SANTA CLARA VALLEY HABITAT PLAN
3RD ANNUAL REPORT
FY2016–2017

Santa Clara Valley Habitat Agency
535 Alkire Avenue, Suite 100
Morgan Hill, CA 95037
Contact: Edmund Sullivan
408.779.7261

May 2018 (revised)

Contents

Page

Tables ..... **iii**

Figures ..... **v**

Acronyms ..... **vi**

Executive Summary **ES-1**

Chapter 1 **Introduction** **1-1**

Santa Clara Valley Habitat Plan Background 1-1

Annual Report Overview 1-2

Chapter 2 **Covered Activities** **2-1**

Covered Activities Receiving Take Coverage 2-2

Private Projects 2-3

Public Projects 2-3

Participating Special Entities 2-4

Conditions on Covered Activities 2-4

Impacts on Land Cover Types 2-5

Impacts on Modeled and Critical Habitat 2-5

Impacts on Covered Plants 2-5

Compliance Tracking of Covered Plants 2-6

Chapter 3 **Land Acquisition** **3-1**

Reserve System 3-1

Conservation Analysis Zones 3-2

Sites Acquired 3-2

Reporting Period 3-2

Cumulative 3-3

Sites Under Review 3-4

Acquisitions in Progress 3-4

Mitigation Banks 3-6

Chapter 4 **Habitat Restoration and Creation** **4-1**

Restoration and Creation Projects 4-1

Calero County Park Pond and Wetland Restoration Project 4-1

Hedgerow on Pajaro Ranch 4-6

Coyote Ceanothus Population Creation Project 4-6

Pacheco Creek Riparian Planting Project 4-8

Restoration Project Planning 4-8

Chapter 5 **Western Burrowing Owl Management and Monitoring** **5-1**

Protection of Western Burrowing Owl Habitat 5-1

Progress to Date 5-4
Monitoring Actions 5-5
South Bay Western Burrowing Owl Survey Network 5-5
Additional Research Studies 5-6
Burrowing Owl Workshop 5-8
Chapter 6 **Reserve System Management 6-1**
Management Planning Activities 6-1
Conceptual Ecological Models 6-2
Management Implementation 6-2
Coyote Ridge Open Space Preserve 6-2
Chapter 7 **Monitoring, Research, and Adaptive Management 7-1**
Monitoring 7-2
Research 7-12
Current Grant-Funded Research Activities 7-12
Chapter 8 **Stay-Ahead Provision 8-1**
Compliance with the Stay-Ahead Provision 8-2
Stay-Ahead Compliance Calculations 8-3
Chapter 9 **Changed and Unforeseen Circumstances 9-1**
Changed Circumstances 9-1
Remedial Measures 9-2
Chapter 10 **Finances 10-1**
Budget 10-1
Revenue Sources 10-2
Land Acquisition 10-3
Funding in Perpetuity 10-3
Chapter 11 **Program Administration 11-1**
Major Accomplishments 11-1
Interpretation and Clarification Memos 11-4
Modifications to the Habitat Plan 11-5
Other Conservation Efforts 11-6
Chapter 12 **References Cited 12-1**
Literature Cited 12-1
Personal Communication 12-3
Chapter 13 **List of Preparers 13-1**
Santa Clara Valley Habitat Agency 13-1
County of Santa Clara 13-1
Santa Clara Valley Water District 13-1
ICF 13-1

Tables

Table 1 Summary of Covered Activities – Reporting Period

Table 2 Applied Conditions by Covered Activity – Reporting Period

Table 3 Measures Required at the Species Level for Covered Activities – Reporting Period

Table 4 Summary of Impacts to Land Cover Types – Reporting Period and Cumulative

Table 5 Impacts to Aquatic Land Cover Types by Watershed – Reporting Period and Cumulative

Table 6 Summary of Impacts to Modeled Covered Species Habitat

Table 7 Summary of Impacts to Critical Habitat from Covered Activities

Table 8 Summary of Impacts to Covered Plants

Table 9a Summary of Land Acquisition Contribution to Land Cover Requirements to Date

Table 9b Land Acquisition Contribution to Land Cover Requirements by Site – Reporting Period

Table 10a Summary of Land Acquisition Contribution to Modeled Habitat Requirements to Date

Table 10b Land Acquisition Contribution to Modeled Habitat Requirements – Reporting Period

Table 11a Summary of Land Acquisition Contribution to CAZ Requirements to Date

Table 11b Land Acquisition Contribution to CAZ Requirements – Reporting Period

Table 12 Summary of Land Acquisition Contributions to Wildlife Linkages

Table 13 Aquatic Land Cover Restoration and Creation by Watershed

Table 14 Year 1 Monitoring Calero County Park Pond and Wetland Restoration Project

Table 15 Breeding Burrowing Owl Survey Observation Results 2017 (2016)

Table 16 Summary Protection or Creation of Occupied Habitat for Selected Covered Wildlife Species

Table 17 Summary Protection or Creation of Occupied Habitat for Selected Covered Plant Species

Table 18 Summary Status of the Stay-Ahead Provision for Natural Communities, Burrowing Owl Nesting Habitat, and Plants

Table 19 Detailed Stay‐Ahead Provision for Aquatic Natural Community Conservation and Burrowing Owl Nesting Habitat

Table 20 Summary Status of the Stay-Ahead Provision for Plant Occurrences

Table 21 Average Annual Temperature

Table 22 FY1617 Budget: Expenditures and Comparison to Budget Projections

Table 23 Summary of Revenue – Reporting Period and Cumulative

Table 24 Revenue Detail - Reporting Period

Table 25 Voluntary Contribution and Mitigation Only Projects

Table 26 Grants Awarded for Implementation of Santa Clara Valley Habitat Plan

Table 27 Land Acquisition Funding Sources

Table 28 Reporting Period Technical Advisory Committee Accomplishments and Wildlife Agencies' Approvals

Figures

Figure ES-1 Covered Projects: Reporting Year

Figure ES-2 Covered Projects Impacts: Cumulative FY1314 thru FY1617 – Permit Year 4 of 50

Figure ES-3 Covered Projects: Cumulative FY1314 thru FY1617 – Permit Year 4 of 50

Figure ES-4 Habitat Plan Progress Summary: Impacts Incurred, Conservation Achieved, and Funding Received as Percent of Anticipated by Habitat Plan over 50 – Year Permit Term

Figure ES-5 Stay – Ahead Compliance for Natural Communities and Western Burrowing Owl

Figure ES-6 Stay – Ahead Compliance for Plants

Figure ES-7 Revenue Summary

Figure ES-8 Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Terrestrial Land Cover Types

Figure ES-9 Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Aquatic Land Cover Types

Figure ES-10 Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Wildlife Habitat

Figure ES-11 Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Plant Habitat

Figure 1 Santa Clara Valley Habitat Plan Permit Area

Figure 2 Location of FY16-17 Private Covered Projects

Figure 3 Location of FY16-17 Public Covered Projects

Figure 4 Reserve System, Existing Open Space, and Conservation Analysis Zones

Figure 5 Pacheco Creek Reserve: Conservation Analysis Zone Map

Figure 6 Pacheco Creek Reserve: Land Cover Map

Figure 7 Pacheco Creek Reserve: Representative Photographs

Figure 8 Reserve System Sites Under Review

Figure 9 Completed and Planned Restoration Projects

Figure 10a Wetland Mitigation Site Photo Documentation

Figure 10b Pond Mitigation Site Photo Documentation

Figure 11 Expanded Burrowing Owl Conservation Area and Management Areas

Figure 12a Stay – Ahead Compliance for Natural Communities and Western Burrowing Owl

Figure 12b Stay – Ahead Compliance for Plants

Acronyms and Abbreviations

Balance	Balance Hydrologics
Calero CE	Calero Conservation Easement
Calero Restoration Project	Calero County Park Pond and Wetland Restoration Project
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CAZ	Conservation Analysis Zone
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
Co-Permittees	Cities of San José, Gilroy, and Morgan Hill; County of Santa Clara; Santa Clara Valley Water District; Santa Clara Valley Transportation Authority
Corps	U.S. Army Corps of Engineers
County	County of Santa Clara
County Parks	County of Santa Clara Parks and Recreation Department
Creekside Science	Creekside Center for Earth Observation
Friends	Friends of the Santa Clara Valley Habitat Agency
GIS	geographic information system
GPS	Global Positioning System
Habitat Agency	Santa Clara Valley Habitat Agency
Habitat Plan	Santa Clara Valley Habitat Plan
HCP	Habitat Conservation Plan
LAG	Local Assistance Grant
Management and Monitoring Plan	Coyote Ridge Reserve Management and Monitoring Plan
NCCP	Natural Community Conservation Plan
PBCS	Point Blue Conservation Science
Permit Area	Habitat Plan Permit Area
PG&E	Pacific Gas and Electric Company
PSE	Participating Special Entity
RDM	residual dry matter
Refuge	Don Edwards San Francisco Bay National Wildlife Refuge
Coyote Ridge Reserve	Coyote Ridge Open Space Preserve
RGP	Regional General Permit
SCVWD	Santa Clara Valley Water District
SJ-SCRWF	San José-Santa Clara Regional Wastewater Facility
SR	State Route
TNC	The Nature Conservancy
USFWS	U.S. Fish and Wildlife Service
UTC	United Technology Corporation

VTA	Santa Clara Valley Transportation Authority
Warm Springs	Don Edwards San Francisco Bay National Wildlife Refuge Warm Springs
Wildlife Agencies	U.S. Fish and Wildlife Service and California Department of Fish and Wildlife

May 2018 revisions

The following minor revisions were made to the April 2018 reported and are included in the May 2018 report. Text changes are underlined.

