall land acquisition requirement and 31% of the estimated maximum requirement were met.

Viera-Perley Property

The Viera-Perley property, which totals approximately 264.37 acres, is located in the southwestern region of the inventory area. The property supports a unique variety of habitat types including annual grassland, oak woodland, oak savanna, urban, pond, and creek. The property is located approximately 6 miles southeast of the Town of Clayton. The property is bisected by Morgan Territory Road and is bordered by Mount Diablo State Park to the south. The property is located adjacent to or in close proximity to several acquisitions for the Preserve System including the Galvin, Moss Rock, Schwartz, and Adrienne Galvin properties. Acquisition of the property provides key support in expanding the landscape linkage along the southwest border of the inventory area.

The property is comprised of two parcels. The larger parcel (approximately 258 acres) is "L"-shaped, and is bisected by Morgan Territory Road in the central portion. An irregularly shaped 2-acre in-holding is located in the southern area of the property about 150 feet to the east of Morgan Territory Road. The property topography is almost entirely moderately to steeply upslope from either side of Morgan Territory Road. Elevations range from a minimum of about 900 feet along the east side of Morgan Territory Road to a maximum of 1,330 feet in the central area of the western half of the property. There are two seasonal creeks in the most southern portion of the property roughly paralleling the south boundary that flow into Marsh Creek at a point just to the east of Morgan Territory Road. Marsh Creek is the most prominent water feature in the area, generally following the alignment of Morgan Territory Road and bisecting the subject property.

The entire property is located in Zone 4 and would be the fourth acquisition in the 4h subzone. Subzone 4h is designated as high priority for acquisition for the Preserve System. High priority

Zone 4 acquisitions are of critical importance to the HCP/NCCP because the area supports a variety of high quality habitat for several key species and serves a critical connectivity function.

Purple Needlegrass, Viera-Perley Property
Photo Credit: Nomad Ecology

The Viera-Perley property supports the largest and most well developed stands of purple needlegrass (*Stipa pulchra*) grassland the Conservancy has acquired in the Morgan Territory area of Zone 4 (Nomad 2015). Interestingly, the contiguous grasslands on the Galvin property to the north do not support the same abundance of this native grassland type. This is possibly due to the abundant thatch and grazing practices on the Galvin property in comparison to Viera-Perley.

The property provides suitable habitat for a variety of covered wildlife species including Townsend's big-eared bat, golden eagle, Alameda whipsnake, western pond turtle, California tiger salamander, California red-legged frog, foothill yellow-legged frog. Suitable habitat is present for several covered plant species including big tarplant, round-leaved filaree, Mount Diablo manzanita, and Brewer's dwarf flax. The property has restoration potential, including creek and pond restoration.

Clayton Radio Property

The Clayton Radio LLC property is an in-holding within the Barron property (EBRPD-owned, and acquired in partnership with the Conservancy). The property consists of a single parcel totaling approximately 2.02 acres. The property is approximately 2.3 miles west of the City of Clayton and roughly 3 miles south of the City of Antioch. The property represents another opportunity to pursue conservation in a critical area. Acquisition of the Property would eliminate an in-holding in the center of preserve land, and has the potential to provide suitable habitat for several covered species. And though small compared to most Preserve System acquisitions, the property is surrounded by protected natural habitat and has the potential to contribute habitat for covered species. Given the surrounding land ownership and uses, species disturbance from the surrounding neighboring land will be limited.

View of the Clayton Radio Property in a conserved landscape
Photo Credit: East Contra Costa County Habitat Conservancy

The Property is located in Zone 2, and within subzone 2b, which has high value and risk compared to other zones. It is also a challenging area in which to acquire habitat lands because rural residential development and speculative investing for suburban development have limited the number of owners interested in selling for public open space. Subzone 2b is designated as high priority for acquisition for the Preserve System to connect Black Diamond Mines Regional Preserve and Clayton Ranch Regional Preserve. High priority Zone 2 acquisitions are of critical importance to the HCP/NCCP because the area supports a variety of high quality habitat for several key species and serves a critical connectivity function for San Joaquin kit fox.

Clayton Radio is a critical acquisition because it will contribute to the connection of Black Diamond Mines Regional Preserve and Clayton Ranch Regional Preserve, and avoids a developed in-holding in the middle of park land. Within Zone 2, specific conservation targets exist for land cover and species habitat. Acquisition of the Property would contribute to annual grassland requirements in subzone 2b (0.33%), albeit minimally. The property also supports outstanding scenery and views, including expansive vistas of neighboring counties and physical features such as Mount Diablo and the East Bay hills.

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.

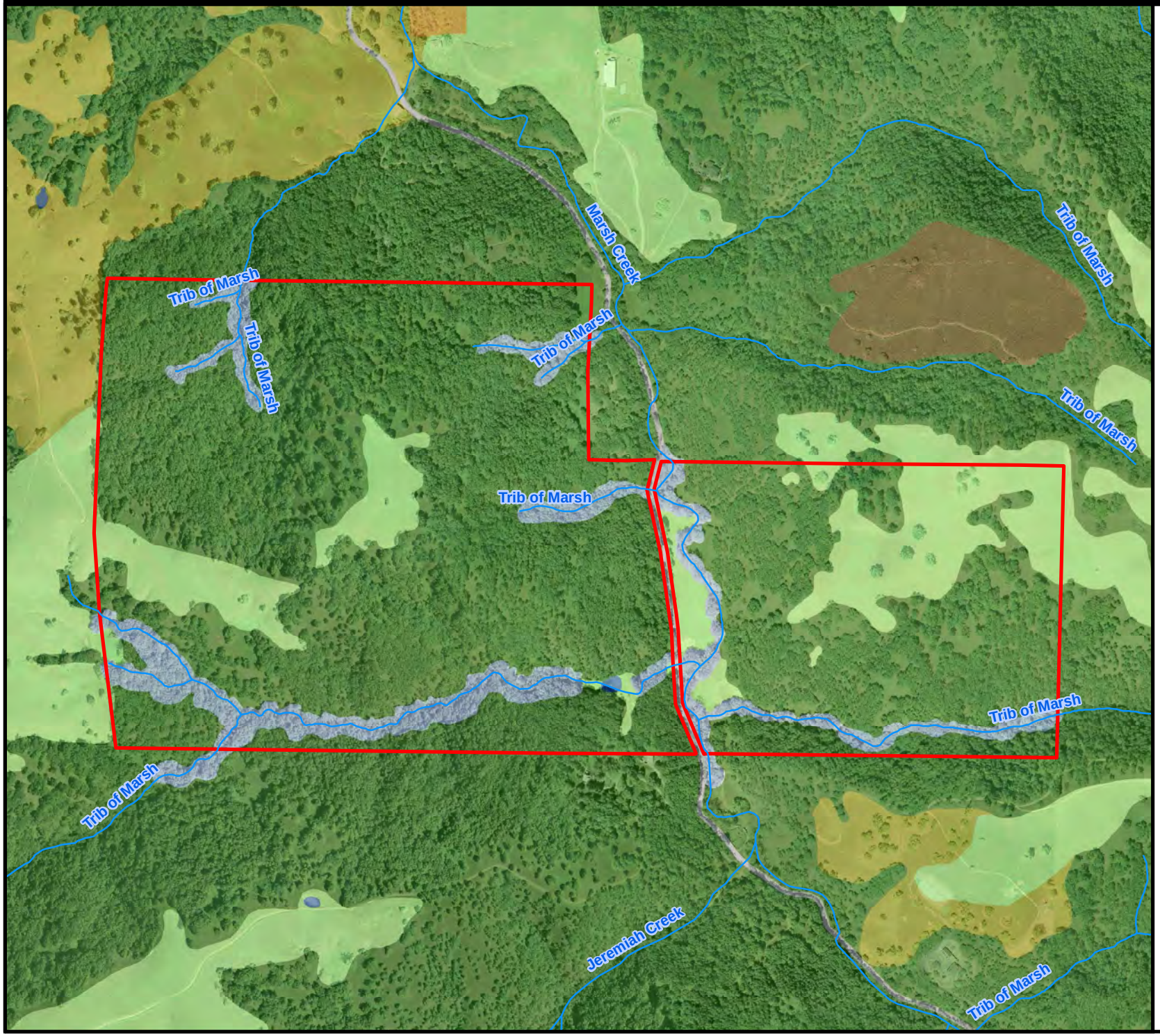
A Note on Land Cover Mapping Refinements and Cumulative Acreages

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.

Figure 8. Viera-Perley Property - Landcover Map



Legend

Property Boundary

Landcover

Grassland

- grassland (35.63 acres)
- alkali grassland
- ruderal

Wetland

- permanent wetland
- seasonal wetland
- alkali wetland

Aquatic

- stream (12001.13 feet)
- aquatic/open water
- pond (0.19 acre)
- riparian (26.48 acres)
- chaparral
- oak savanna
- oak woodland (202.03 acre)
- rock outcrops

Irrigated Agriculture

- pasture
- cropland
- vineyard

Developed

- urban (0.03 acres)
- aqueduct
- wind turbines

Feet

0 500 1,000

04/07/2016

Figure 9. Clayton Radio Property - Landcover Map

Figure 10. Viera-Perley: Representative Photographs

Photo 1: View toward Mount Diablo

Photo 2: Young oak woodland

Photo 3: Marsh Creek's rocky creek bed

Photo 4: Dry pond

Photo 5: Grassland and view of Mount Diablo

Photo 6: Oak woodland

Figure 11. Clayton Radio: Representative Photographs

Photo 1: View west toward property

Photo 2: View south toward Mount Diablo

Photo 3: Concrete bunker at center of property

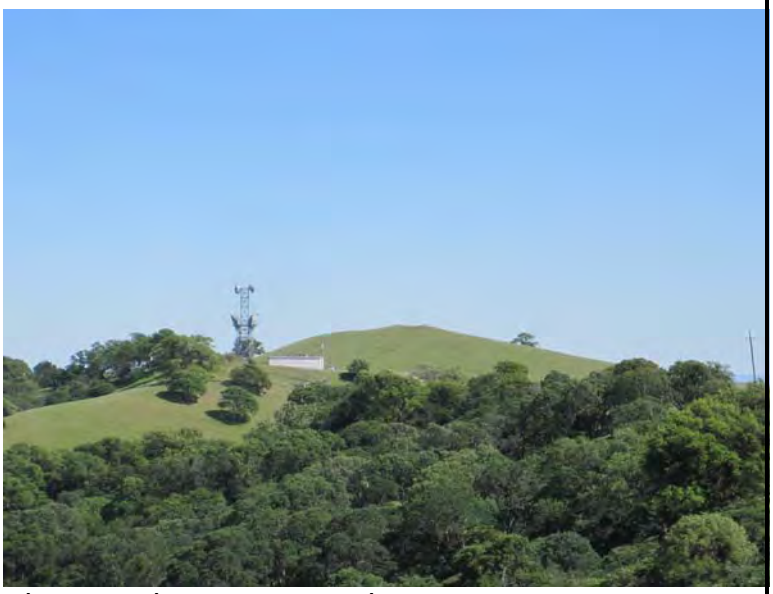


Photo 4: View east toward property

Photo 5: View of radio antennae

Photo 6: View of inholding within conserved land

Souza 1

Acquired by: EBRPD in partnership with Conservancy
Date Acquired: 12/23/2004
Acres: 615.28
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: 317.05
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: 329
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%	
US Bur Rec CVPCP Grant	$676,631	84%	
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): 191.49
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: 1,648
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:	574.86
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:	234.35
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: 156.96
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: 461.9
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	18%	yes
Moore Foundation	$2,000,000	38%	yes
Section 6 Grant (FY07)	$2,385,180	46%	no
TOTAL	$5,300,400	101%	

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

Source	*Amount*
Moore Foundation	$2,000,000
EBRPD (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: 313.04
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	3%	yes
Section 6 Grant (FY07)	$792,000	45%	no
TOTAL	$842,000	100%	

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

Source	*Amount*
Bargain sale (seller donation)	$918,000
EBRPD (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: 763.49
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): 448.64
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	110%	

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): 813.87
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: 159.91
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: 117.38
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: $2,464,000
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	9%	yes
Section 6 Grant (FY10)	$1,080,000	45%	no
TOTAL	$2,400,000	100%	

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

Source	*Amount*
EBRPD (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: 61.95
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)	$37,000.00
G&B Moore Foundation	$166,500.00
TOTAL	$203,500.00

Moss Rock

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 1/30/2012
Acres: 20.47
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: 21.04
Key land cover: 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: 131.52
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	$185,000	(prior due diligence and habitat enhancement)
TOTAL	$203,500	

Adrienne Galvin

Acquired by: EBRPD in partnership with Conservancy
Date acquired: 4/30/2013
Acres: 111.18
Key land cover: Oak Woodland, grassland
Appraised Value: $1,134,400
Purchase Price: $1,134,400

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: 958.76
Key land cover: Oak Woodland, grassland
Appraised Value: $5,376,000
Purchase Price: $5,376,000

Funding 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: 7/15/2014
Acres: 1,861.97
Key land cover: Oak Woodland, grassland
Appraised Value: $14,245,000
Purchase Price: $14,245,000