- Table 4. Percentage of total allowable temporary impacts corrected.
- Table 23. Grants revenue received corrected. Cumulative revenues received corrected.
- Table 24. Grants updated to include CVPCP/HRP (2017) for Coyote Ridge restoration (grazing infrastructure update).
- Table 25. FY1617 revenues corrected.
- Table 26. CVP/HRP (2017) grant for Acquisition of Richmond Ranch was updated to "Returned." Grant was awarded, but not issued to the Habitat Agency. Subject property was sold to another buyer and the grant could not be reassigned to an alternate property. Grant total was updated to reflect this.
- Figure ES-4. Updated to reflect Table 4 and 23 changes.
- Figure ES-7. Updated to reflect Table 23 changes.
- Page ES-6. *Finances* updated to reflect Table 23 and Table 24 changes.
- Page 10-2. *Revenue Sources* updated to reflect Table 23 and Table 24 changes.

Executive Summary

This is the third Annual Report for the *Santa Clara Valley Habitat Plan* (Habitat Plan). Prepared by the Santa Clara Valley Habitat Agency (Habitat Agency), it summarizes implementation activities undertaken during the reporting year (July 1, 2016, and June 30, 2017) and cumulatively through permit term year 4 of 50 per the conditions of the Habitat Plan.

The Habitat Plan offers a streamlined permitting process for development activities while protecting, enhancing, and restoring valuable natural resources in Santa Clara County and contributing to the recovery of threatened and endangered species. It provides a regional conservation and development framework that protects natural resources while improving and streamlining the permit process for take coverage of state-listed and federally listed species and impacts on sensitive habitat and resources. Permits issued by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) in 2013 allow the Co-Permittees[1] to comply with the federal Endangered Species Act and California's Natural Community Conservation Planning Act. Over the 50-year permit term, impacts from urban development and rural infrastructure projects will be offset by the creation of a Reserve System managed for the benefit of 18 covered species, as well as the natural communities that they—and hundreds of other species—depend on for habitat.

At a Glance

The Annual Report is a complex and metric heavy document. There are several figures at the end of the Executive Summary that summarize Habitat Plan progress based on program assumptions and permit requirements. The reporting year is 4 of the 50-year permit term, or 8% of the permit term.

Figure ES-1 thru **Figure ES-3** display reporting year and cumulative covered project information.

Figure ES-4 displays the percent of impacts incurred, conservation achieved, and funding received.

Figure ES-5 and **Figure ES-6** display stay-ahead compliance for natural communities, burrowing owl, and plant occurrences.

Figure ES-7 displays reporting year and cumulative revenues received.

Figure ES-8 displays the percent of impacts incurred and preservation achieved for terrestrial land cover types. **Figure ES-9** summarizes the same plus restoration/ creation achieved for aquatic land cover types.

Figure ES-10 and **ES-11** summarize impacts and preservation for wildlife and plant modeled habitat.

Covered Activities

The Habitat Plan describes the activities and projects within the Habitat Plan Permit Area (Permit Area) that are covered its permits and for which the Habitat Plan provides avoidance, minimization, and compensation (i.e., conservation) for impacts to covered species and natural communities. During the reporting period, 54 projects received coverage under the Habitat Plan: 26 private

[1] The Co-Permittees are the County of Santa Clara; the cities of Gilroy, Morgan Hill, and San José; the Santa Clara Valley Habitat Agency; the Santa Clara Valley Water District; and the Santa Clara Valley Transportation Authority.

projects, 25 public projects, and 3 Participating Special Entity (PSE) projects (Figure ES-1). The covered projects consisted of 23 urban development projects, three in-stream operation and maintenance activities, one in-stream capital project, nine rural operations and maintenance projects, nine rural development projects, eight rural capital projects and one conservation strategy implementation project.

The 54 projects resulted in 266.5 acres of permanent impacts to land cover and 47.9 acres of temporary impacts to land cover, plus 16 feet of permanent impacts to streams and 97 feet of temporary impacts to streams. Impacts resulting from covered activities were tracked by land cover type, modeled species habitat, and covered plant occurrences. Impacts on aquatic land cover types during the reporting period spanned four different watersheds—Coyote, Guadalupe, Uvas, and Llagas. During the reporting period, no occurrences of covered plants were impacted.

A total of 165 projects have received take coverage under the Habitat Plan since permit issuance (Figure ES-2). Cumulative land cover impacts total 1,370 acres of permanent, 253 acres of temporary, as well as 182 feet of permanent to streams, and 737 feet of temporary impacts to streams (Figure ES-3). Of the 165 projects, 87 were private, 64 were public, and 14 were PSE projects. Covered activity types include 87 urban development projects, 8 in-stream operations and maintenance activities, 6 in-stream capital projects, 23 rural operations and maintenance projects, 25 rural development projects, 11 rural capital projects, and 5 conservation strategy implementation projects.

Land Acquisition

In this reporting period, the Habitat Agency enrolled a second site into the Reserve System—the Pacheco Creek Reserve. The Pacheco Creek Reserve is located in the southeastern portion of the permit area on the southeast side of California State Route (SR) 152, approximately 13.6 miles east of Gilroy. The Pacheco Creek Reserve was acquired as a partnership between the California Department of Transportation (Caltrans) and the Habitat Agency. The site serves as mitigation for the Caltrans SR 152 Highway Improvements Project permitted by both the USFWS and U.S. Army Corps of Engineers (Corps). Transferring the 55-acre Pacheco Creek Reserve to the Habitat Agency fulfills the compensation requirements of the Caltrans SR 152 Highway Improvements Project. The Habitat Agency agreed to implement an oak contingency planting (on- or off-site), accept the property, and ensure its protection in perpetuity in return for receiving the property on a no-cost basis. The Pacheco Creek Reserve protects potential habitat for 9 of the 18 covered species, supports healthy riparian woodland natural community (willow riparian forest and scrub, mixed riparian forest and woodland and Central California sycamore alluvial riparian) and protects two crossing points along Pacheco Creek under SR 152. The Pacheco Creek Reserve contributes to conservation analysis zone requirements identified for Pacheco 1-6 and to the protection of two linkages (#15 Henry W. Coe State Park southeast to San Benito County line and #17 Main stem of Pacheco Creek)

The Reserve System now totals of 1,867 acres with over 5% of the conservation target being achieved (1,812 acres contribute to conservation requirements; Figure ES-4). An additional 920 acres are under management agreements for western burrowing owl. The Reserve System includes 14 land cover types and nearly 14 miles of stream. Rare serpentine bunchgrass grassland as the most prevalent (1,349 acres). The Reserve System fulfills over 30% of the modeled habitat protection goals for six of these covered species (Bay checkerspot butterfly, Mount Hamilton thistle, fragrant fritillary, smooth lessingia, Metcalf Canyon jewelflower, and most beautiful jewelflower). Occurrences of Mount Hamilton thistle, Santa Clara Valley dudleya, fragrant fritillary, Loma Prieta

hoita, Metcalf Canyon jewelflower, and most beautiful jewelflower are protected. The Reserve System contributes to the protection of four landscape linkages, two on the Coyote Ridge Open Space Preserve (Coyote Ridge Reserve) (#6, #7) and two on the Pacheco Creek Reserve (#15 and #17).

Habitat Restoration and Creation

The Habitat Agency completed Year 1 monitoring of the Calero County Park Pond and Wetland Restoration Project (Calero Restoration Project), completed the restoration of a hedgerow on Gonzales Farm, and continued to make progress on the establishment of a new Coyote ceanothus population. Year 1 monitoring of the Calero Restoration Project occurred in 2017 and indicated that all but one of the seven ecological performance standards evaluated in 2018 had been met. The Habitat Agency contributed funding towards the installation of a hedgerow at Gonzales Farm, owned by The Nature Conservancy, to create/restore riparian habitat and encourage wildlife movement along the Pajaro River. Annual monitoring of the Coyote Ceanothus Population Creation Project indicated that between 98% and 99% of all direct seeded basins had a least one seed germinate (four seeds were planted).

Western Burrowing Owl Management and Monitoring

The western burrowing owl management and monitoring plan is a continuing effort driven by the South Bay Burrowing Owl Survey Network. The 2017 surveys resulted in the documentation of 74 breeding adult burrowing owls and 64 documented fledged young, as compared to 61 and 108 respectively, in 2016.

In 2016, the Habitat Agency entered into a 5-year management agreement with the San José-Santa Clara Regional Wastewater facility over 201 acres. A subset of this acreage, 72 acres, will be placed under conservation easement in 2018. This is the most productive burrowing owl breeding site in the region. In 2017 the number of breeding season adults was the highest recorded since the creation of the Habitat Agency, with 34 adults observed (up from 20 in 2015, and 25 in 2016). Together with the agreement with Don Edwards Wildlife Refuge, a total of 920 acres are under temporary management agreement, approximately 17% of the total required under the Habitat Plan.

In addition to the annual monitoring of the known populations, three additional studies were conducted in 2017 for burrowing owls; 1) suitable habitat assessment 2) burrowing owl banding and 3) supplemental feeding study. The Habitat Agency also hosted a workshop in early 2017, inviting a panel of expert burrowing owl biologists from North America to visit and collaborate with the Habitat Agency and their local burrowing owl biologists. The species expert workshop recognized the significance of the conservation actions for the South Bay burrowing owl population and reaffirmed the efficacy of the Habitat Agency's conservation strategy.

Reserve System Management

At the Coyote Ridge Reserve, the Santa Clara Valley Open Space Authority conducted management activities including treatment of invasive plant species, conservation grazing to achieve residual dry matter (RDM) targets, restoration project planning, rocking existing roads, and repairing cattle fencing. The Habitat Agency has completed a draft of *Coyote Ridge Reserve Management and Monitoring Plan*, which provides a detailed prescription for the long-term management and monitoring of the Coyote Ridge Reserve.

Monitoring, Research, and Adaptive Management

The monitoring and adaptive management program informs and improves conservation actions in the Reserve System and ensures that the Habitat Plan achieves its biological goals and objectives.

Coyote Ridge Open Space Preserve

Baseline surveys for wildlife and plants were conducted at the Coyote Ridge Reserve. The following summarizes the baseline survey findings:

- The number of Bay checkerspot butterfly (*Euphydryas editha bayensis*) larvae in 2016 was approximately 200,000 individuals. However, in 2017 there were approximately 70,000 larvae on the Coyote Ridge Reserve. The recent declines over the past 2 years do not indicate patterns outside the normal historical variability.
- Serpentine grasslands comprise 1,232.1 acres on the Coyote Ridge Reserve.
- The northern portion of the Coyote Ridge Reserve consistently has the highest quality habitat, with the highest cover of Bay checkerspot butterfly nectar plants, perennial grass, annual forbs, native cover, and native richness. It is also high in perennial forbs and native richness, and has moderate cover of dwarf plantain.
- The Coyote Ridge Reserve contains the following covered plant species: two occurrences of Santa Clara Valley dudleya, thirteen occurrences of Mount Hamilton thistle (*Cirsium fontinale* var *campylon*), two occurrences of Loma Prieta hoita (*Hoita strobilina*), one large occurrence of smooth lessingia, eight occurrences of Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*), two occurrences of most beautiful jewelflower, and three occurrences of fragrant fritillary (*Fritillaria liliacea*). Three of eight previously identified Metcalf Canyon jewelflower occurrences had no individuals observed during the reporting period.
- The following invasive plants are present on the Coyote Ridge Reserve: barb goatgrass (*Aegilops triuncialis*), purple starthistle (*Centaurea calcitrapa*), yellow starthistle (*Centaurea solstitalis*), artichoke thistle (*Cynara cardunculus*), mustards (*Brassica*, *Sisymbrium*, and *Hirschfeldia* spp.), and milk thistle (*Silybum marinum*). Barbed goatgrass was found to be widespread throughout the Coyote Ridge Reserve grasslands, both on and off serpentine soils. Most of the other invasive plant species are largely restricted to non-serpentine grasslands on the Coyote Ridge Reserve.

Calero Conservation Easement

The Calero Conservation Easement (Calero CE) is the first site to be targeted for Reserve System enrollment by the County of Santa Clara Parks and Recreation Department (County Parks). The Calero CE was anticipated to be enrolled in 2017, but the timeline was extended to allow for updates to the conservation easement agreeable to County Parks, Habitat Agency, and Wildlife Agencies.

Baseline surveys were contracted ahead of enrollment due to the seasonal species survey requirements. The following summarizes the baseline survey findings:

- Approximately 116 acres of serpentine rock outcrops, 9.15 acres of aquatic features, and 9.2 linear miles of streams were mapped.
- The Calero CE contains the following covered plant species: two occurrences of Mount Hamilton thistle, six occurrences of Santa Clara Valley dudleya, two occurrences of Loma Prieta hoita, three occurrences of smooth lessingia, and four occurrences of most beautiful jewelflower.
- Foothill yellow-legged frog was documented in Llagas Creek and an unnamed tributary to Llagas Creek.
- Streams on site are in good condition and characterized by deep shaded canyons, and an almost continuous canopy characterized by Mixed Oak Woodland and Forest with smaller amounts of Mixed Riparian Woodland and Forest.
- Surveys were completed of 10 ponds (does not include the Calero Restoration Project), five of which are perennial and two of which have suitable emergent vegetation to support tricolored blackbirds. Seven of the ponds have suitable conditions to support California tiger salamander and California red-legged frog; during the baseline survey only one pond was occupied by California tiger salamander and California red-legged frog was not observed. Western pond turtle was observed in two ponds. Six of the ten ponds contained large populations of breeding bullfrogs.

Local Assistance Grant Program

Researchers in the Habitat Plan Area continue to benefit from the CDFW's Natural Community Conservation Plan (NCCP) Local Assistance Grant (LAG) Program. The LAG Program provides state funds for urgent tasks associated with the implementation of approved NCCPs. The grant research activities during the reporting period included seven research projects:

- Coyote Valley Bobcat and Gray Fox Connectivity Study,
- Tricolored Blackbird Nesting and Foraging Monitoring Project,
- Alternative Grassland Grazing Monitoring Methods Assessment
- Monitoring Nitrogen Deposition in the Santa Clara Valley,
- Evaluating Threats Posed by Exotic Phytophthora species to endangered Coyote Ceanothus and Selected Natural Communities in the Habitat Plan Area,
- Wintering Burrowing Owl Monitoring, and
- Modeling Climate Change Effects on Pond Hydroperiods in the Coyote Valley.

Stay-Ahead Provision

Stay-Ahead requirements are being met for all natural communities and western burrowing owl (Figure ES-5). Compliance ranges from 104% to 3,354% with conservation excess ranging from 0.4 acres to 101.6 acres. For western burrowing owl nesting habitat, stay ahead compliance is at 427% with conservation in excess of 704.2 acres.

Stay-Ahead compliance for plants ranges from 25% to 1980% (Figure ES-6). For those species in compliance, conservation excess ranges from 1 to 94 occurrences. Stay-Ahead compliance is not being met for two species—smooth lessingia and most beautiful jewelflower. In both cases the occurrences protected are much larger in distribution and abundance than those occurrences that have been impacted. The Habitat Agency is evaluating options to determine if the Habitat Plan allows for flexibility in occurrence definition for the purposes of compliance tracking.

Changed and Unforeseen Circumstances

The "No Surprises" Regulation established by USFWS defines changed circumstances as those circumstances affecting a species or geographic area covered by a Habitat Conservation Plan (HCP) that can be reasonably anticipated by the applicant or the USFWS and to which the parties preparing the HCP can plan a response. There were no changed or unforeseen circumstances during this reporting period.

The Habitat Agency will establish a remedial measures fund. Chapter 9 of the HCP describes remedial measures funding requirements on pages 9-9 and 9-10. Remedial measure costs are estimated to address the Reserve System management response to changed circumstances, if and when they occur (see Chapter 10, *Assurances*, for a description of all possible changed circumstances and remedial measures). As required by the Plan, the Habitat Agency will maintain sufficient financial reserves in the remedial measures fund to pay for remedial actions described in Chapter 10, when they are needed to respond to any of the changed circumstances in the Plan. Starting with the next fiscal year (2017–2018), the Habitat Agency will annually assess the remedial measures fund and supplement it as necessary in order to pay for the most expensive remedial action that might occur in the coming 5 years, based on the frequency of historic events and expected changes.

Finances

The Habitat Agency's available revenue, allocated budget, and expenditures varied from what was anticipated by the Habitat Plan. For Years 1–5, the Habitat Plan assumed $9.7 million for its average annual expenditures. The FY1617 expenditures were $3.1 million, 31% of what was estimated in the Habitat Plan. The reduced expenditures reflect the fact that no land purchases occurred during the reporting period—the Pacheco Creek Reserve was donated. For this reporting year, the Habitat Agency's budget focused on program administration, burrowing owl management and monitoring, and restoration.

The Habitat Plan anticipates 55% of funding from fees and 45% from non-fee sources (Figure ES-7). The Habitat Agency received $4.6 million in funds during the reporting period from fee and non-fee funding sources. Fee funding totaled $3.1 million (68% of total revenues) across private, public, and PSE projects. Non-fee funding totaled $1.5 million (32%). This includes funds from four mitigation-only or voluntary contribution projects and three grants

Fees are adjusted on an annual basis using an automatic inflation adjustment. From FY1516 to FY1617, land cover, serpentine, and nitrogen deposition fees increased by 6.4%. Burrowing owl and wetland fees increased by 2.6%.