Funding 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

Funding 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

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

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

	Land Cover Requirements[3] (acres)			Reporting Period (acres)				Cumulative (acres)[5]				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	--	--	37.13	0	0	0	7,116.86	1,450.80	0	0.04	43%	--	--
Alkali grassland	1,250	--	--	0	0	0	0	222.76	17.50	0	0.02	18%	--	--
Ruderal	-	--	--	0	0	0	0	68.14	23.90	0	0	--	--	--
Chaparral and scrub	550	--	--	0	0	0	0	210.26	0.00	0	0	38%	--	--
Oak savanna	500	--	165	0	0	0	0	363.35	23.90	0	0	73%	--	--
Oak woodland	400	--	--	202.19	0	0	0	2,425.81	130.80	0	0	606%	--	--
Subtotal terrestrial	*19,200*	--	*165*	*239.32*	*0*	*0*	*0*	*10,407.18*	*1,646.90*	*0*	*0.06*	54%	--	--
Aquatic														
Riparian woodland/scrub	70	--	55	26.48	0	0	0	56.68	0.20	0	4.00	81%	--	7%
Perennial wetland[1]	75	--	85	0	0	0	0	5.15	5.80	0	0.16	7%	--	--
Seasonal wetland	168	--	163	0	0	0	0.15	10.60	1.40	0	8.70	6%	--	5%
Alkali wetland	93	--	67	0	0	0	0	30.00	4.30	0	2.40	32%	--	4%
Pond	16	16	--	0.19	0	0	0	10.86	2.70	0.42	0	68%	3%	--
Reservoir (open water)[2]	12	6	--	0	0	0	0	0	0	0	0	0%	--	--
Slough/Channel	36	--	72	0	0	0	0	0	0	0	0	0%	--	--
Subtotal aquatic	*470*	--	*442*	*26.67*	*0*	*0*	*0.15*	*113.29*	*14.40*	*0.42*	*15.26*	24%	--	*3%*
Stream (length in linear feet)														
Perennial	4,224	--	2,112	2,021.80	0	0	0	12,622.70	889.10	0.00	0.00	299%	--	--
Intermittent	2,112	--	2,112	9,979.40	0	0	0	127,636.50	24,414.50	0.00	2,983.40	6043%	--	141%
Ephemeral[4]	26,400	--	26,400	0	0	0	0	66,742.90	877.80	0.00	0.00	253%	--	--
Classification pending[4]	--	--	--	0	0	0	0	75,786.60	16,445.30	0.00	2,094.40	--	--	--
Subtotal stream length	*32,736*	--	*30,624*	*12,001.20*	*0*	*0*	*0*	*282,788.70*	*42,626.70*	*0.00*	*5,077.80*	864%	--	*17%*
Irrigated agriculture														
Cropland	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Pasture	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Orchard	--	--	--	0	0	0	0	0.06	0	0	0	--	--	--
Vineyard	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Subtotal irrigated agricultural	--	--	--	*0*	*0*	*0*	*0*	*0.06*	*0*	*0*	*0*	--	--	--
Other														
Nonnative woodland	--	--	--	0	0	0	0	0.73	0	0	0	--	--	--
Wind turbines	--	--	--	0	0	0	0	38.68	14.50	0	0	--	--	--
Subtotal other	--	--	--	*0*	*0*	*0*	*0*	*39.41*	*14.50*	*0*	*0*	--	--	--
Developed														
Urban	--	--	--	0.41	0	0	0	25.82	0.80	0	0	--	--	--
Aqueduct	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Turf	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Landfill	--	--	--	0	0	0	0	0	0	0	0	--	--	--
Subtotal developed	--	--	--	*0.41*	*0*	*0*	*0*	*25.85*	*0.80*	*0*	*0*	--	--	--

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

Land Cover Type	Land Cover Requirements[3] (acres)			Reporting Period (acres)				Cumulative (acres)[5]				Percent Complete (%)		
	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	--	--	--	266.40	0	0	0.15	10,602.20	1,681.10	0.42	15.32	--	--	--
Linear feet (Streams)	--	--	--	12,001.20	0	0	0	282,788.70	42,626.70	0	5,077.80	--	--	--

[1] Perennial wetlands are equivalent permanent wetlands.

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

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

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

[5] 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.

Table 8b. Reporting Period Summary of Natural Community Protection, Restoration, and Creation by Land Cover Type

	Reporting Period Land Acquisitions (acres)				Reporting Period	
	Clayton Radio		Viera-Perley		Restoration and Creation	
Land Cover Type	Protection	Existing Easement (No credit)	Protection	Existing Easement (No credit)	Creation	Restoration
Terrestrial						
Annual grassland	1.50	0.00	35.63	0.00	0.00	0.00
Alkali grassland	0.00	0.00	0.00	0.00	0.00	0.00
Ruderal	0.00	0.00	0.00	0.00	0.00	0.00
Chaparral and scrub	0.00	0.00	0.00	0.00	0.00	0.00
Oak savanna	0.00	0.00	0.00	0.00	0.00	0.00
Oak woodland	0.15	0.00	202.04	0.00	0.00	0.00
Subtotal terrestrial	*1.65*	*0.00*	*237.67*	*0.00*	*0.00*	*0.00*
Aquatic						
Riparian woodland/scrub	0.00	0.00	26.48	0.00	0.00	0.00
Perennial wetland[1]	0.00	0.00	0.00	0.00	0.00	0.00
Seasonal wetland	0.00	0.00	0.00	0.00	0.00	0.15
Alkali wetland	0.00	0.00	0.00	0.00	0.00	0.00
Pond	0.00	0.00	0.19	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	0.00	0.00
Subtotal aquatic	*0.00*	*0.00*	*26.67*	*0.00*	*0.00*	*0.15*
Stream (length in linear feet)						
Perennial	0.00	0.00	2,021.76	0.00	0.00	0.00
Intermittent	0.00	0.00	9,979.37	0.00	0.00	0.00
Ephemeral	0.00	0.00	0.00	0.00	0.00	0.00
Classification pending	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal stream length	*0.00*	*0.00*	*12,001.13*	*0.00*	*0.00*	*0.00*
Irrigated agriculture						
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Pasture	0.00	0.00	0.00	0.00	0.00	0.00
Orchard	0.00	0.00	0.00	0.00	0.00	0.00
Vineyard	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal irrigated agricultural	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Other						
Nonnative woodland	0.00	0.00	0.00	0.00	0.00	0.00
Wind turbines	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal other	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
Developed						
Urban	0.37	0.00	0.03	0.00	0.00	0.00
Aqueduct	0.00	0.00	0.00	0.00	0.00	0.00
Turf	0.00	0.00	0.00	0.00	0.00	0.00
Landfill	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal developed	*0.37*	*0.00*	*0.03*	*0.00*	*0.00*	*0.00*
Uncommon Vegetation Types (subtypes of above land cover types)						
Purple needlegrass grassland	0.00	0.00	0.00	0.00	0.00	0.00
Wildrye grassland	0.00	0.00	0.00	0.00	0.00	0.00
Wildflower fields	0.00	0.00	0.00	0.00	0.00	0.00
Squirreltail grassland	0.00	0.00	0.00	0.00	0.00	0.00
One-sided bluegrass grassland	0.00	0.00	0.00	0.00	0.00	0.00
Serpentine grassland	0.00	0.00	0.00	0.00	0.00	0.00
Saltgrass grassland (alkali grassland)	0.00	0.00	0.00	0.00	0.00	0.00

	Reporting Period Land Acquisitions (acres)				Reporting Period	
	Clayton Radio		Viera-Perley		Restoration and Creation	
Land Cover Type	Protection	Existing Easement (No credit)	Protection	Existing Easement (No credit)	Creation	Restoration
Alkali sacaton bunchgrass grassland	0.00	0.00	0.00	0.00	0.00	0.00
Other uncommon vegetation types	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal uncommon vegetation types	0.00	0.00	0.00	0.00	0.00	0.00
Uncommon Landscape Features or Habitat Elements					0.00	0.00
Rock outcrop	0.00	0.00	0.00	0.00	0.00	0.00
Cave	0.00	0.00	0.00	0.00	0.00	0.00
Springs/seeps	0.00	0.00	0.00	0.00	0.00	0.00
Scalds	0.00	0.00	0.00	0.00	0.00	0.00
Sand deposits	0.00	0.00	0.00	0.00	0.00	0.00
Mines (number)	0.00	0.00	0.00	0.00	*0.00*	*0.00*
Buildings (number)	0.00	0.00	0.00	0.00	*0.00*	*0.00*
Potential nest sites (number)	0.00	0.00	0.00	0.00	0.00	0.00
Subtotal uncommon landscape features	*0.00*	*0.00*	*0.00*	*0.00*	0.00	0.00
Subtotal uncommon landscape features	*0.00*	*0.00*	*0.00*	*0.00*		
Totals (excludes subtypes)						
Acres	2.02	0.00	264.37	0.00	0.00	0.15
Linear feet	0.00	0.00	12,001.13	0.00	0.00	0.00

[1] Perennial wetlands are equivalent permanent wetlands.

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

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

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

Jurisdictional Wetlands and Waters Requirement	Total Requirement[1]	Reporting Period Area Acquired	Cumulative Area Acquired	Percentage of Requirement Met by Acquisition (%)
Preserve-wide Riparian woodland/scrub (acres)	70.0	26.5	56.7	81.0%
Preserve-wide Perennial wetland (acres)	75.0	0.0	5.2	6.9%
Preserve-wide Seasonal wetland (acres)	168.0	0.0	10.6	6.3%
Preserve-wide Alkali wetland (acres)	93.0	0.0	30.0	32.3%
Preserve-wide Pond (acres)	16.0	0.2	10.9	67.9%
Preserve-wide Reservoir (open water) (acres)	12.0	0.0	0.0	0.0%
Preserve-wide Slough/Channel (acres)	36.0	0.0	0.0	0.0%
Preserve-wide stream length (feet)	32,736.0	12,001.2	182,094.1	556.3%
Stream length by type and order				
Perennial (feet)	4,224.0	2,021.8	12,622.7	298.8%
Intermittent (feet)	2,112.0	9,979.4	127,636.5	6043.4%
Ephemeral[2] (feet)	26,400.0	0.0	66,742.9	252.8%
Classification Pending[2] (feet)	--	0.0	75,786.6	--

[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[2]**	**Percent Complete**
Mount Diablo manzanita	*Arctostaphylos auriculata*	2	0	1	50%
Brittlescale	*Atriplex depressa*	2 (4)[3]	0	1	50% (25%)
San Joaquin spearscale	*Atriplex joaquiniana*	0	1	9	--
Big tarplant	*Blepharizonia plumosa*	3	0	6	200%
Mount Diablo fairy lantern	*Calochortus pulchellus*	1	1	4	400%
Recurved larkspur	*Delphinium recurvatum*	2	0	0	0%
Round-leaved filaree	*Erodium macrophyllum*	2	0	2	100%
Diablo helianthella	*Helianthella castanea*	2	0	13	650%
Brewer's dwarf flax	*Hesperolinon breweri*	1	0	4	400%
Showy madia	*Madia radiata*	0	0	0	0%
Adobe navarretia[3]	*Navarretia nigelliformis subsp. nigelliformis*	1	0	0	0%
Total		16 (18)	2	40	

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

[2] Prior years' reporting of recorded occurences included Shining navarretia. These sightings have not been removed from the cumulative occurences because Shining navarretia is not a covered species of the HCP/NCCP.

[3] 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.

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

Zone/ Subzone	Requirements[1]	Acres	Min. Acres Required (MUDA)	Acquired Reporting Period	Acquired Cumulative To date	Percent Achieved
Zone 1						
1a	Annual grassland	85	85	0.0	0.0	0%
1b	Annual grassland (1,450 acres combined w/ 1c)	TBD	1,450	0.0	49.5	37%
1c	Annual grassland (1,450 acres combined w/ 1b)	TBD		0.0	481.6	
1d	25% of total area	478	478	0.0	201.2	42%
1e	No specific requirements	--	--	0.0	0.0	--
All	Estimated minimum requirement	2,100	2,250	0.0	858.9	38%
All	Estimated maximum requirement	2,850	3,150	0.0	858.9	27%
Zone 2						
2a	At least 60% of subzone	1,104	1,104	1.3	1,403.4	127%
2a	Annual grassland (850 acres)	--	850	0.9	936.7	110%
2a	90% of chaparral in 2a, 2b, and 2c (122 acres total)	--	see below	0.0	0.5	--
2a	Land to protect Mount Diablo manzanita	--	--	0.0	0.0	--
2b	Annual grassland (450 acres)	450	450	0.6	393.6	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	0.0	5.0	--
2c	Annual grassland (400 acres)	400	400	0.0	144.9	36%
2c	0.5-mile wide connect b/w Black Diamond and Clayton Ranch (w/ 2b)			0.0	0.0	--
2c	90% of chaparral in 2a, 2b, and 2c (122 acres total)		see below	0.0	3.8	--
2c	Seven (7) of thirteen (13) ponds for TRBL, CTS, WPT, or CRLF		7	0.0	0.0	0%
2d	Annual grassland (800 acres)	800	800	0.0	389.0	49%
2d	Known occurrence of round-leaved filaree (#)	1	1	1.0	1.0	100%
2e	Annual grassland (800 acres)	800	800	0.0	79.5	10%
2e	See 2e/2f/2h below		see below	0.0	0.0	--
2f	Annual grassland (1,000 acres)	1,000	1,000	0.0	432.6	43%
2f	San Joaquin kit fox movement corridor	--	--	0.0	493.1	--
2f	Land for SJKF Movement must include 2 occurrence of big tarplant	--	--	0.0	0.0	--
2f	Land for SJKF Movement must include 1 occurrence of round-leaved filaree	--	--	0.0	0.0	--
2f	Where possible, land for SJKF and plants, should include alkali soils	--	--	0.0	0.0	--
2f	See 2e/2f/2h below	--	see below	0.0	0.0	--
2g	No specific requirements	--	--	0.0	0.0	--
2h	Annual grassland (600 acres)	600	600	0.0	274.1	46%
2h	Two occ. of big tarplant (number)	2	2	1.0	1.0	50%
2h	Known occ. of Mt. Diablo manzanita and Brewer's dwarf flax (number)	2	2	3.0	3.0	150%
2h	San Joaquin kit fox (75%)			0.0	295.1	--
2h	Silvery legless habitat, if present			0.0	31.7	--
2h	See 2e/2f/2h below		see below	0.0	0.0	--

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	--	--	0.0	0.0	--
2b/2c	0.5-mile wide connect between Black Diamond and Clayton Ranch	--	--	0.0	0.0	--
2a/2b/2c	Chaparral habitat (90%)	122	122	0.0	9.4	8%
2e/2f/2h	Annual grassland, combined	2,400	2,400	0.0	786.2	33%
All	Vernal pool invertebrate suitable habitat, wherever possible			Yes (not quantified)	Yes (not quantified)	--
All	Estimated minimum requirement	7,500	7,500	0.0	0.0	0%
All	Estimated maximum requirement	9,550	9,550	0.0	0.0	0%
All	Alternative Stay Ahead Measurement for Zone 2		4,900	2.0	4,365.2	89%
Zone 3						
3a	90% of modeled AWS suitable core habitat	159	159	0.0	94.9	60%
3a	Land to increase linkage from chaparral in zone to Mt. Diablo chaparral			0.0	0.0	0%
3b	No specific requirements	0	0	0.0	0.0	0%
3c	No specific requirements	0	0	0.0	0.0	0%
All	Estimated minimum requirement	400	400	0.0	0.0	0%
All	Estimated maximum requirement	750	750	0.0	292.7	39%
Zone 4						
4a	75% of natural land cover types	1,700	1,700	3.3	3.3	0%
4a	Known occ. of Diablo helianthella and Brewer's dwarf flax			0.0	0.0	
4a	See 4a/4h below		see below	0.0	0.0	--
4b	Known occ. for Mt. Diablo fairy lantern if extant	0	0	0.0	0.0	
4c	See 4c/4e/4f/4g below	--	see below	0.0	0.0	--
4d	60% of natural land cover types	953	953	0.0	0.0	0%
4e	See 4c/4e/4f/4g below	--	see below	0.0	0.0	
4f	Known occ. for Brewer's dwarf flax (number)	TBD	TBD	0.0	0.0	
4f	See 4c/4e/4f/4g below	--	see below	0.0	0.0	
4g	See 4c/4e/4f/4g below	--	see below	0.0	0.0	
4h	75% of natural land cover types	791	791	260.8	499.3	63%
4h	Linkage between Morgan Territory Ranch, Morgan Territory RP and Mt. Diablo	--	--	0.0	0.0	
4h	See 4a/4h below	--	see below	0.0	0.0	
4a/4h	90% of modeled AWS suitable core habitat	200	200	0.0	33.7	17%
4c/4e/4f/4g	18%/IDA or 39%MDA of natural land cover types in 4c, 4e, 4f, 4g	1,400	3,000	0.0	0.0	0%
All	Chaparral/Scrub	270	270	0.0	33.2	12%
All	Estimated minimum requirement	4,900	6,050	648.2	648.2	11%
All	Estimated maximum requirement	6,150	8,350	264.2	648.2	8%

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	0.0	0.0	--
5b	See 5a/5b/5d below	--	see below	0.0	0.0	--
5c	Annual Grassland/Suitable foraging habitat for Swainson's hawk/ SJKF core and movement habitat	1,000	1,000	0.0	0.0	0%
5c	Modeled silvery legless lizard habitat, if feasible (for MUDA)			0.0	0.0	
5d	See 5a/5d and 5a/5b/5d below	--	see below	0.0	0.0	--
5a/5d	2 (IUDA) or 4 (MUDA) of the occ. of brittlescale	4,300		0.0	2.0	
5a/5d	At least 2 occurrences of recurved larkspur		2	0.0	1.0	50%
5a/5d	170 acres connected to Byron Airport preserved areas		170	0.0	191.5	113%
5a/5b/5d	Annual grassland		7,100	0.0	3,073.1	43%
All	Grassland	5,300	8,100	0.0	3,074.1	38%
All	Alkali grassland	750	900	0.0	129.5	14%
All	Alkali wetland	40	40	0.0	17.5	44%
All	Vernal pool invertebrate suitable habitat, wherever possible			Yes (not quantified)	8.8	
All	Estimated minimum requirement	6,100	9,050	0.0	3,359.9	37%
All	Estimated maximum requirement	7,200	11,450	0.0	3,359.9	29%
Zone 6						
6a	See 6a/6b/6c/6f below	--	see below	0.0	0.0	--
6b	See 6a/6b/6c/6f below	--	see below	0.0	0.0	--
6c	See 6a/6b/6c/6f below	--	see below	0.0	0.0	--
6d	See 6d/6e below	--	see below	0.0	0.0	--
6e	See 6d/6e below	--	see below	0.0	0.0	--
6f	See 6a/6b/6c/6f below	--	see below	0.0	0.0	--
6d/6e	Alkali grassland	100	300	0.0	0.0	0%
6d/6e	Alkali wetland	20	40	0.0	0.0	0%
6a/6b/6c/6f	Cropland or Pasture	250	400	0.0	0.0	0%
All	Estimated minimum requirement	450	800	0.0	0.0	0%
All	Estimated maximum requirement	550	1,100	0.0	0.0	0%
All Zones						
All	Estimated minimum requirement	21,450	26,050	266.4	10,602.2	41%
All	Estimated maximum requirement	27,050	34,350	266.4	10,602.2	31%

[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.

During the reporting period, the Conservancy constructed one new restoration project. The Vaquero Farms Seasonal Wetland 3 creation project is the ninth restoration project constructed since Plan implementation began. The Conservancy continues to monitor the below listed eight prior restoration projects.

- 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).
- Souza II Restoration Project (constructed 2009).
- Lentzner Springs Wetland Restoration Project (constructed 2008).
- Souza I Restoration Project (constructed 2008).

A discussion of the 2015 Vaquero Farms Seasonal Wetland 3 creation project goals and objectives, contribution to restoration and creation requirements, and performance criteria and monitoring is provided below. 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]


Seasonal Wetland 3 – Constructed in October 2015
Photo Credit: East Contra Costa County Habitat Conservancy

The nine restoration projects provide a range of benefits to covered species. All projects benefit covered amphibian species (California red-legged frog and California tiger salamander). Wetland restoration at Souza II in 2009 and 2012 and at Vaquero Farms South in 2012 increased habitat for covered vernal pool crustaceans. Restoration on Lentzner and Souza II increased rare alkali grassland and supports habitat for alkali wetland plants. All projects provide habitat for wildlife foraging in the area.

Monitoring in 2015 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

The Vaquero Farms Seasonal Wetland 3 project site is located off of Vasco Road, about five miles north of the City of Livermore, at the edge of a wind energy generation site, immediately

[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.

west of the city of Byron, California. The project site lies within the southeastern corner of the HCP/NCCP inventory area and is managed by EBRPD. The project site lies within the southeastern region of the HCP/NCCP inventory area which is noted for its potential to provide habitat for HCP/NCCP covered special-status species, western burrowing owl, California tiger salamander, California red-legged frog, and vernal pool fairy shrimp. The new seasonal wetland was constructed near two other seasonal wetlands constructed by the Conservancy (see *Vaquero Farms South Vernal Pool Creation* below). In addition, the project area was selected for its proximity to the eastern slope of the Interior Coast Range where steep, hillside topography transitions into broad upland swales that have the ability to focus sheet flows during large storm events that can provide a source of hydrology for all three constructed seasonal wetlands.

The project site is located within a wind farm and cattle grazing area which has been subjected to many decades of grazing, often heavy grazing mostly by cattle. The landscape is now dominated by non-native annual grassland species. Owing to heavy grazing pressure over many years, native plant abundance and diversity is low while non-native Eurasian species have largely colonized slopes and valley bottoms. Valley bottoms are characterized by seasonal drainages that in some instances support deeper seasonal pools.

The new seasonal wetland was designed as a habitat restoration project as set forth in the goals of the HCP/NCCP. The objectives for the new wetland was to create a relatively large seasonal pool that would be capable of supporting endangered branchiopods, specifically vernal pool fairy shrimp.

In the design phase for the new wetland, there was considerable discussions about how to target hydrology in the created pool that would ensure the following: 1) adequate hydration to promote colonization by hydrophytic seasonal wetland plants; 2) shallow enough water to discourage California tiger salamander from laying eggs in the new wetland; 3) not so deep that the pool suppresses wetland vegetation growth; and 4) a depth that would provide an optimal hydroperiod mimicking vernal pools so as to create habitat conditions capable of supporting a vernal pool fairy shrimp life cycle.

Based on the discussions, the project was designed so that the newly created seasonal wetland would only inundate to a maximum of 10-12 inches deep prior to spilling. As the pool is in a wind resource area subject to high winds and high evaporation, 10-12 inches was the targeted depth that would plausibly withstand early or quick drying from desiccating winds. The targeted objectives for pool depth (when full) was to promote hydrophytic species colonization, in spite of high evaporation rates and low rainfall, and to create a seasonal wetland that could support seasonal wetland invertebrate species especially the vernal pool fairy shrimp.

After the construction of the wetland was completed, the salvaged organics topsoils were re-distributed over all disturbed area to ensure re-colonization of disturbed areas by the same natural vegetation that was originally growing at the project site. No hydroseed application was applied to provide erosion control for this project. Rather the newly created wetland and all

adjacent disturbed soil stockpile areas were inoculated with the scalped organic horizon. The topsoil scalpings were meticulously re-spread over all disturbed areas.

Upon completion of grading the pool basin, minimum pool acreage was calculated by creating a GPS polygon along the bottom contour of the created seasonal wetland, 10 inches below the invert elevation of the outlet spillway. The constructed acreage of the wetland pool bottom is approximately 0.10 acre.

Hess Creek Channel Restoration Project

Project Overview


Hess Creek Restoration Project site (post restoration)
Photo Credit: Nomad Ecology

The 5.22 acres Hess Creek Channel Restoration project was designed to support the biological goals and objectives of the HCP/NCCP. The Conservancy, in partnership with the EBRPD implemented this wetland and riparian habitat restoration project in 2014. The Project is within a 47.84 acre parcel identified as "high priority" for acquisition for the HCP/NCCP preserve system to help achieve the land acquisition requirements for wetlands, streams, and riparian woodland/scrub habitats (H.T. Harvey & Associates 2015).

Restoration consisted of the creation and re-establishment of wetlands and riparian habitats within and adjacent to the Hess Creek channel. Restoration design involved re-routing, stabilization, and enhancement of a portion of the Hess Creek channel to create approximately 930 linear feet of new channel; re-establishment of 0.30 acres of seasonal wetland habitat; and establishment of approximately 2.57 acres of riparian woodland and streamside habitat. A series of step-pools were constructed using natural materials to increase channel stability and provide high-value aquatic and riparian habitats for native plant and wildlife communities. The 0.30 acres of seasonal wetlands were created/restored by removing approximately 1 to 2 feet of artificial fill from a historic wet meadow.

The restoration project also included planting of buckeye seeds and oak acorns, red willow and cottonwood pole cuttings, and container plantings. Overall, twelve species were planted on site including five tree species, three shrub species, two perennial grasses, and two perennial rushes. Over 2,400 plantings were installed. The site was also seeded with two native seed mixes. Construction and planting of the restoration site was completed in February 2015.

The Hess Creek Channel Restoration project is being monitored using the performance criteria listed in Table 13a.

Monitoring and Adaptive Management

Year 1 restoration monitoring was conducted in the winter of 2014 (hydrology monitoring) and spring, summer, and fall of 2015 (vegetative monitoring). Monitoring was completed on December 1, 2014 and April 15, April 30, July 23, and September 18, 2015 (Nomad Ecology 2015a). Overall the project is meeting Year 1 performance criteria.

Native emergent wetland vegetation, hydrologic connectivity, and upland habitat were assessed in Year 1. Assessments included a combination of photo documentation and direct observations. Photo documentation was conducted from fixed locations throughout the existing seasonal wetland and seasonal wetland re-establishment areas. Observations recorded at each photo documentation location included the percent cover and species composition of native emergent wetland vegetation, non-native invasive plants, and upland vegetation in close proximity to wetlands.

All seasonal wetlands (both existing and re-established) were hydrologically connected to the creek with the exception of one seasonal wetland which appears steeply sloped. Water was observed flowing into all of the existing and re-established seasonal wetlands during each monitoring visit except the December 2014 site visit.

Overall wetlands on site (both existing and re-established) were dominated by Italian ryegrass (*Festuca perennis*). Other species present include Bermuda grass (*Cynodon dactylon*saltgrass (*Distichlis spicata*), creeping wildrye (*Elymus triticoides*), meadow barley (*Hordeum brachyantherum* subsp. *brachyantherum*), toad rush (*Juncus bufonius*), Mexican rush (*Juncus mexicanus*), and Mediterranean barley (*Hordeum marinum* subsp. *gussoneanum*). Adjacent riparian trees include cottonwood, red willow, and black walnut. Upland grasses such as wild oats (*Avena fatua*), hare barley (*Hordeum murinum* subsp. *leporinum*), and ripgut brome (*Bromus diandrus*) were also present in small amounts in the seasonal wetlands. Upland grasslands adjacent to wetlands on site were dominated by tall non-native grasses with some forbs including wild oats, soft chess (*Bromus hordeaceus*), hare barley, ripgut brome, red-stemmed filaree (*Erodium cicutarium*), and dovefoot geranium (*Geranium molle*), among others.

Relative percent cover of dominant wetland vegetation ranged from 31% to 92% exceeding the Year 1 performance criteria of 5%. Italian ryegrass had the highest cover of any species in seasonal wetlands on site.

Invasive weeds observed in wetlands on site and in adjacent uplands included yellow starthistle (*Centaurea solstitialis*), milk thistle (*Silybum marianum*), purple starthistle (*Centaurea calcitrapa*), Italian thistle (*Carduus pycnocephalus* subsp. *pycnocephalus*), hoary mustard (*Hirschfeldia incana*), oblong spurge (*Euphorbia oblongata)*, fennel (*Foeniculum vulgare*), and periwinkle (*Vinca major*).

A goal of the project was to improve adjacent upland habitat for wetland-dependent species such as California tiger salamander or California red-legged frog. No burrows, which provide upland habitat for reptiles and amphibians including these two covered species, were observed on site. It is expected with the new grazing lease on the neighboring property, ground squirrels will return to the property and construct burrows.

Existing riparian trees were comprised primarily of Fremont cottonwood, valley oak, black walnut, and red willow. The planted riparian species comprised an extremely low cover, too low to be estimated visually, but appear vigorous and healthy. Overall the site had 75% survival of container plantings which does not meet the performance criteria of 100% survival. Valley oak and California sagebrush had the highest percent survival (100% and 88%, respectively) and coast live oak and blue elderberry had the lowest percent survival (41% and 38%, respectively). Some of the coast live oak and elderberry were not caged which may have resulted in predation. Drought conditions also likely impacted survival even though plantings were hand watered from March to October twice per month The surviving plants are healthy and vigorous, particularly California sagebrush. The willow and cottonwood pole cuttings had extremely low survival (5% and 0%, respectively). This is likely due to drought conditions and because pole cuttings were not watered.

The entire site was surveyed for naturally recruiting tree and shrub species. Cottonwood sprouts were observed in the vicinity of the large cottonwood tree. Mugwort (*Artemisia douglasiana*) was observed sprouting on the banks throughout the creek. There were no naturally recruited woody plant species observed within a 5 foot band centered around the sampling transects.

Invasive weeds were mapped on September 18, 2015. Twelve species of concern were observed in the restoration area. The majority were present in uplands but several were also present in the creek and seasonal wetlands. Performance criteria specify that the total percent cover of non-native invasive plant species is no more than 10% cover in wetlands. All seasonal wetlands met the performance criteria. The performance criteria also specify that total percent cover of non-native invasive plant species is no more than 10% cover in riparian woodland habitat. Overall, invasive weeds comprised 1-10% cover (estimated visually) in riparian woodland habitat.