Program Administration

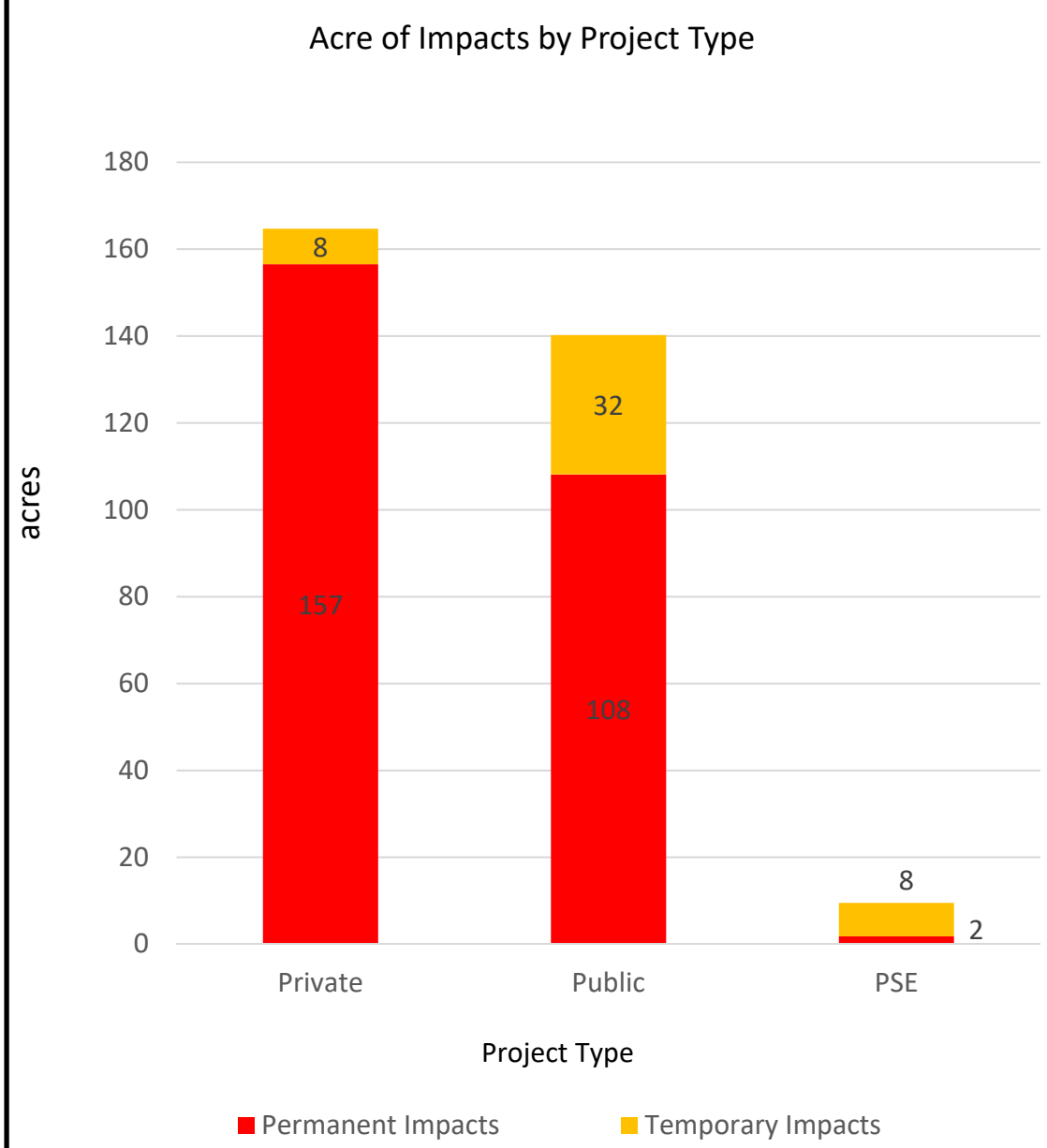
The Habitat Plan permits were issued in July 2013, and with the close of FY2016–2017, the Habitat Agency neared 4 years of Habitat Plan implementation. This period focused on growth of the Habitat

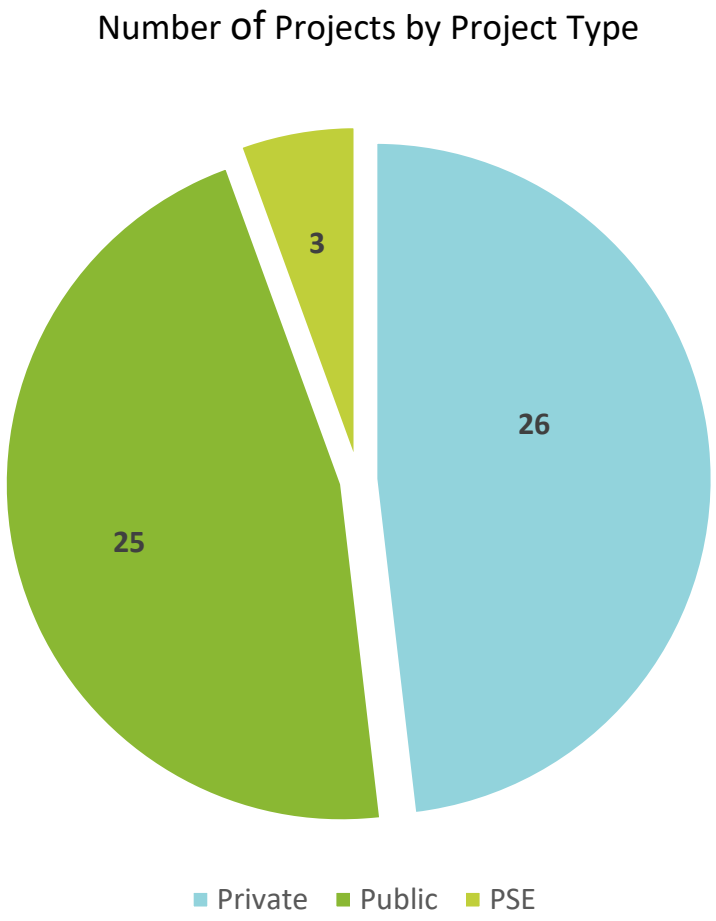
Agency by hiring staff; development of governing policies and guidance documents; conducting advocacy and outreach to state and federal governments; and continuing the momentum of dedicated Co-Permittee staff, regulators, and private citizens by hosting trainings and workshops and serving as stakeholders on a number of regional conservation efforts in the San Francisco Bay Area. Major accomplishments include the following.

- **Staff**. Gerry Haas was hired as a full time Principal Planner and Denise Rosenberger was hired as a part time Accounting Assistant.
- **Employee Policies**. The Habitat Agency developed an employee handbook and 401K safe harbor agreement.
- **Nonprofit Entity**. The nonprofit entity—The Friends of the Santa Clara Valley Habitat Agency—was officially formed.
- **Payroll Company.** The Habitat Agency changed its payroll company to the JPMorgan Chase Bank, N.A.
- **Financial Assessment.** A financial assessment for FY1617, conducted by Patel & Associates, found the Habitat Agency to be in good standings.
- **Advocacy and Outreach.** The Habitat Agency continues to conduct legislative advocacy to ensure continued funding streams are still available for HCP/NCCP.
- **Regional General Permit.** The Habitat Agency utilized the Regional General Permit (RGP) for the Calero County Park Pond and Restoration Project, which received 0.18 mitigation credits and 0.12 preservation credits. The Habitat Agency submitted the first RGP Annual Report to the Corps. The Habitat Agency also permitted two additional projects with impacts to waters of the U.S. through the RGP.
- **Permit Integration.** The Habitat Agency continued working with the San Francisco Bay and Central Coast Regional Water Quality Control Boards to develop a permit compliance strategy for state and federal water quality regulations and with the National Marine Fisheries Service regarding establishing a programmatic Biological Opinion to support the RGP.
- **Trainings and Workshops**. The Habitat Agency held one training for the Santa Clara County Roads and Airports Division on April 13, 2017. The Habitat Agency also hosted the California Habitat Coalition annual meeting in Morgan Hill.
- **Interpretation and Clarification Memorandums**. Six interpretations were developed as follows:
    - Habitat Plan Consistency with Oak Woodlands Conservation Act;
    - Covered Plant Survey Timing;
    - Definition of a Covered Plan Occurrence and Tracking Occurrences;
    - Assessing Impacts to Covered Plant Occurrences;
    - Riparian Habitat Temporary Impact Fee Determination; and
    - Coyote Brush Classification

- **Modifications to the Habitat Plan**. Three modifications to the Habitat Plan were approved during the reporting period:
    - Definition of Temporary Impacts for Stream Projects;
    - Condition 16: Least Bell's Vireo Survey Requirements; and
    - Condition 17: Tricolored Blackbird Survey Requirements.
- **Other Conservation Efforts.** The Habitat Agency serves as a stakeholder on many of the other conservation efforts in the San Francisco Bay Area including, but not limited to, USFWS Recovery Plans, the Wildlife Connectivity Working Group, the Santa Clara Valley Regional Conservation Investment Strategy, and High-Speed Rail.