Recommendations

Additional plantings are required since the site did not meet the 100% survival performance criteria. To address this requirement, coast live oak acorns and buckeye seeds were planted in empty planting basins and caged in November 2015. Buckeye seeds and acorns were gathered from nearby properties: acorns were gathered from one coast live oak tree on Affinito on October 8, 2014 and buckeyes were gathered from the Thomas Home Ranch on November 14, 2014. Acorns were stored in paper bags in the refrigerator and buckeyes were stored in a dark cool place.

Buckeye seeds were planted two per hole, 86 buckeyes seeds were planted in 43 basins. Acorns were planted three per hole, 123 acorns were planted in 42 basins. In addition, 120 elderberry

container plants were planted throughout the site (based on plans) in planting basins in November 2015.

Invasive weeds should continue to be controlled on site. Species that are limited in distribution on site are high priority for control since they can be controlled before they become well established. These species include stinkwort (*Dittrichia graveolens*), purple starthistle, and artichoke thistle (*Cynara cardunculus*). 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 high priority species that are well established on site include milk thistle, yellow starthistle, and oblong spurge. Milk thistle and yellow starthistle should be sprayed with a selective herbicide when they are in the rosette stage. Oblong spurge should be hand pulled before seed production. It can resprout from root fragments so care needs to be taken to avoid spreading root fragments on site or off site.

Souza II Corral Vernal Pool Restoration

Project Overview

The Souza II Corral Vernal Pool Restoration project was constructed in 2012. It is located on the 191-acre Souza II property in the Brushy Creek Watershed (Figure 12). An existing corral was cleared of debris and excavated to restore a 0.3 acre wetland feature. The size of the created seasonal wetland at the bottom contour is 15,906 square feet (0.37 acre). The seasonal wetland acreage increases as the inundation area becomes deeper, moving the seasonal wetland surface up side slopes to the invert elevation of the spillway. The objective was to create a seasonal wetland to support vernal pool fairy shrimp. Design features were also included to ensure the ponding duration was sufficient for successful California tiger salamander breeding.[5] To achieve these species-specific goals, most of the wetland (0.40 acre) was designed to inundate to 10 inches deep. This creates optimal conditions for vernal pool fairy shrimp and colonization by hydrophytic vegetation. A smaller (0.014 acre) 14-inch deep “dimple” was created in the bottom of the 0.40 acre wetland to support breeding (egg laying through metamorphosis) of California tiger salamander. As part of the construction, the new wetland was seeded with inoculum collected from a vernal pool impacted by the Deer Valley Road Widening Project.

The approximately 1.60-acre project site is located within a relatively small corral/paddock used in the past for loading livestock on trucks and/or as a horse paddock. The corral has experienced many decades of compaction by livestock which has severely repressed colonization of the corral by vegetation. After removing horses from the corral during the initial design phases of the project, the corral thereafter colonized with a sparse cover of weedy plant

[5] This project feature was included to ensure that the wetland did not become a population sink for California tiger salamander. This species is not a target species for the restoration project; therefore no performance criteria were developed for it.

species. Most of the site remained approximately 85% barren. The one dominant plant species (15% cover)_prior to creation of the seasonal wetland was tumbling oracle (*Atriplex rosea*). Great valley gumplant (*Grindelia camporum*) and alkali heath (*Frankenia salina*), both wetland plant species, together comprised less than 1% of the total cover.

Site-specific restoration objectives and performance criteria were set for the project (Table 13b).

Monitoring and Adaptive Management

Year 3 hydrologic monitoring was conducted on December of 2014 and January, February, March, and May of 2015 (Monk & Associates 2015a). Each visit was spaced approximately 30 days apart, except when there was little to no rainfall. During each monitoring visit, the percent of the created wetland that was dry, saturated, or inundated was determined visually. In addition, water depths in the created wetland were documented by manually measuring the water levels in the middle of the pool.

Rainfall in the area was only 66% of normal during the 2014-2015 rain year. Significant rain events occurred during the month of December 2014 however, which resulted in East Contra Costa County receiving 6.8 inches of rainfall in that month alone. Water was first observed over the entire surface of the seasonal wetland in mid-December 2014 when 12 inches of standing water was observed over the majority of the created wetland and 16 inches was ponding in the dimple portion. However, these conditions did not persist because in January only 0.04 inch of rain fell and by the end of the month water levels in the wetland had declined rapidly. A rain event in early February left 2.5 inches of water in the pool and 9 inches of standing water in the dimple. The wetland dried out after this rain event and by mid-March the wetland was completely dry. Though drought conditions persisted in Year 3, the Corral Seasonal Wetland was inundated in its entirety for over 30 days and within the dimple portion of the wetland for approximately 60 days. Therefore, the Corral Seasonal Wetland exceeded the annual performance criterion for hydrology in Year 3 Monitoring Period.

To determine if the wetland vegetation cover was meeting the performance criteria, an annual vegetation survey was conducted on May 22, 2015 (Monk and Associates 2015). All plant species observed in the created wetland were recorded and the total percent cover of each species along each transect was determined. The percent total vegetative cover in the wetland was 45%. The remaining 55% was bare ground. The relative cover of wetland plants was 32%. According to the established success criteria, a total of 25% wetland vegetation cover must be present in the wetland by the end of Year 3. Thus, the total cover of hydrophytic plant species within the wetland met the Year 3 annual performance criterion for wetland vegetation.

Italian ryegrass, a non-native, yet hydrophytic species, was the dominant species in the wetland; it accounted for approximately 21% of the cover along the transect. The next most common species along the transect was the non-native tumbling oracle which constituted 13% of the cover along the transect. Native species observed along the transect at a lower percentage included great valley gumplant, dove weed (*Croton setiger*), and woolly marbles (*Psilocarpus tenellus*). It should be noted that this wetland area has a history of heavy

horse/cattle use and thus, has never had very much vegetation. In the first three monitoring years along the established transects, bare ground has constituted 76%, 24%, and 55%, respectively. The drought may have contributed to the lack of vegetation growth as well.

All wildlife using the created seasonal mitigation wetland and the adjacent areas were also noted during all hydrology and vegetation monitoring efforts. During the 2014-2015 monitoring season eleven bird species were observed in the vicinity of the mitigation wetland. A few of the species likely nest in the vicinity of the created wetland, and may also use the wetland and surrounding area for foraging.

Recommendations

No invasive plants were observed in the mitigation wetland during monitoring Year 3; however hand removing some of the widespread non-native species such as the tumbling oracle to facilitate growth of native species is recommended.

Vaquero Farms South Seasonal Wetlands Creation Project

Project Overview

In 2012, the Conservancy constructed two seasonal wetlands on the Vaquero Farms wind energy site. The two seasonal wetlands are located on the 1,644-acre Vaquero Farms South property in the Brushy Creek watershed (Figure 12). This project created two wetland features (0.07 acre and 0.15 acre) in what is suspected to be an abandoned road bed. Similar to the Souza II Corral Vernal Pool Restoration Project, the wetland features are intended to function as vernal pools and provide habitat for the federally listed vernal pool fairy shrimp and other vernal pool species.

Vaquero Farms Seasonal Wetland 2
Photo Credit: Monk & Associates

The project site lies within the southeastern corner of the HCP/NCCP inventory area which is noted for its potential to provide habitat for HCP/NCCP covered special-status species, western burrowing owl, California tiger salamander, California red-legged frog, and vernal pool fairy shrimp. In addition, the project area was selected for its proximity to the eastern slope of the Interior Coast Range where steep, hillside topography transitions into broad upland swales that

have the ability to focus sheet flows during large storm events that can provide a source of hydrology for the two constructed seasonal wetlands.

The project site is located within a wind farm and cattle grazing area which has been subjected to many decades of often-heavy grazing. The landscape is now dominated by nonnative annual grassland species. The two seasonal wetlands were constructed just downslope of a small, existing seasonal wetland (control pond) that is known to support hydrophytic plant and invertebrate species including vernal pool fairy shrimp.

Site-specific restoration objectives and performance criteria were set for the project (Table 13c).

Monitoring and Adaptive Management

Rainfall in the project area was only 66% of normal during the 2014-2015 weather year. Despite this lack of rainfall, there were a few large storms in December 2014 that filled both wetlands and helped them retain water for several months. Seasonal wetland 1, the wetland closest to the control pond, filled with approximately 12 inches of water, while seasonal wetland 2 filled with approximately 10 inches of water. Both of the wetlands retained water throughout the months of December, January, February, and March. In March, both seasonal wetlands had 4 inches of water; by April the wetlands had dried down. The seasonal wetlands performed quite well especially in comparison to the control wetland that is just west of seasonal wetland 1 (Monk & Associates 2015b).

The percent total vegetative cover along the established transect in the wetland was 45%. The remaining 55% was bare ground. The relative cover of hydrophytic plant species (wetland plants) along this transect was 32%. According to the success criteria, a total of 25% wetland vegetation cover must be present in the wetland by the end of Year 3. Thus, the total cover of hydrophytic plant species within the wetland met the Year 3 annual performance criterion for wetland vegetation. Non-native Italian ryegrass and tumbling oracle were the most common plan species observed. Native species observed included great valley gumplant, dove weed, and woolly marbles.

In January 2015, vernal pool fairy shrimp were observed in seasonal wetland 1—which is the first time they appeared in either of the created wetlands at Vaquero Farms. Also, during the monitoring season eleven bird species were observed in the vicinity of the wetland. A few of the species likely nest in the vicinity of the created wetland, and may also use the wetland and surrounding area for foraging.

Recommendations

No invasive plants were observed in the wetland during monitoring Year 3; however, hand removing some of the widespread non-native species such as the tumbling oracle to facilitate growth of native species is recommended. Additionally, it is also recommended to seasonally remove grazing pressure from the restored features. This will allow wetland vegetation to establish in the restored sites. Eventually grazing can be returned to the pools.

Upper Hess Creek Watershed Habitat Restoration Project

Project Overview

The Upper Hess Creek Watershed Habitat Restoration Project was constructed in 2011. The project is located on the 450-acre Land Waste Management property in the Hess Creek subbasin of the Kirker Creek Watershed (Figure 12). 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 restoration project using existing site features. The 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 pond designed to support California tiger salamander breeding 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 area. This included removal of debris and fill around the pond, creation of wetland terraces around the fringes of the pond, placement of rock perches and coarse woody debris to improve habitat for California red-legged frog, and enhancement/stabilization of an existing outlet spillway 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 acre of California tiger salamander breeding pond, and 226 linear feet of channel were restored or created as part of this project.

Site-specific restoration objectives and performance criteria were set for the project (Tables 13d and 13e).

Monitoring and Adaptive Management

The following site-specific restoration objectives were met during Year 4: reduce erosion along Upper Hess Creek, increase wetland and pond capacity and water duration in the project area except in the alluvial valley wetlands, reduce non-native plant species in restored wetlands, and restore 226 linear feet of stream channel and hydrologically connect Upper Hess Creek from the Main Stock Pond to channel at property boundary. Drought conditions during the monitoring prevented success of the remaining performance criteria (see Tables 13d and 13e for a list of performance criteria for Upper Hess Creek Restoration).

The annual performance restoration goal for Year 4 was 35% relative percent cover of native wetland vegetation. Unfortunately, this was the fourth year in a row that the restoration area

received less than normal rainfall and wetland vegetative cover did not thrive (Monk & Associates 2015c).

Annual performance criterion for the alluvial valley wetlands was not met in Year 4. While native hydrophytic vegetation cover increased in Year 4, up to a mean of 2.1% over Year 3's mean of 0.4%, this is still well below the success criterion for Year 4 which is 35% of native emergent vegetation cover. In the main stock ponds, vegetation cover in and around the pond met the 35% native vegetation cover criterion. The channel restoration area also met success criterion with 100% vegetative cover of hydrophytic plant species. The California tiger salamander pond was only inundated for a few separate weeks during the 2014-2015 monitoring year: one to two weeks in late-December and again in late-February. Water was only a foot deep at most, but it held long enough to suppress the upland vegetation that grew in this pond in the summer and fall months of 2014. The result of this inundation was barren conditions in February, March and April 2015. By the summer months the bottom of the pond was overgrown once again with a non-native, upland grass mix similar to what was observed in 2014.

Erosion reduction along Upper Hess Creek was met in Year 4 as erosion along Upper Hess Creek did not appear to be a problem during the 2014-2015 monitoring year. The banks and channel were densely vegetated with Mexican rush and grasses such as saltgrass (*Distichlis spicata*) and Bermuda grass.

Drought conditions make it difficult to assess successes related to hydrology. The restoration of the main stock pond, 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. However, only 0.04-acre of the proposed 2.16 acres of constructed/restored alluvial valley wetlands exhibited hydrology in the 2014/2015 wet season; this is less than the prior three years, which did not met success criteria. It is expected that in wetter years more area within the alluvial valley wetlands restoration area will support wetland hydrology. 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.

While both perennial pepperweed (*Lepidium latifolium*) and fennel have been identified in the wetland features onsite, none of the restored wetlands supported 10% absolute cover of high impact invasive plant species. Perennial pepperweed was found in sporadic areas around the Main Stock Pond and along the restored creek channel (former road crossing) and along upper channel between the road crossing and stock pond. Fennel was observed in a few small clumps along the upper channel that leads into the Main Stock Pond. Neither of these species provided 10% or greater combined total cover within any mitigation feature. Accordingly, as non-native invasive plant species represented less than 10% of the relative cover within the restoration project wetlands, restoration was met in Year 4.

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
Non-native invasive plants should continue to be controlled in the project area.

Irish Canyon Riparian Restoration Project

Project Overview

The Irish Canyon Riparian Restoration Project was installed in 2009 through 2010. It is located on the 320-acre Irish Canyon property in the Mount Diablo Creek watershed (Figure 12). The goal of the restoration project is to expand and extend riparian woodland habitat. The project is expected to result in the restoration of 0.91 acre of riparian habitat along 688.5 linear feet of stream.


Irish Canyon Tree Plantings
Photo Credit: Save Mount Diablo

This project was completed by Save Mount Diablo staff and volunteers. The project involved planting more than 400 locally collected valley oaks acorns and buckeye nuts in a denuded stream corridor. Planting sites were caged and watering took place every 3 weeks after the rains stopped at the end of May 2010. In the subsequent years, Save Mount Diablo staff and volunteers continued to water planted sites through the dry months.