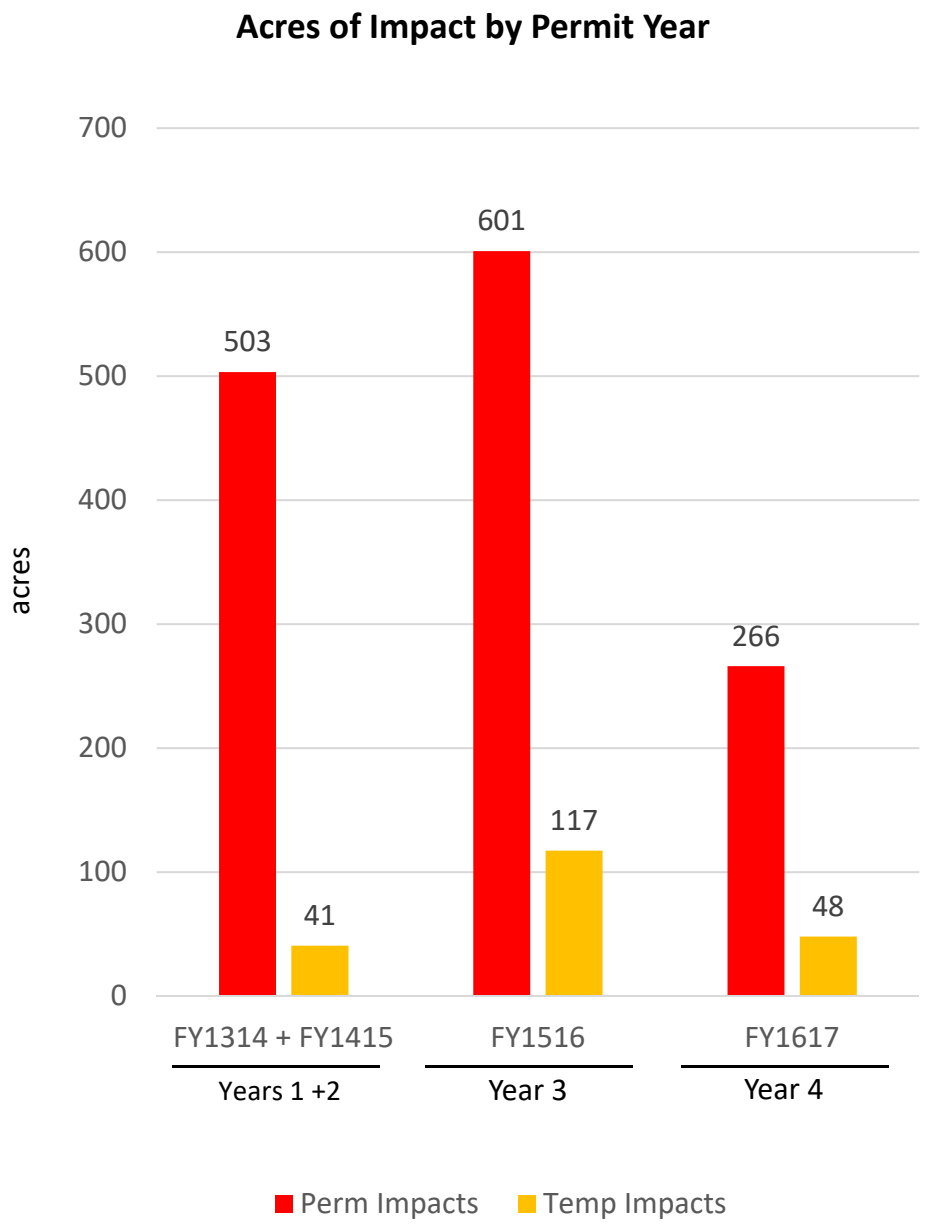
Figure ES-1. Covered Projects : Reporting Year





54 Projects
266 acres permanent impacts
48 acres temporary impacts
16 ft perm impacts to streams
97 ft temp impacts to streams

Figure ES-2. Covered Projects Impacts: Cumulative FY1314 thru FY1617 – Permit Year 4 of 50



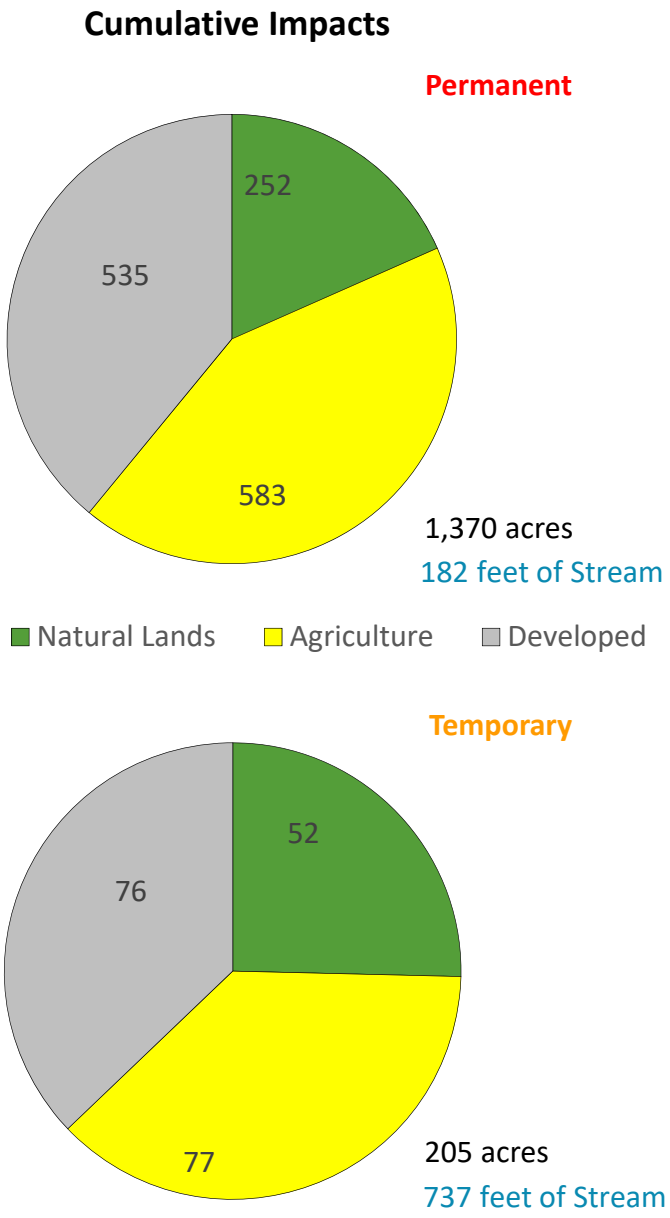
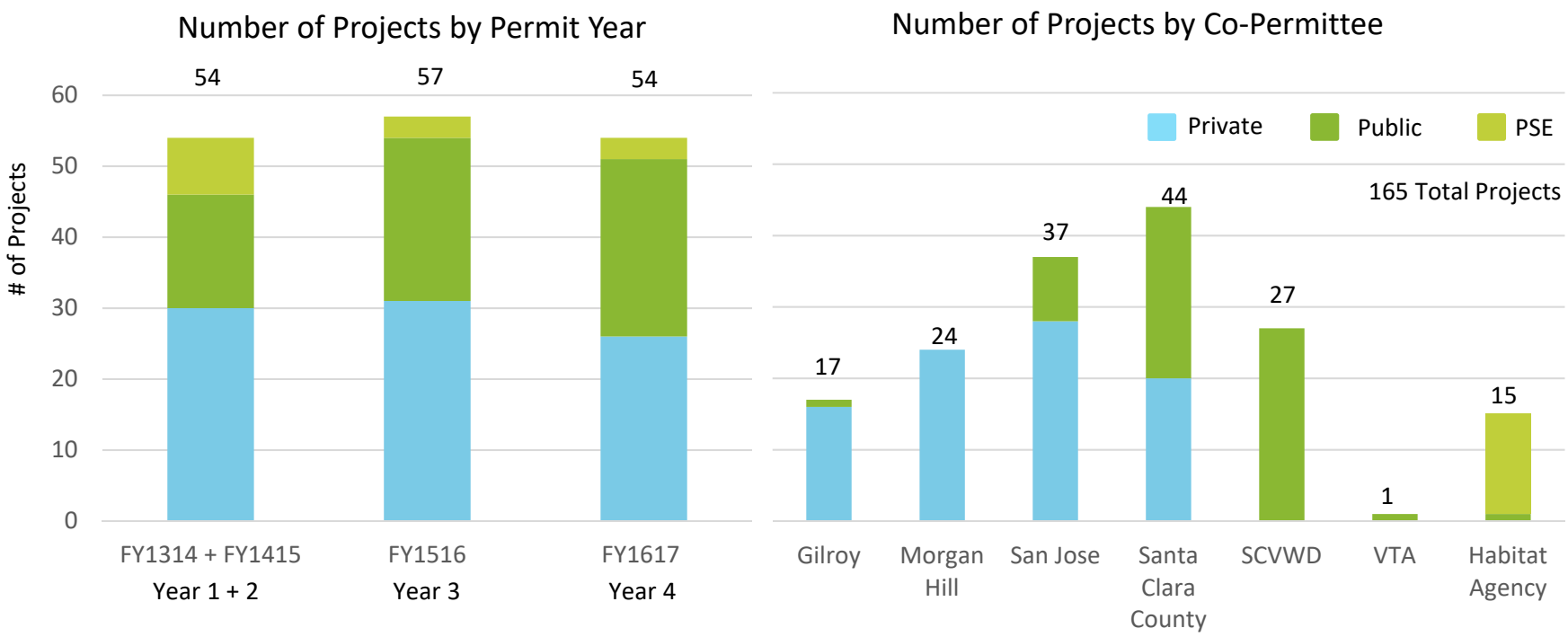