Monitoring and Adaptive Management

The restoration project continues to demonstrate high seedling recruitment and sapling survival. At the end of 2015, there were 123 established trees across the planted areas, one more than the target of 122. Regular watering began in April 2015 and weeding and mowing occurred in April and May. In June, volunteers began using recycled water to irrigate young plantings for the first time. By the end of 2015, volunteers replanted seven oaks and one buckeye in channel enhancement area one (Save Mount Diablo 2015). No replacement trees were planted in channel enhancement area two or three. All management was completed by Save Mount Diablo staff and volunteers. In August and September of 2015 volunteers and staff repurposed a fence to make individual enclosures for channel enhancement one plantings and in October, weeded the watering basins around trees and marked ones that will need watering

in 2015. Staff and volunteers continued to observe rodent activity in 2015, although they did not cause tree mortality in 2015 as they had in previous years. Weeding, watering, and replanting will continue in 2016.

Lentzner Springs Wetland Restoration Project

Project Overview

The 320-acre Lentzner parcel is located in HCP/NCCP Acquisition Zone 2 in the northern half of the HCP/NCCP inventory area within the Mount Diablo foothills. The entire parcel is designated as a high acquisition priority in the HCP/NCCP because of its proximity to surrounding open space, potential to provide habitat for covered species, and opportunities for stream and wetland restoration. Black Diamond Mines Regional Preserve is just north of the parcel, Clayton Ranch is one mile south of the property, and Roddy Ranch, a private deed-restricted open space area, is 0.5 miles to the west.

The project was initiated as a component of the HCP/NCCP and was completed by the Conservancy and EBRPD in 2008. The goal of the project was to restore 0.15 acres of alkali seasonal wetlands. This includes one large 0.13 acre area downstream (north) of the spring and west of the unnamed drainage and one smaller 0.02 acre area upstream and east of the spring. In preparation for the restoration project, the site was cleared, grubbed, and graded to enhance hydrologic flow to support wetlands. The wetlands were planted with four species in 2008: saltgrass, alkali heath, great valley gumplant, and bulrush (*Bolboschoenus* sp.).

On January 12, 2015 approximately 150 saltgrass plants were transplanted into the restoration area. The plants were approximately 6 inches by 4 inches in size and they were spaced 1 to 2 feet apart. Plants were harvested from further downstream in the channel. Transplants were planted in areas that had low vegetative cover.

Site-specific restoration objectives and performance criteria were set for the project (Table 13f).

Monitoring and Adaptive Management

Year 7 monitoring was conducted on April 22, 2015. Monitoring of the restoration project was extended beyond the 5-year monitoring plan, because restoration had not yet met the Year 5 performance criterion of 60% relative cover of native wetland vegetation (Nomad Ecology 2015b). Monitoring was conducted along transects located in the alkaline wetland and upland area. Although these transects are in enhanced wetland areas, they do not meet the performance criteria for cover of native wetland vegetation. Other areas of the restoration project are dominated by native species, particularly in the vicinity of the tributary channel where saltgrass is dominant.

Three of the four planted species discussed above, saltgrass, great valley gumplant, and alkali heath are established on site. In addition, large stands of native purple needlegrass are established in upland portions of the restoration area.

Although the site has failed to meet the specific performance standard for native vs. non-native vegetation in some areas of the wetlands, the site was considered successful because the wetlands were dominated by wetland species, with native species comprising 16% to 58% relative cover. This indicates that some wetland areas are dominated by native species and some areas are dominated by non-native species with a component of native species.

Recommendations

It is recommended that the performance standards for the wetland restoration project be modified to be more appropriate for the target vegetation community. Alkali wetlands in the region are characterized by overall low vegetative cover, dominance by wetland species, and codominance by native wetland vegetation (Nomad Ecology 2015b). Recommended changes to target values include change to "total relative cover of vegetative cover" to greater than 50% relative cover and "total relative cover of native wetland vegetation" changed to at least 30% relative cover.

If the target values were modified, the restored wetlands on site would meet the performance standards. Total alkali wetland within the wetland delineation study area totals 0.306 acre. Alkali wetlands were mapped prior to project construction and totaled 0.234 acre. This represents an increase in 0.072 acre of alkali wetland. In addition, the wetlands and uplands in the project area have been enhanced through planting of native species and invasive weed control. It is recommended that this year be the final year of annual monitoring and preparation of an annual monitoring report.

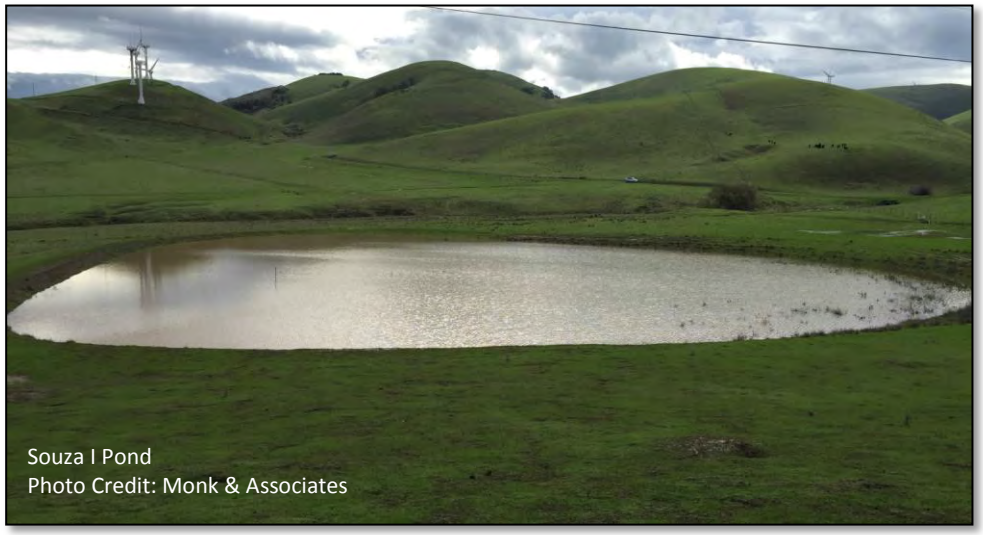
Additional recommendations for site maintenance include the continued control of invasive species on site. Non-native weedy species are present in abundance outside of the project area. In addition to weed species within the restoration exclosure, thistles such as milk thistle and Italian thistle are abundant in the area to the west of the exclosure. These weeds should continue to be controlled so they do not become established within the restoration area. In prior years, the non-native annual grasses were tall (over 2 feet) and dense in portions of the restoration area and have the potential to impact the further development of alkaline wetlands and outcompete native plants. Continuing to mow using a string line trimmer line every July or August after seed set is recommended. Maintenance should include removal of non-native invasive species, in the restoration area by hand prior to line trimming the annual grasses.

Vasco Caves Souza I Pond Creation Project

Project Overview

The Vasco Caves Souza I Pond Creation Project, constructed in 2008, is located in the northwestern corner of the Souza 1 property, about 1 mile north of the Alameda/Contra Costa County border (Figure 12). The project area totaled 2.6 acres and included creation of 0.2 acre seasonal pond habitat and 0.99 acre of seasonal wetland. The pond was designed to provide breeding habitat for California tiger salamander and to support seasonal wetland vegetation. The pond was designed to collect precipitation and stormwater sheet flow from an

approximately 15-acre sub-watershed of Brushy Creek. Pond design elements included an approximately 1-acre, 1-foot-deep portion (the seasonal wetland portion) and a smaller 2- to 3-foot-deep portion (the pond habitat portion). The pond was designed with three depths because the project area is subject to high evaporation rates and minimal rainfall. The 2- to 3-foot portion of the pond was created with the intent to hold water longer into spring. The 3-foot-deep area of the pond fills and spills into the 2- and 1-foot areas of the pond. The 2- to 3-foot area of the pond provides breeding habitat for the California tiger salamander. The pond will dry annually by June and start retaining water with the first rain (usually late October). The pond and wetland were seeded with a wetland seed mix. The surrounding uplands were seeded with a native grassland mix. The seasonal pond and native wetland plant species are being monitored using a number of performance criteria (Table 13g).



Souza I Pond
Photo Credit: Monk & Associates

The objective of this restoration project was to create seasonal wetland. Since the federally and State listed threatened California tiger salamander is present in Vasco Caves Regional Park adjacent to the project site, EBRPD wanted to be sure that the pond did not become a "reproductive sink" where California tiger salamander could lay eggs, but where there would not be sufficient ponding duration to allow larvae to metamorphose. Other design considerations included that the project site is subject to very high winds over much of the year (the site is in a wind farm resource area) and is subject to relatively low rainfall rates. In consideration of the high winds and high evaporation rate at the project site, it was reasoned that constructing the pond too shallow may not allow sufficient duration of saturation/ponding to promote colonization of the pond by hydrophytic plant species or allow successful breeding by California tiger salamander.

Monitoring and Adaptive Management to Date

The hydrologic success criterion for the created pond was met in Year 7. The one and two-foot sections of the pond were inundated for at least 60 days during the 2014-2015 rainy season and the three-foot section was inundated for 180 days (. The vegetative monitoring results show that the pond edges and margin were dominated by wetland vegetation. Relative percent cover of wetland vegetation in the pond during monitoring Year 7 was 97.9% in the one-foot section and 83.0% in the two-foot section. The three-foot section was dry and barren at the time of the

vegetation monitoring and therefore, no transects were run through this portion of the pond. This section of the pond was barren due to long-term inundation over the years, including the most recent monitoring year. Noteworthy vegetation observations during Year 7 included relative cover of flat faced downingia (*Downingia pulchella*) and Great Valley popcornflower (*Plagiobothrys stipitatus micranthus*); both of these plants are native wetland species. During Year 7 monitoring season, a total of 12 vertebrate species were observed (by direct observation, scat or track) either at the created pond or nearby in the uplands. Despite the lower than normal precipitation levels and shallow pond conditions, the most noteworthy observation was of California tiger salamander eggs and larvae in the created pond.

Recommendations

There are no recommendations for the Vasco Caves Souza I Pond Creation project for Year 8.

Souza II Wetland Restoration Project

Project Overview

The Souza II Wetland Restoration Project, constructed in fall/winter of 2009, is located within the Brushy Creek Watershed along the North Fork of Brushy Creek as it traverses the Souza II property (Figure 12). The entire project area is approximately 60 acres in size and includes the restoration of 3,508 feet of an intermittent stream tributary, creation of a 0.2-acre pond, and restoration of 8.9 acres of seasonal wetland.

The original restoration project included the unnamed tributary to Brushy Creek. The banks of the Brushy Creek tributary were stabilized and additional seasonal wetlands were restored in association with the tributary. Channel banks were sloped in a manner to promote onsite flooding, and seeded with native grass species. The berms north and south of the tributary were removed to increase tributary connectivity with the adjacent wetlands and floodplain. Rock weirs were installed in the tributary to increase structural diversity and provide ponding for California red-legged frog. Additionally, the 0.2-acre pond was created south of the channel to provide breeding habitat for California tiger salamander. The pond may also provide aquatic habitat for California red-legged frog, although it will not necessarily hold water for a sufficient period to support a breeding California red-legged frog subpopulation. An existing dirt road was retired, and restored to wetland habitat in the wetland portions (including removal of a culvert from the Brushy Creek tributary), and seeded with native grasses in the upland portions.

In November 2011, approximately 100 additional plantings were installed in the created wetlands and included 100 saltgrass, 20 Mexican rush, and 20 saltmarsh bulrush (*Bolboshoenus maritimus*). Approximately 200 saltgrass were planted along the banks of the tributary. Saltgrass and saltmarsh bulrush were transplanted from the site. Mexican rush was transplanted from Vaquero Farms.

In December 2012, approximately 300 saltgrass were planted along the banks of the tributary and in the created wetlands. Saltgrass was transplanted from on-site. In December 2014, 16 iodine bush (*Allenrolfea occidentalis*) were planted and caged along the margins of select

wetlands. Six were planted in the northern wetland, four in the southern wetland, and six in the kidney-shaped wetland.

On February 9, 2011, topsoil containing seeds of San Joaquin spearscale was translocated from the Vasco Road Widening Project to the Souza II site with the intent of preserving the seed bank that was going to be impacted by the roadway project. The topsoil was distributed into two discrete sites.

Souza II
Photo Credit: Monk & Associates

Additional soil salvaged from the Deer Valley Road widening project was placed in the southern wetland in September 2012, with the intent to transfer vernal pool fairy shrimp to that wetland. No vernal pool fairy shrimp have been detected in this wetland, even though it has been inoculated twice.

A large headcut, several feet wide and several feet deep, was present where the ephemeral drainage joins the main unnamed tributary to Brushy Creek. This erosional feature was present during Years 1 to 5 of monitoring and was temporarily repaired in fall 2010 and 2011 by placing straw bales and straw wattles in the gully. During monitoring visits, the straw bales had silt pooled behind them upstream which shows they captured some sediment from the flowing water before it flowed into the creek.

The Conservancy repaired this erosional feature in October 2014 by diverting water away from the ephemeral drainage that is upstream. The ephemeral drainage is fed by concrete V-ditches and a culvert that drains stormwater from Vasco Road. In order to divert water from the ephemeral drainage and erosional feature, a vegetated swale was created just downstream of the culvert that will slow down water and direct it to the east where water will spread out onto the floodplain. A Grade Drop Structure was created just downstream of the existing articulated concrete mat. The Grade Drop Structure was lined with Rock Slope Protection (RSP) fabric and filled with rip rap. The swale was anchored with a Turf Reinforced Mat (TRM) system, soil in-filled, and seeded with native seed mix. The erosion repair is fully revegetated and functioning as designed as of fall 2015.

Site-specific restoration objectives and performance criteria are listed in Table 13h.

Monitoring and Adaptive Management

Site visits were conducted on November 23, December 3, and December 31, 2014, and on January 7, February 19, March 9, May 5 and 11, and July 31, 2015 (Nomad Ecology 2015c). Data was collected for wetland acreage mapping in 2015. However, because 2015 was an abnormally dry year, wetland mapping data was also collected in February 2016 to produce a more accurate wetland map.

Monitoring of the restoration project has continued beyond 5 years because the wetlands on site have not yet met the Year 5 performance criterion of 60% relative cover of native wetland vegetation. Although the site has failed to meet the specific performance standard for native vs. non-native vegetation in some areas of the wetlands, the Conservancy considers the site successful because the wetlands are dominated by wetland species, with native species comprising 2% to 61% relative cover. This shows that some wetland areas are dominated by native species and some areas are dominated by non-native species with a component of native species.

The project has not met the performance criteria of wetland acreage. Six years post construction, wetlands totaled 2.521 acres which represents an increase of 1.344 acre of alkali wetland (seasonal/depressional), 1.177 acres of wetland (seasonal wetland, alkali wetland (seasonal/depressional), and alkali wetland (permanent/riverine) were enhanced.

Other performance criteria have been met including increasing native plant cover on site particularly on the banks of the tributary to Brushy Creek, reducing erosion along the tributary, increasing wetland capacity on site, increasing acreage of habitat on site capable of supporting California tiger salamander and vernal pool fairy shrimp, and significantly reducing cover of invasive plants. The large headcut, which was repaired by the Conservancy in October 2014, was monitored in fall of 2015 after a storm event. It was observed to be vegetated and functioning as designed to direct water away from the erosion feature. In most areas where the bank was laid back, the bank is vegetated with dense stands of saltgrass, creeping wildrye, and other vegetation. Erosion on these banks has decreased as vegetation has become established.

Recommendations

It is recommended that wetlands performance standards be modified to be more appropriate for the target vegetation community. Alkali wetlands in the region are characterized by overall low vegetative cover, dominance by wetland species, and codominance by native wetland vegetation (Nomad Ecology 2015). Recommended changes to target values include change to “total relative cover of vegetative cover” to greater than 50% relative cover; “total relative cover of native wetland vegetation” changed to at least 30% relative cover; and “wetland and pond acreage monitoring” changed to 1.344 acre of alkali wetland (seasonal/depressional) has been created, 0.639 acres of seasonal wetland and alkali wetland (seasonal/ depressional) have been enhanced, and 0.538 acre of alkali wetland (permanent/riverine) have been enhanced.

With the revised success criteria, the wetlands on site would meet the performance standards. Total alkali wetland within the wetland delineation study area totals 2.521 acres. Prior to project construction alkali wetlands totaled 1.177 acre. This represents an increase of 1.344

acre of alkali wetland (seasonal/depressional) and no increase in alkali wetland (permanent/riverine). In addition, 1.177 acres of alkali wetland (0.538 riverine/permanent and 0.639 seasonal/depressional) were enhanced.

Other project goals have been met including, increasing native plant cover on site, reducing erosion along the tributary, increasing wetland capacity on site, increasing acreage of habitat on site capable of supporting California tiger salamander and vernal pool fairy shrimp, and significantly reducing cover of invasive plants. Based on these factors it is recommended that this year be the final year of annual monitoring and preparation of an annual monitoring report.

Additional actions are recommended in the soil transplant sites, grazing, and site maintenance. On the soil transplant sites, one San Joaquin spearscale and no crownscale were observed and these sites should be monitored in spring 2016 to determine if individuals of these annual species are persisting. Non-native annual grasses and their associated thatch should be removed by hand from the site as needed under the direction of the project biologist.

The electric fence has functioned to exclude cattle from the upstream portion of the tributary to Brushy Creek and the laid back banks since 2011. With the exclusion of cattle, the laid back banks have revegetated with saltgrass, creeping wildrye, and other native vegetation. The laid back banks are a gentle slope and can be easily accessed by cattle if they are not excluded by fencing. Even if the banks are covered with dense saltgrass, cattle access in the wet season may severely damage the vegetation that has been established. Cattle should continue to be excluded from the tributary. However, the benefits of grazing over the site (reducing non-native annual grass thatch and biomass) at this time outweigh the impacts of grazing (some trampled vegetation in wetlands). There is a build-up of dense Italian ryegrass thatch in the vicinity of the erosion repair project, which is in the area that is excluded from grazing. This area would benefit from grazing.

A permanent fence with an access gate could be installed which will permanently exclude cattle during the wet season and eliminate the need for installation of electric fence each year. A barbed wire fence with an access gate allows for control of grazing so that cattle can be excluded in the wet season and then in spring or summer when the banks are dry, cattle can be allowed access into the creek to control vegetation inside the fence.

Non-native weedy species are present in abundance outside of the project area. In addition to weed species within the restoration exclosure, thistles such as milk thistle and Italian thistle are abundant in the area to the west of the exclosure. These weeds should continue to be controlled so they do not become established within the restoration area. In prior years, the non-native annual grasses were tall (over 2 feet) and dense in portions of the restoration area and have the potential to impact the further development of alkaline wetlands and outcompete native plants. Maintenance should include removal of non-native invasive species, in the restoration area by hand prior to line trimming the annual grasses.

Figure 12. Location of Habitat Restoration and Creation Projects

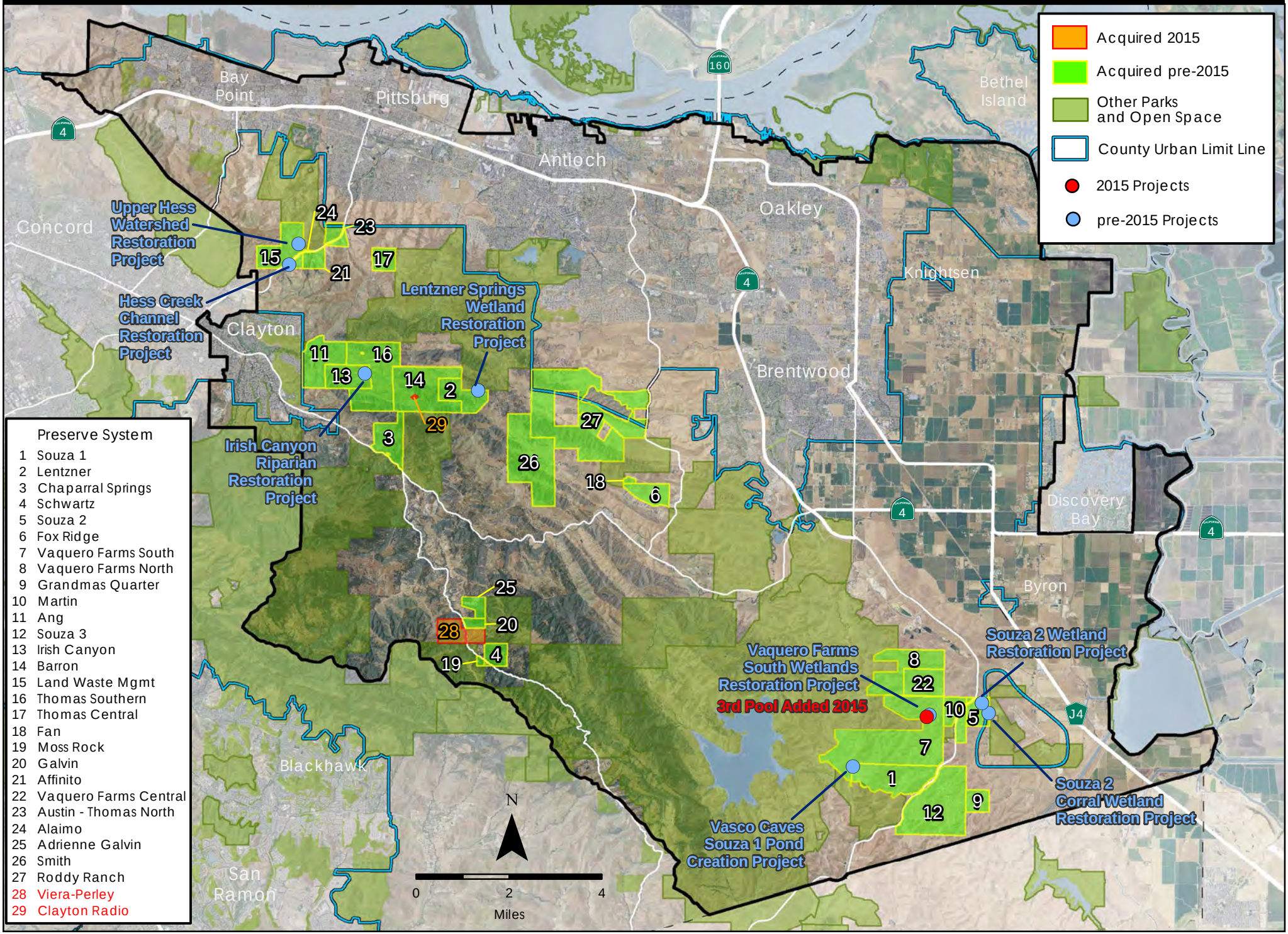


Table 12. Aquatic and Stream Land Cover Restoration and Creation by Watershed

	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.

Table 13a. 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 13b. 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 13c. 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 13d. Upper Hess Habitat Restoration Project: 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 13e. Upper Hess Habitat Restoration Project Performance standards

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

Table 13f. Lentzner Springs Wetland Restoration Project Performance Standards for Restoration Plantings

Year	Criterion	Satisfactory Progress Threshold
1	% of plants surviving	75% survival in Good or Fair condition
2		70% survival in Good or Fair condition
3 (and subsequent years if necessary)		65% survival in Good or Fair condition
4–5 (and subsequent years if necessary)	Absolute cover of native wetland vegetation	60% cover

Table 13g. Vasco Caves Souza I Pond Project Performance Standards

Year	Criterion	Satisfactory Progress Threshold
1	# of wetland species	3 wetland species established
3	Absolute cover of native vegetation	50-60% cover with dominance by hydrophytic plants
1 and 3	Duration of saturation	Saturation for 60 days annually (in addition to inundation)
1 and 3	Absence of plant species on the California Exotic Pest Plant Council's List A-1: Most Invasive and Damaging Wildland Pest Plants	Species absence
1, 3 and 5	Duration of inundation	Inundation for 30 days annually
5	Absolute cover of native vegetation	Pond edges and margin will be dominated by wetland vegetation (FAC, FACW and/or OBL species).

Table 13h. Souza II Wetland Restoration Project (Phase I) Performance Standards for Restoration Plantings

Year	Criterion	Satisfactory Progress Threshold
1	% of plants surviving	75% survival in Good or Fair condition
2		70% survival in Good or Fair condition
3-5	Cover of native wetland vegetation	60% native cover
1-5	Cover of non-native invasive species	Less than 5% non-native 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.

Once developed, and in some cases even before a preserve management plan is developed for a preserve, the Preserve System lands are managed according to the preserve management plan or otherwise consistent with the Plan. The following sections describe progress to date in developing the first preserve management plan and implementing management actions.

Preserve Management Plans

Preserve management plans were originally expected to be prepared within 1 year of land acquisition; however, they have taken longer. This is due to the decision to cover many adjacent properties under one coordinated management plan, the rapid pace of acquisition, and the complexity of developing plans for larger areas. Preserve management plans are working documents and may be modified based on the evaluation of management methods in achieving objectives as well as on results of 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, and Martin.

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 plan was provided to the Wildlife Agencies for review in 2015. A public draft is anticipated to be completed in 2016. 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

This section describes the HCP/NCCP natural community enhancement conservation measures implemented during the 2015 reporting period, and provides an effort-to-date summary of the extent of land cover types enhanced. During the reporting period, several management techniques were applied to enhance natural communities within the Preserve System as part of implementation of 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*.

Efforts in 2015

Natural Community enhancement has been ongoing since permit issuance. 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 2015, 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 2015.

Invasive Plant Control

There were several invasive plant species sites identified or controlled in 2015 by EBRPD and the Conservancy.

Efforts to control invasive plant species during the reporting year include the following.

- Ten yearlings were brought on to graze atriplex on the Vaquero Farms Central property.
- Areas of Italian thistle (0.25 acre) were line trimmed and another area (less than 1 acre) was removed on the Vaquero Farms Central property.
- Areas of marrow and nettle were mowed on the Vaquero Farms Central property.
- Dittrichia was line trimmed and 3 acres of milk thistle was mowed on the Martin property.
- Barbed goatgrass was treated with herbicide and line trimmed on the Adrienne Galvin property.
- Russian thistle, yellow starthistle, and dittrichia were treated with herbicide on the Martin property.
- Purple starthistle was removed on the Martin, Souza III, and Barron properties.
- Dittrichia was removed on the Souza II, Souza III, Martin and Moss Rock properties.
- Milk thistle was removed and treated on the Souza II property.

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 2015. 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 on the Ang property was abbreviated due to lack of rainfall in the 2014-2015 season.

Land Management

This section summarizes all land management activities undertaken on the HCP/NCCP preserves during the 2015 reporting period and discusses management issues on the preserves.

For the 2015 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 2015 are summarized below.

New Water Trough Vaquero Farms South
Photo: Nomad Ecology

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.

- Water development
    - New water infrastructure was installed[6] and existing water systems were monitored in 2015.
    - On the Vaquero Farms South Property, two new water troughs[7] were installed.

[6] There are seven other livestock watering systems under development in cooperation with grazing tenants, EBRPD, Conservancy and the Natural Resource Conservation Service (NRCS). NRCS has become a more active partner in managing rangelands through their EQIP which is a cost-share program to encourage rangeland management that provides additional environmental benefits.

[7] Water troughs allow land managers to reduce the impacts of cattle to ponds and creeks by encouraging the cattle to access clean and reliable water at troughs. In many cases these environmental benefits can be achieved without installing exclusion fencing. The troughs are place on the landscape to spread grazing across pastures so that there is more even pressure on the grasslands which promotes more consistent RDM levels to reach goals to benefit grassland natural communities.

- On the Hess Property, a new water trough was installed (outside of the creek restoration area) to provide water to cattle on that site.
- A 4-inch main and leak were repaired at Vaquero Farms Central that fed the arena and troughs to the east.
- A broken water line was repaired under Vasco Road that feeds a trough on the Martin East property.
- Staff began designing a rainwater collection system that will utilize half of the arena roof. The system can collect 10,000 gallons of water per inch of precipitation.
- A water line route for Environmental Quality Incentive Program (EQIP) solar pump water project was aligned and marked on the Barron property.
- New solar panels and pumps were installed on the Fox Ridge and Smith properties.
- A leak was repaired in a wooden tank on the Affinito property.
- Drawdown testing of a water well for volume output and viability as a livestock water source was conducted on the Affinito property.
- On the Upper Hess property, well heads were identified as potential water source for grazing and the coordinates were saved using GPS.

- Security and Safety
  - Ongoing/regular patrol and security checks continued at all properties.
  - Motion sensor cameras were installed to monitor trespass and illegal dumping activity on the Affinito, Clayton Radio, Land Waste Management (Southern Triangle), Smith, and Roddy (Horse Valley) properties.
  - Fabricated and installed expanded steel grate closure over an open cistern at Roddy Ranch (Horse Valley).
  - An open cistern hole was covered with a metal plate on the Fox Ridge property.
  - "No trespassing" signs were placed on the Smith property after illegal trespassers/shooters were found on the property.
  - Copper thieves were caught on the Clayton Radio property.
  - A concrete spring box was secured with locking lid on the Ang property.
  - Warning signs were posted on an extremely dangerous stretch of fire trail at the Adrienne Galvin property. The signs were placed to avoid a collision or firefighter entrapment during a wildland fire.
  - Vehicle gates were replaced at Alaimo.