Figure ES-3. Covered Projects: Cumulative FY1314 thru FY1617 – Permit Year 4 of 50



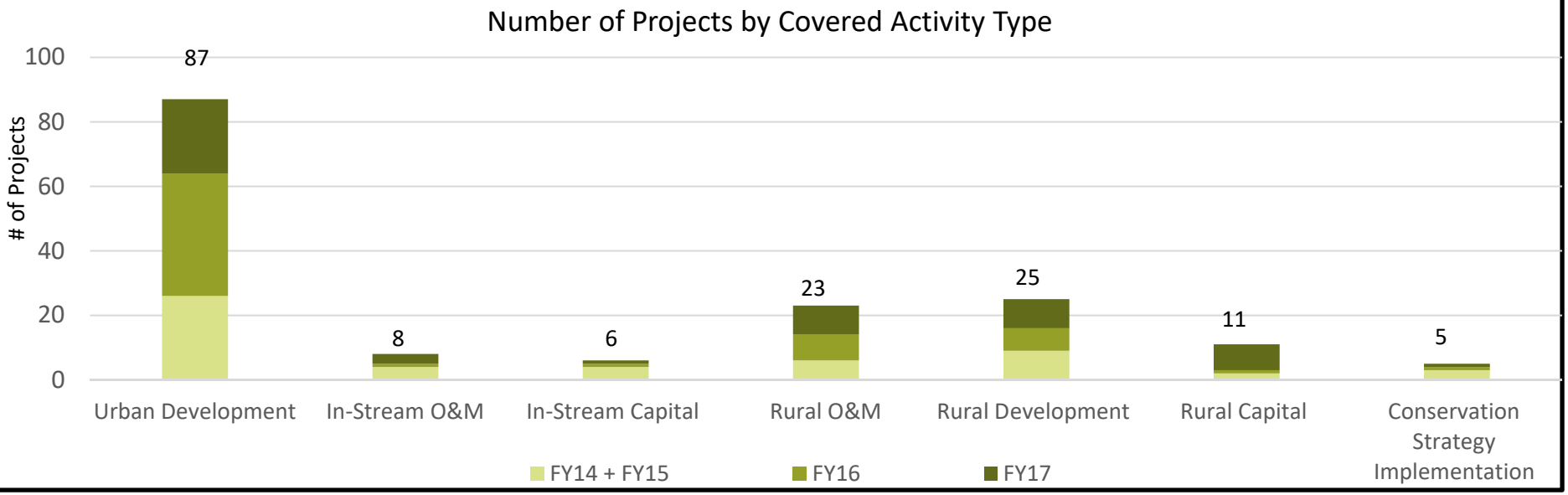
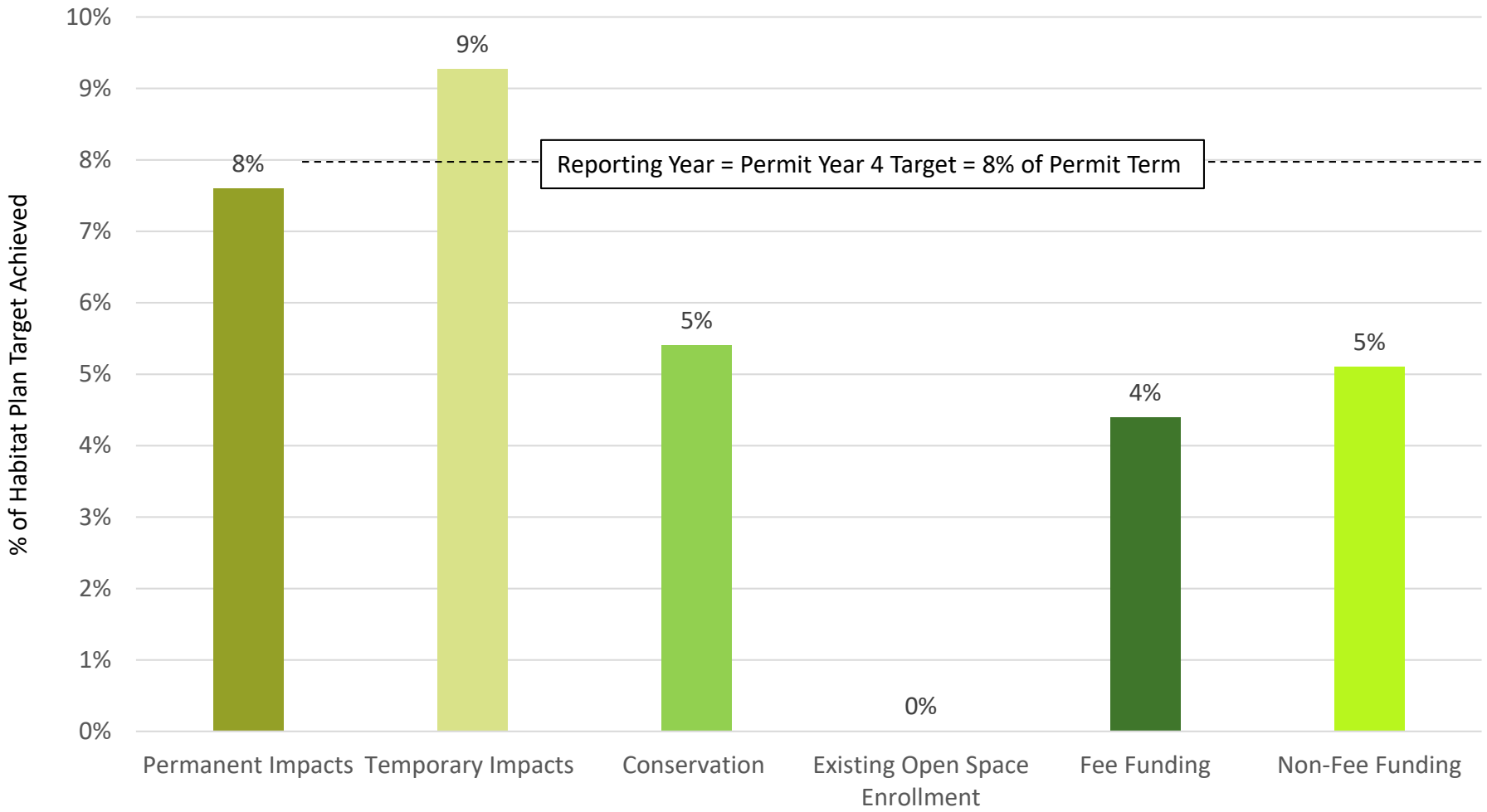


Figure ES-4. Habitat Plan Progress Summary: Impacts Incurred, Conservation Achieved, and Funding Received as Percent of Anticipated by Habitat Plan over 50-Year Permit Term