- Fence Repair and Maintenance
    - A barbed wire fence was repaired at Vaquero Farms.
    - Fence alignment was remarked for riparian corridor and the Ang property.
- Road Maintenance
    - Several sinkholes were identified and flagged on the Souza III.
    - Over 14 miles of fire road were mowed in the Vasco areas for grading preparation.
    - EBRPD Roads & Trails staff graded over 14 miles of fire roads in the Vasco area. During the grading operation Park staff identified and repaired potholes.
- Resource Maintenance
    - Residual dry matter (RDM) samples were collected for all Preserve properties.
    - Staff removed and replaced 100 feet of 7-strand barbed wire at the Vaquero Farms Central vernal pool complex.
    - A large hazardous oak was removed from the Moss Rock property. The tree was threatening to fall across Morgan Territory Road.
    - Fire roads were graded at Ang, Barron, Irish Canyon, Roddy, and Thomas-south properties.
    - Overhead limb-pruning was conducted on the Ang, Barron, Irish Canyon, and Thomas-south to provide clearance for grading operations.
    - There was an assessment of potential trail opportunities at Horse Valley.
    - Fuel break along residential area frontage on the Ang property was line trimmed.
    - A memorial bench on the Barron property was refinished.
- Debris Removal
    - Clean up efforts continued on all properties in 2015.
    - Several loads of scrap metal was removed from the Ang, Land Waste Management (Southern Triangle), and Affinito properties.
    - An illegal dump site was cleaned on the Land Waste Management southern triangle property.
    - Marked and measure the water line route for EQIP solar pump water project on Barron.
    - Installed solar panels and pumps- at Fox Ridge and Smith.

- Defunct corrals and debris were removed from the Fox Ridge property.
- Cleaned up clay pigeon pieces and beer cans from illegal shooting activity at the Smith property.

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 above 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 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.


Mount Diablo Fairy Lantern, Viera-Perley Property
Photo Credit: Nomad Ecology

The inventory phase was initiated in early- to mid-2008 in the form of pre-acquisition surveys when the first lands were being 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 records and GIS data are updated accordingly. 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, and June 2015 (Nomad Ecology 2015d). The 2015 survey effort was primarily focused on the Viera-Perley property as it was the newest of the acquisitions and had not been previously surveyed for rare plants. Although precipitation totals were low during the 2014-2015 rainy season, reference populations indicated favorable conditions to survey for covered species populations still needed to meet the conservation objectives, therefore efforts were made to locate covered and no-take species at previously surveyed preserves including Grandmas Quarter, Roddy Ranch, Souza 1, Souza 3, Vaquero Farms Central, Vaquero Farms North, and Vaquero Farms South.

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 CNPS 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 global positioning system (GPS) point data collected in the field.

During plant surveys conducted in March, April, May, and June 2015, two covered species were observed: Mount Diablo fairy lantern and San Joaquin spearscale. Overall, a total of two populations of covered plant species were recorded across all surveyed properties. No no-take species were observed during these surveys.

Additional special-status plant species observed on the acquisition properties include, shining navarettia (*Navarettia nigelliformis subsp. Radians),* small-flowered morning glory (*Convolvulus simulans*), hogwallow starfish (*Hesperevax caulescens*); and oval-leaved viburnum (*Viburnum ellipticum*). Although these species are not covered or considered no-take species under the HCP/NCCP, they are considered rare by the California Native Plant Society.

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

Wetland Mapping

A wetland assessment and refined mapping was conducted on the Smith Property (Nomad Ecology 2015e). Incidental data on uncommon landscape features and uncommon vegetation types were also collected when encountered in the field during wetlands mapping. Based on the results of the 2015 wetlands assessment of the Viera-Perley property, a single wetland feature, a pond (0.19 acres), had been previously identified on the property. This pond is located on the western parcel along a tributary to Marsh Creek. The initial Plan mapping was based on aerial photo interpretation over the entire inventory area at a coarse scale, which resulted in polygons that were drawn roughly around features. Refinement of the polygons to conform to the exact boundaries of the features, at a finer scale, in 2015 resulted in small decreases per feature, and a large increase in wetland acres due to the inclusion of oak riparian woodland as a riparian habitat type.

The assessment did result in an increase in riparian woodland. While there are scattered individual western sycamores (*Platanus racemosa*) along Marsh Creek, the riparian vegetation is this area is dominated by valley oak. (25.98 acres). These riparian woodlands comprise interior live oak (*Quercus wislizeni* var. *wislizeni*), coast live oak (*Quercus agrifolia* var. *agrifolia*), and a small amount California buckeye. Mature trees with a closed canopy form riparian features (Nomad Ecology 2015d).

Long-term Preserve Monitoring Phase

As of December 2015, 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 is capable of tracking covered 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 also initiated the development of a Request for Proposals (RFP) for a small grant program that will fund research projects. This RFP is still in draft form and is expected to be finalized in 2016.

Golden Eagle Research

EBRPD continues its research to study golden eagle behavior in the Altamont Pass Wind Resource Area (APWRA) and map collision hazards (East Bay Regional Park District 2015). The study includes 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.

Other minor tasks include development of collision hazard maps for red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*) at Buena Vista wind farm and processing of data and samples collected from eagles during trapping (e.g., vital statistics, blood samples) for submittal to the Molecular Ecology Laboratory at the Alaska Science Center. Collision hazard maps for Buena Vista will be developed using observational data collected by biologists performing post-construction monitoring at Buena Vista.


Photo Credit: Joe DiDonato

A total of 18 golden eagles were trapped, banded, and outfitted with satellite transmitters between December 18, 2012 and June 30, 2015. Eleven eagles are currently being tracked. The golden eagle research project will conclude its initial phase in 2016 (extended from 2015), at which time a final report will be made publically available on the Conservancy's website. This additional time will allow researchers to integrate new behavioral observation data on golden eagle flight behavior in the collision hazard map. In addition, the extension of the grant timeline allows the researchers to incorporate substantially more GPS-based eagle location data into the maps. A final report is expected in mid-2016.

Special Status and Invasive Plan Management Pilot Project

The Conservancy identified numerous special status plant species populations in the Preserve System. Many of these populations face serious threats from noxious weeds, specifically, two covered plant species are threatened by highly invasive medusahead grass. The covered plant species targeted for conservation are round-leaved filaree, and big tarplant. Medusahead grass threatens these plant populations and control and eradication is necessary for the Conservancy to protect and expand these populations.

In 2014 the Conservancy conducted a literature review on medusahead 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 is needed.

The study, proposed for 2016, is a high priority for the HCP/NCCP as it will provide 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 two 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

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. This newly proposed research stud will contribute to these pressing needs.

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 study will be conducted in 2016 with the analysis and reporting is expected to be available in 2017.

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 2015, 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. In addition to those activities described in Section IV, the adaptive management activities described below were implemented.

Taxonomic Update: Adobe Navarretia (*Navarretia nigelliformis* subsp. *nigelliformis*)


Shining navarretia individuals in flower.
Photo Credit: Nomad Ecology

Since the development and implementation of the HCP/NCCP, plant research and field observations have concluded that the subspecies of *Navarretia nigelliformis* within the HCP/NCCP area is most likely to be subspecies *radians* (shining navarretia) and not subspecies *nigelliformis* (adobe navarretia), as previously understood. The main differences between these two subspecies of *Navarretia nigelliformis* is flower size and herbage color. *Radians* has a smaller flower and is gray-green.

- subspecies *nigelliformis* = corolla length 12-16mm; herbage dark green
- subspecies *radians* = corolla length 9-11mm; herbage gray-green.

The subspecies descriptions between these two taxa identify other differences in the gestalt, stem, inflorescence, and flower structure; however, some of these other morphological differences can be difficult to separate due to subjectivity of trait interpretation. Of these characteristics, the best characters to rely upon are the inflorescence and floral characters.

Although the HCP/NCCP only covers adobe navarretia, the Conservancy surveys for both adobe navarretia and shining navarretia. Only shining navarretia has been identified in the Preserve System.

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 10,157 acres ahead across all land cover types and 281,960 linear feet ahead in stream land cover. The Conservancy is 6,949 acres ahead of the stay-ahead requirement for grassland and irrigated agriculture land cover types (the requirement is 685 acres). For plant occurrences, the Conservancy is meeting the stay-ahead requirement (Table 15).

Table 14. Stay-Ahead Assessment: Land Cover

	Conservation			Impact					
Land Cover Type	Protection Required (acres)	Protection 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	7,407.78	41%	12,148	458.72	3.8%	685.36	6,949.06	37%
Chaparral and scrub	550	210.26	38%	2	0.04	2.0%	11.00	210.22	36%
Oak savanna	500	363.35	73%	165	0.00	0.0%	0.00	363.35	73%
Oak woodland	400	2,425.81	606%	73	0.25	0.3%	1.37	2,425.56	606%
Subtotal terrestrial	*19,600*	*10,407.20*	*53%*	*12,388*	*459.01*	*3.7%*	*726.23*	*9,948.19*	*49%*
Aquatic									
Riparian woodland/scrub	70	60.68	87%	35	0.77	2.2%	1.54	59.91	84%
Perennial wetland[1]	75	5.31	7%	75	0.07	0.1%	0.07	5.24	7%
Seasonal wetland	168	19.30	11%	56	0.38	0.7%	1.13	18.93	11%
Alkali wetland	93	32.40	35%	31	0.14	0.5%	0.42	32.26	34%
Pond	16	11.28	70%	8	0.01	0.1%	0.02	11.27	70%
Reservoir (open water)[2]	12	0.00	0%	12	0.00	0.0%	0.00	0.00	0%
Slough/Channel	36	0.00	0%	72	0.07	0.1%	0.04	-0.07	0%
Subtotal aquatic	*470*	*128.97*	*27%*	*289*	*1.43*	*0.5%*	2.33	127.46	27%
Stream (length in linear feet)									
Perennial stream	4,224	12,622.72	299%	2,112	96.31	4.6%	192.61	12,526.41	294%
Intermittent stream	2,112	130,619.95	6185%	2,112	479.00	22.7%	479.00	127,157.55	6162%
Ephemeral stream[4]	26,400	144,623.97	548%	26,400	253.00	1.0%	253.44	142,276.57	547%
Subtotal stream length	*32,736*	*287,866.64*	*879%*	*30,624*	*828.31*	2.7%	885.43	281,960.53	877%
Other Land Cover Types not tracked for Stay-Ahead	*0*	*81.67*		*0*	*5.68*				
Totals									
Acres	20,070	10,617.84		12,677	460.44		728.96	10,157.40	
Linear feet	32,736	282,788.84		30,624	828.31		885.43	281,960.53	

[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*	*1*	*0*	*1*	*100%*
Brittlescale	*Atriplex depressa*	*1*	--	*1*	*100%*
San Joaquin spearscale	*Atriplex joanquiniana*	*9*	*[see note [1]]*	*9*	*100%*
Big tarplant	*Blepharizonia plumosa*	*6*	*0*	*6*	*100%*
Mount Diablo fairy lantern	*Calochortus pulchellus*	*4*	*0*	*4*	*100%*
Recurved larkspur	*Delphinium recurvatum*	*0*	*0*	*0*	--
Round-leaved filaree	*Erodium macrophyllum*	*2*	*[see note [2]]*	*2*	--
Diablo helianthella	*Helianthella castanea*	*13*	*0*	*13*	*100%*
Brewer's dwarf flax	*Hesperolinon breweri*	*4*	*0*	*4*	--
Showy madia	*Madia radiata*	*0*	*0*	*0*	--
Adobe navarretia	*Navarretia nigelliformis* ssp. *nigelliformis*	*0*	*0*	*0*	--
Total		**40**	**0**	**40**	**--**

[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.

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.

Wildfire

- In June, there was a 2-acre vegetation fire on the Vaquero Farms South property in the Northwinds turbine area. The fire was caused by the turbine decommissioning contractor using a grinder. The fire was contained before impacting any significant resources and no remedial measures were required.

- In July, there was a 200-acre fire on the Vaquero Farms South property in the Tres Vaqueros Windfarm. The fire was started by a cutting torch operated by the contractor decommissioning the Howden turbines. The fire was contained and no remedial measures were required by the Conservancy.

IX. FINANCES

Budget

The Conservancy analyzed cost projections from the HCP/NCCP, the previous years' actual costs and the anticipated 2015 work plan to develop the 2015 Budget (Table 16). 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 2015 Budget. Overall, expenditures were approximately $3.37 million.

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 fees are utilized 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 lease income from Preserve System properties and 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.

A total of $3,876,684 was received or provided as match in 2015 (Tables 17 and 18). This amount includes development fees from covered activities ($1,201,260), Contributions to

Recovery payments from covered activities ($66,709), wetland and stream fees from covered activities ($36,157), administrative fees, staff time fees, and other revenues ($113,728), grants ($2,234,579), and estimated local match funding ($224,250).

All grants awarded to date are summarized in Table 19. Since it began implementing the HCP/NCCP through the end of 2015, the Conservancy has been awarded $60,395,414 in grants. Of this amount, $51,339,392 has been spent and $8,895,052 remains. These amounts do not include match funding provided by partners. EBRPD has contributed an estimated $15 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[8] 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 other properties previously acquired also provides 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.

[8] 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 16. 2015 Conservancy Budget: Expenditures and Comparison to Budget Projections

	HCP/NCCP Projected Cost Estimate			2015 Budget by Revenue Source					2015 Expenditures
Cost Category	Years 6-10	Average Cost Per Year (Years 6-10)	% of Total	Development Fee Account	Wetland Mitigation Fee Account	CTR Account and Grant Funding	TOTAL	% of Total	Total expenditures for 2015
Program Administration and Permitting Program	$2,317,255	$436,451	5%	$663,992	$0	$125,000	$788,992	6%	$838,220
Land Acquisition	$23,224,521	$4,644,904	55%	$150,000	$0	$11,296,312	$11,446,312	82%	$2,042,727
Management, Restoration and Recreation Planning and Design	$1,365,238	$473,835	3%	$127,364	$0	$275,000	$402,364	3%	$140,647
Habitat Restoration/ Creation	$7,015,158	$1,403,032	17%	$0	$206,352	$150,000	$356,352	3%	$251,233
Environmental Compliance	$567,600	$113,520	1%	$84,286	$30,000	$40,000	$154,286	1%	$17,543
HCP/NCCP Preserve Management and Maintenance	$4,772,670	$954,534	11%	$193,727	$0	$180,000	$373,727	3%	$30,409
Monitoring, Research, and Adaptive Management	$2,074,364	$414,873	5%	$137,727	$40,000	$90,000	$267,727	2%	$47,508
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%	$117,172	$0	$0	$117,172	1%	$0
TOTAL	$42,173,003	$8,608,388	100%	$1,480,268	$276,352	$12,156,312	$13,912,932	100%	$3,368,286

Table 17. Summary of All Revenues Received

Type	Reporting Period[1]	Cumulative[2]
Mitigation for Terrestrial Impacts (permanent and temporary impacts)	$1,201,260	$7,483,000
Wetland Mitigation Fees (permanent and temporary impacts to aquatic features)	$36,157	$717,400
Contributions to Recovery	$66,709	$1,340,900
Administrative Fees/Staff Time Fees for Participating Special Entities and Other Revenues[3]	$113,728	$3,744,000
Grants	$2,234,579	$48,488,500
Local Matching Funds[4]	$224,250	$23,984,600
Total	**$3,876,684**	**$85,758,400**

[1] Includes revenue received in 2015 for prior years' permitted projects. These are primarily staff time/administrative charges collected after mitigation fee payment and additional mitigation fee payments to correct older payments. Detailed in Table 18.

[2] Amounts are rounded. Cumulative numbers also reflect refinements and additions to cumulative revenues. Refinements include: 1) the Columbia Solar Project recieved a return of their wetland mitigation fee payment, as the project did avoided impacting the wetland on site, 2) prior to the 2014 Annual Report interest earnings were not reflected in reporting period revenues, and 3) additional local matching funds have been identified.

[3] Other includes interest earnings and special project payments. Includes pre-HCP payments in *Cumulative Total.*

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

Table 18. Summary Accounting of Fee and Grant Revenues Received in Reporting Period

Type		Amount
Mitigation for Terrestrial Impacts (permanent and temporary impacts)		
State Route 4/Balfour Road Interchange Improvements Project		$339,091
PG&E 31061322 Briones Tap 60 kV Pole Replacement Project		$71
Bella Fiore Residential Development Project		$163,580
Marsh Creek Road Safety Improvements Project		$19,321
John Muir Parkway - Phase II		$2,253
Vasco Road Embankment Repair Project		$1,330
Mariner's Discovery Church Project		$45,114
Celebration Preschool Project		$11,246
Palmilla Residential Development Project - Phase I		$290,207
Columbia Solar Project (temporary impact fees collected annually)		$45,829
Phillips 66 Vasco Road Line 200 Pipeline Remediation		$4,513
Mangini Residential Development Project		$126,294
Greystone Place Residental Development Project[2]		$31,673
Mission Grove Residental Development Project - Phase II[2]		$120,736
Development Fees subtotal		*$1,201,260*
Wetland Mitigation Fees (permanent and temporary impacts to aquatic features)		
State Route 4/Balfour Road Interchange Improvements Project		$22,863
Marsh Creek Road Safety Improvements Project		$12,054
Palmilla Residential Development Project - Phase I		$1,241
Wetland Mitigation Fees subtotal		*$36,157*
Contributions to Recovery		
State Route 4/Balfour Road Interchange Improvements Project		$61,195
PG&E 31061322 Briones Tap 60 kV Pole Replacement Project		$1,000
Phillips 66 Vasco Road Line 200 Pipeline Remediation		$4,513
Contribution to Recovery subtotal		*$66,709*
Administrative Fees/Staff Time Fees for Participating Special Entities and Other Revenues		
PG&E 31061322 Briones Tap 60 kV Pole Replacement Project (staff time)		$2,500
Marsh Creek Road Safety Improvements Project (in-lieu of wildlife movement study)		$75,000
SR4/SR160 Bypass Phase 2 Connectors Project (staff time)		$3,771
SR4/Balfour Road Interchange Improvements Project (staff time)		$16,667
Phillips 66 Vasco Road Line 200 Pipeline Remediation (staff time)		$2,878
Pooled Interest Earnings		$12,912
Other Fees and Charges for Staff Time subtotal		*$113,728*
Grants[1]	**Source**	
CDFW LAG Grant P1282108	State	$24,816
CDFW LAG Grant P1382112	State	$45,490
Prop 84 IRWM	State	$362,106
WCB Prop 84 for Viera/Perley Acquisition	State	$877,500
USFWS Section 6 for Viera/Perley Acquisition	Federal	$877,500
Prop 84 IRWM	State	$17,941
Prop 84 IRWM	State	$14,559
CDFW LAG Grant P1382112	State	$14,667
Grants subtotal		*$2,234,579*
Local Matching Funds		
EBRPD (Clayton Radio)		$29,250
EBPRD (Viera/Perley)		$195,000
Local funding subtotal		*$224,250*
Total		**$3,876,684**

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

[2] These projects paid mitigation fees under protest (i.e., mitigation fees paid to cities and permit issued, but payment not remitted to the Conservancy)

Table 19. Grants Awarded to Conservancy for Implementation of East Contra Costa County HCP/NCCP[1]

Funding Source	Agency	Purpose	Amount	Required Match	Expended through 2015	Remaining	Grant Close Date	Complete
Section 6 (2006)	USFWS admin. by WCB	Acquisition	$6,531,054	$7,982,399	$6,531,054	$0	June 2010	Y
Section 6 (2007)	USFWS admin. by WCB	Acquisition	$7,000,000	$8,555,600	$7,000,000	$0	June 2011	Y
Section 6 (2008)	USFWS admin. by WCB	Acquisition	$6,000,000	$7,333,333	$5,934,114	$0	Feb 2013	Y
Section 6 (2009)	USFWS admin. by WCB	Acquisition	$2,500,000	$3,055,556	$2,500,000	$0	Aug 2014	Y
Section 6 (2010)	USFWS admin. by WCB	Acquisition	$6,000,000	$7,333,333	$6,000,000	$0	Aug 2014	Y
Section 6 (2011)	USFWS admin. by WCB	Acquisition	$4,463,936	$5,455,922	$877,500	$3,586,436	Oct 2016	
Section 6 (2012)	USFWS admin. by WCB	Acquisition	$1,000,000	$1,222,222	$0	$1,000,000	Sep 2016	
Section 6 (2014)	USFWS admin. by WCB	Acquisition	$2,000,000	$2,444,444	$0	$2,000,000	Dec 2017	
Section 6 (2015)	USFWS admin. by WCB	Acquisition	$2,000,000	$2,444,444	$0	$2,000,000	Oct 2018	
CVPIA - HRP	USBR	Acquisition	$1,241,631	$500,000	$1,241,631	$0	Sep 2010	Y
IRWMP - Prop 50	SWRCB	Acquisition or restoration	$750,000	$500,000	$750,000	$0	June 2012	Y
IRWMP - Prop 50 (reprogrammed)	SWRCB	Acquisition or restoration	$1,400,000	$500,000	$1,400,000	$0	Mar 2012	Y
IRWMP - Prop 84	DWR	Acquisition or restoration	$650,000	$216,667	$650,000	$0	Dec 2014	Y
NCCP Local Assistance (2006)	CDFW	Start-up staffing	$40,000	$0	$40,000	$0	June 2008	Y
NCCP Local Assistance (2007)	CDFW	Start-up wetlands restoration	$60,000	$120,000	$60,000	$0	Dec 2008	Y
NCCP Local Assistance (2008)	CDFW	Wetlands restoration at Souza 2	$150,000	$0	$125,100	$0	April 2011	Y
NCCP Local Assistance (2009)	CDFW	Hess Construction	$150,000	$111,000	$150,000	$0	Mar 2012	Y
NCCP Local Assistance (2010)	CDFW	Wetland and rare plant inventory	$27,000	$0	$27,000	$0	April 2013	Y
NCCP Local Assistance (2010)	CDFW	Restoration project monitoring/maintenance	$85,000	$0	$85,000	$0	April 2013	Y
NCCP Local Assistance (2010)	CDFW	Preserve monitoring plan development	$50,000	$0	$50,000	$0	April 2013	Y
NCCP Local Assistance (2011)	CDFW	Wetland and rare plant inventory (phase 2)	$40,000	$0	$40,000	$0	April 2014	Y
NCCP Local Assistance (2011)	CDFW	Restoration project monitoring/maintenance	$50,000	$0	$50,000	$0	April 2014	Y
NCCP Local Assistance (2011)	CDFW	Preserve management plan development	$75,000	$0	$75,000	$0	April 2014	Y
NCCP Local Assistance (2012)	CDFW	Ang pond restoration	$95,000	$0	$24,816	$0	April 2015	Y
NCCP Local Assistance (2013)	CDFW	Baseline Inventory	$60,157	$0	$60,157	$0	March 2016	Y
NCCP Local Assistance (2015)	CDFW	Rare and Invasive Plant Management	$50,000	$0	$0	$50,000	March 2018	
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
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
			$60,395,414	**$47,937,420**	**$51,339,392**	**$8,895,052**		

[1] Funding from partners not included. EBRPD has contributed ~$15 million of its own funds or its grants funds to joint land acquisitions.

Acronyms:

CDFW: California Department of Fish and Wildlife
CVPIA HRP: Central Valley Project Improvement Act Habitat Restoration Program
DWR: Department of Water Resources
EBRPD: East Bay Regional Park District
EQIP: Environmental Quality Incentives Program
IRWMP: Integrated Regional Water Management Plan
NCCP: Natural Community Conservation Plan
NRCS: Natural Resource Conservation Service
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 2015 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 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, 10 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). 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. Adoption of fees by participating cities and the County is pending.

Other Activities

Public Outreach/Engagement

Public Hikes

- In 2015, Save Mount Diablo led five hikes on Conservancy preserve properties, with a total of 75 attendees.
- EBRPD, in cooperation with the Conservancy, hosted a land bank tour of the Souza II property. Approximately 20 people participated.

Volunteer Engagement

- Over 100 volunteers providing 485 man hours working with Save Mount Diablo continued to monitor and maintain the riparian plantings at the Irish Canyon Restoration sites.

Canyon Restoration
Photo Credit: Save Mount Diablo

- The Conservancy conducted rare plant training for EBRPD and Conservancy staff on two separate occasions, once in the spring and again in the fall, during the reporting period. Training included guidance on proper identification of rare plants and avoidance procedures should a rare plant be observed.

XI. REFERENCES

East Bay Regional Park District. 2015. Using Satellite Telemetry to Improve and Expand Golden Eagle Hazard Collision Mapping to Lessen Impacts of Wind Turbine Repowering in the Altamont Pass Wind Resource Area, California.

Hall, L. S., P. R. Krausman, and M. L. Morrison. 1997. The Habitat Concept and a Plea for Standard Terminology. *Wildlife Society Bulletin* 25(1):173–182.

H. T. Harvey & Associates. 2011. *Upper Hess Creek Restoration Project Restoration Management Plan Outline*. May. Los Gatos, CA. Prepared for the East Contra Costa County Habitat Conservancy, Martinez, CA and the East Bay Regional Park District, Oakland, CA.

H.T. Harvey & Associates. 2015. *Hess Creek Watershed Restoration Project, As-Built Report.* April. Prepared for the East Contra Costa County Habitat Conservancy, Martinez, CA and the East Bay Regional Park District, Oakland, CA

Monk & Associates. 2015a. *Annual Monitoring Report East Contra Costa County Conservancy, Souza II, Corral Seasonal Wetland Project (Year Three).* February. Walnut Creek, CA. Prepared for the East Contra Costa Habitat Conservancy, Martinez, CA.

———. 2015b. *Annual Monitoring Report East Contra Costa County Conservancy, Vaquero Farms Seasonal Wetland Project (Year Three).* February. Walnut Creek, CA. Prepared for the East Contra Costa Habitat Conservancy, Martinez, CA.

———. 2015c. *Annual Monitoring Report Created Wetlands Monitoring Report, East Contra Costa County Habitat Conservancy, Upper Hess Creek Restoration Project, (Year Four)*. February. Walnut Creek, CA. Prepared for the East Contra Costa Habitat Conservancy, Martinez, CA.

———. *2015d. Annual Monitoring Report Created Pond East Contra Costa County Habitat Conservancy, Vasco Souza I, HCP Pond, Vasco Caves Regional Park, Byron, California (Year Seven)*. November. Walnut Creek, CA. Prepared for the East Contra Costa Habitat Conservancy, Martinez, CA.

Nomad Ecology. 2015a*. Annual Restoration Monitoring Report (Year 1), Hess Creek Restoration Project, Contra Costa County, California*. Draft. December. Martinez, CA. Prepared for Contra Costa County Department of Conservation and Development, Martinez, CA.

———. 2015b. *Annual Restoration Monitoring Report (Year 7), Lentzner Spring Restoration Project, Contra Costa County, California*. Draft. December. Martinez, CA. Prepared for Contra Costa County Department of Conservation and Development, Martinez, CA.

———. 2015c. *Third Annual Restoration Monitoring Report (Year 3), Souza II Restoration Project, Contra Costa County, California*. Draft. December. Prepared for East Contra County Habitat Conservancy. Martinez, CA.

———. 2015d. *Covered Plant Inventory Summary*. Martinez, CA. Prepared for East Contra County Habitat Conservancy, Martinez, CA.

———. 2015e. *Wetlands Inventory Summary*. Martinez, CA. Prepared for East Contra County Habitat Conservancy, Martinez, CA.

Save Mount Diablo. 2015. *Annual Report Update, Irish Canyon Riparian Restoration Project*. Walnut Creek, CA. Prepared for East Contra County Habitat Conservancy, Martinez, CA.

U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. *Recovery Plan for Upland Species of the San Joaquin Valley, California.* Portland, OR: Region 1.

Willdan Financial Services. 2012a. *East Contra Costa County HCP/NCCP Mitigation Fee Audit*. December. Oakland, CA. Prepared for East Contra Costa Habitat Conservancy, Martinez, CA.

———. 2012b. *Memorandum: HCP Fee Burden Analysis*. December. Oakland, CA. Prepared for East Contra Costa Habitat Conservancy, Martinez, CA.

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.

Ordinary high water mark (OHWM). A line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; or the presence of litter and debris.

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 NCCPA 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.