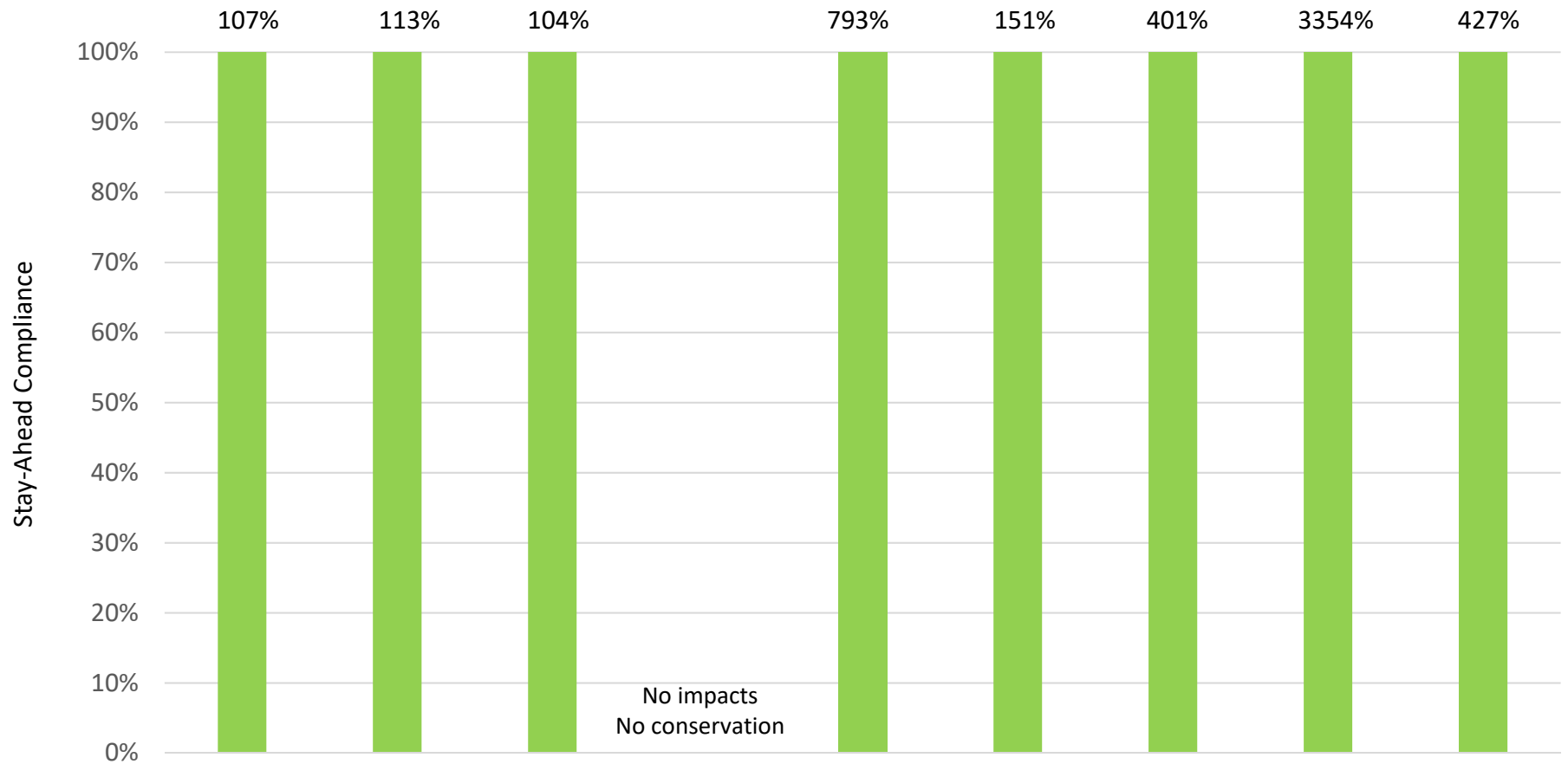


	Permanent Impacts	Temporary Impacts	Conservation	Existing Open Space Enrollment	Fee Funding	Non-Fee Funding
Status	1,371	206	1,812	0	$16M	$15M
Habitat Plan Target	17,976 acres	2,223 acres	34,580 acres (protection, restoration + creation)	13,291 acres	$364M	$294M

Figure ES-5. Stay-Ahead Compliance for Natural Communities and Western Burrowing Owl

Conservation Required = (% of Allowable Impacts Accrued)*(Conservation Total)

Compliance = (Conservation Achieved)/(Conservation Required)



	Grasslands	Chaparral Northern Coastal Scrub	Oak Woodland	Conifer Woodland	Riparian Forest and Scrub	Wetland	Pond	Streams	Western Burrowing Owl
Acres Ahead	101.6	5.1	4.2		54.4	0.8	0.4	13.2	704.7

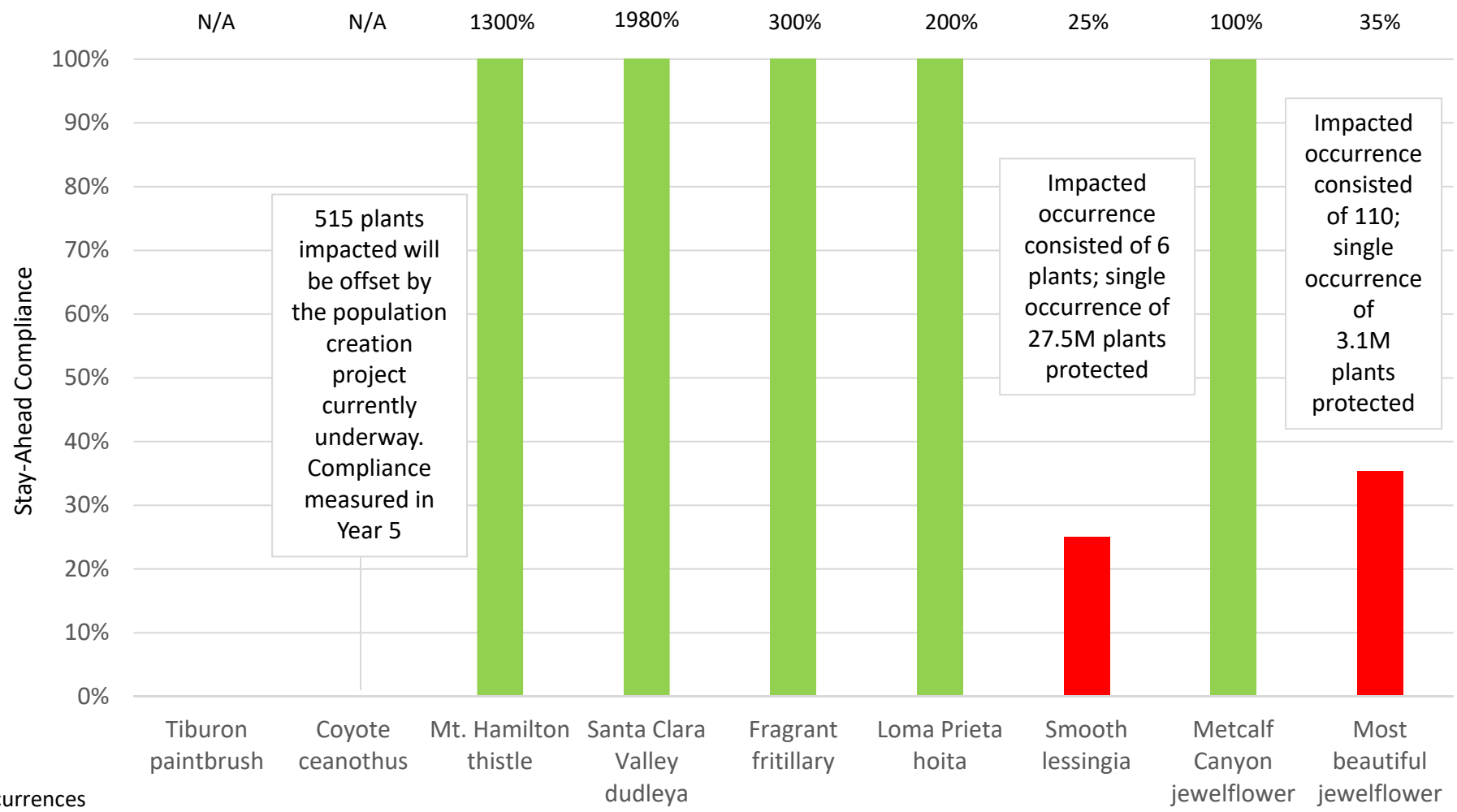
= (Conservation Achieved) – (Conservation Required)

miles

Figure ES-6. Stay-Ahead Compliance for Plants

Conservation Required = (% of Allowable Impacts Accrued)*(Conservation Total)

Compliance = (Conservation Achieved)/(Conservation Required)



Occurrences	Tiburon paintbrush	Coyote ceanothus	Mt. Hamilton thistle	Santa Clara Valley dudleya	Fragrant fritillary	Loma Prieta hoita	Smooth lessingia	Metcalf Canyon jewelflower	Most beautiful jewelflower
Protected	N/A	N/A	13	99	3	2	1	1	1
Ahead	N/A	N/A	13	94	3	2	-3	1	-2

Figure ES-7. Revenue Summary

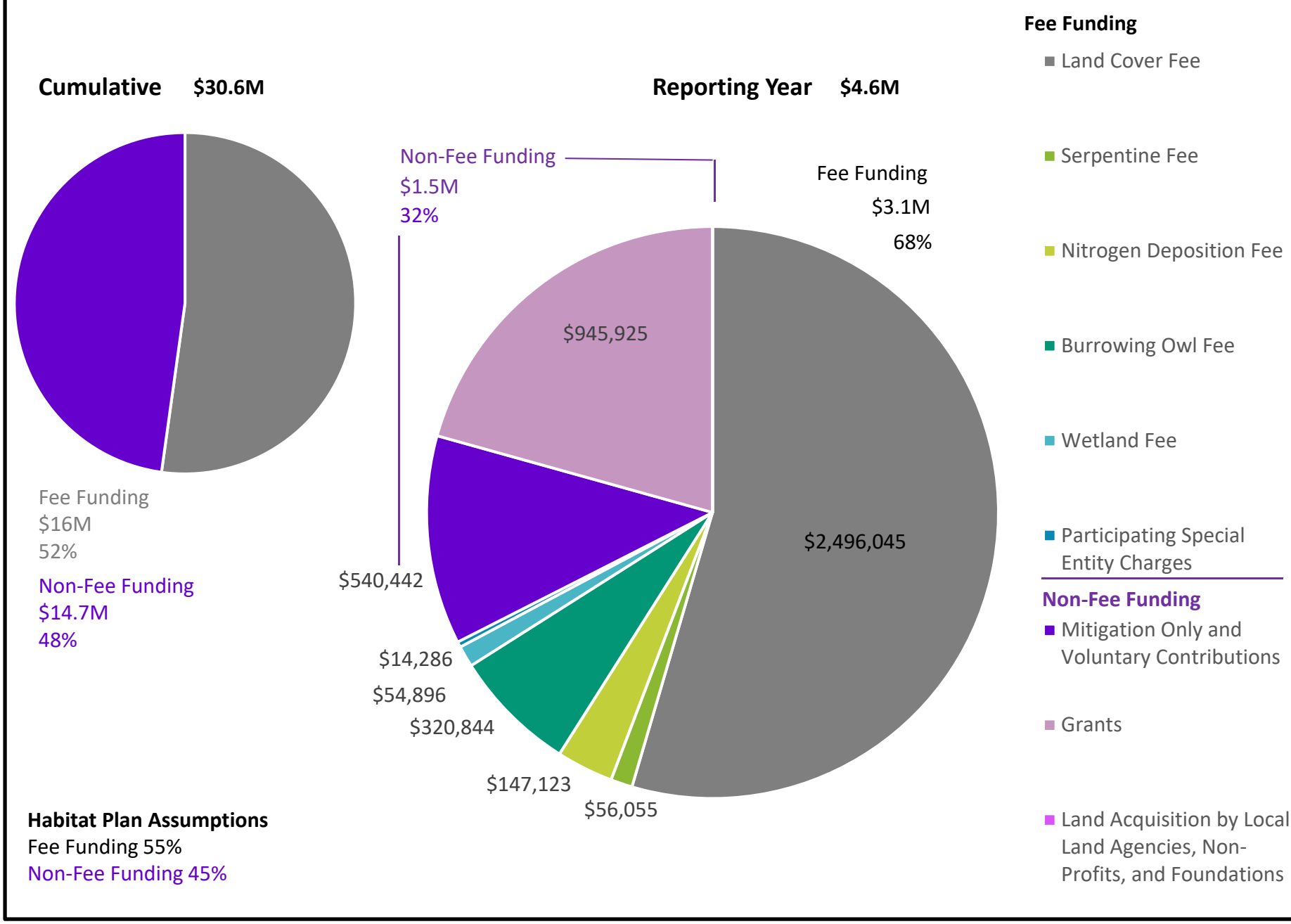


Figure ES-8. Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Terrestrial Land Cover Types

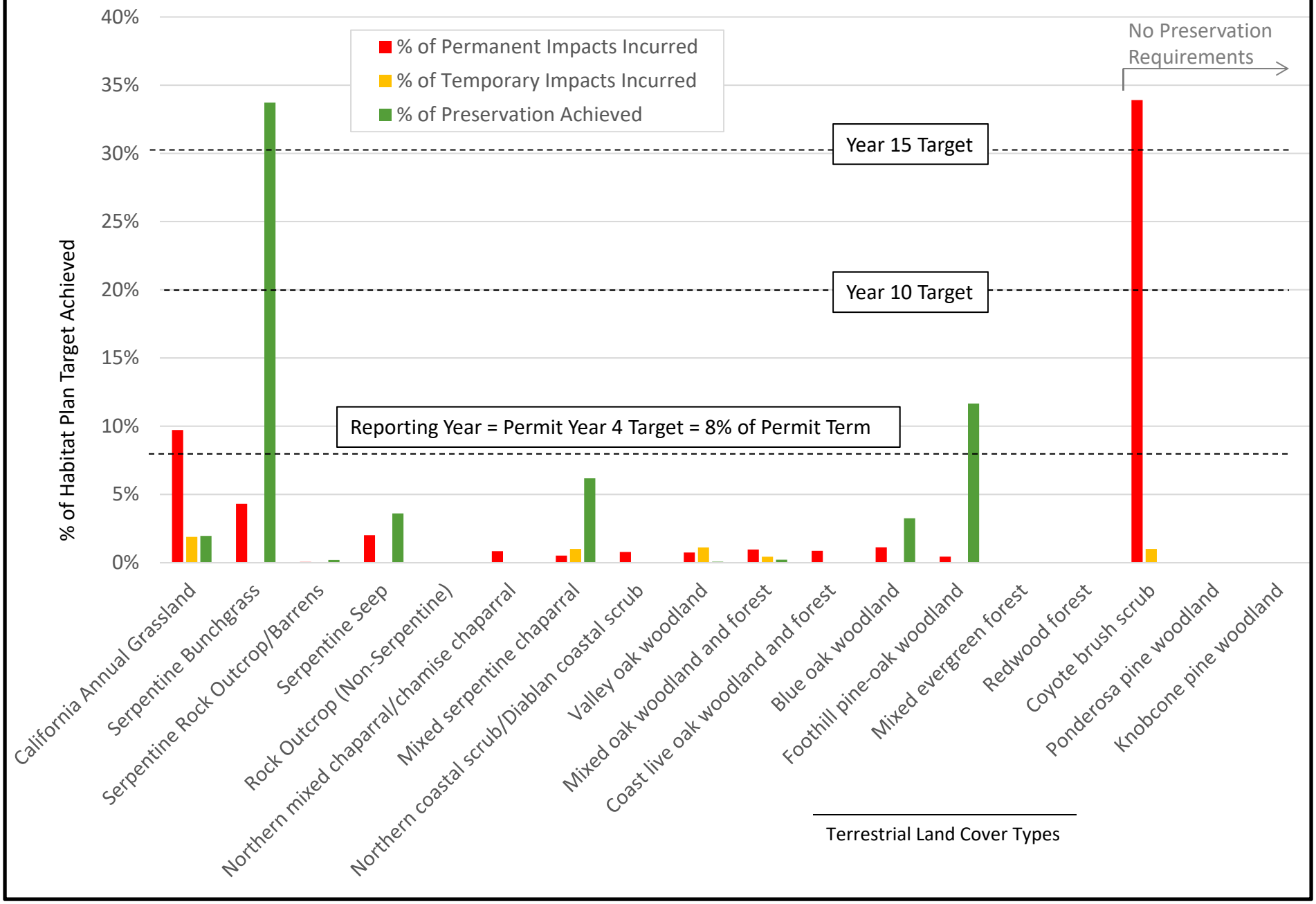


Figure ES-9. Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Aquatic Land Cover Types

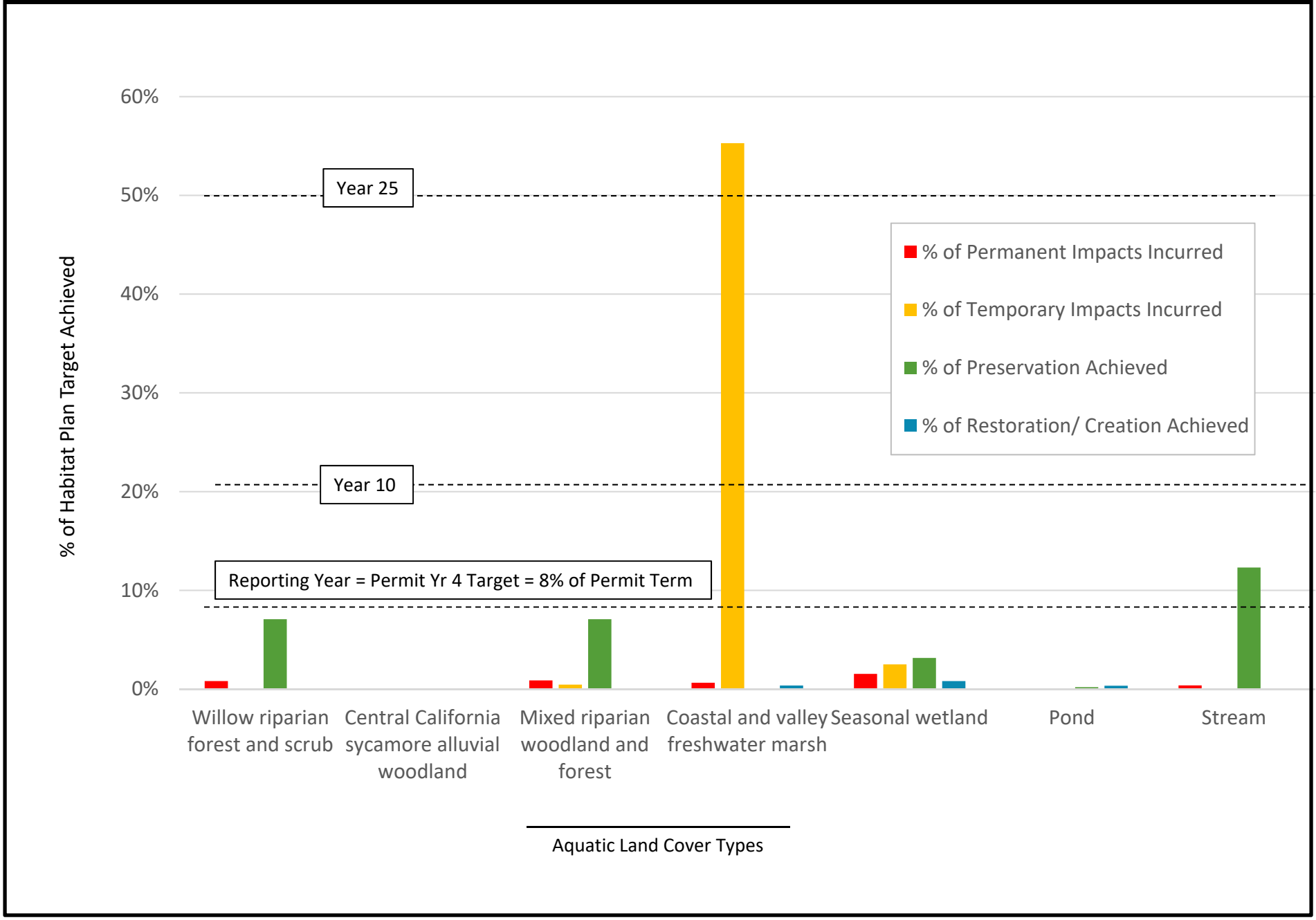


Figure ES-10. Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Wildlife Habitat

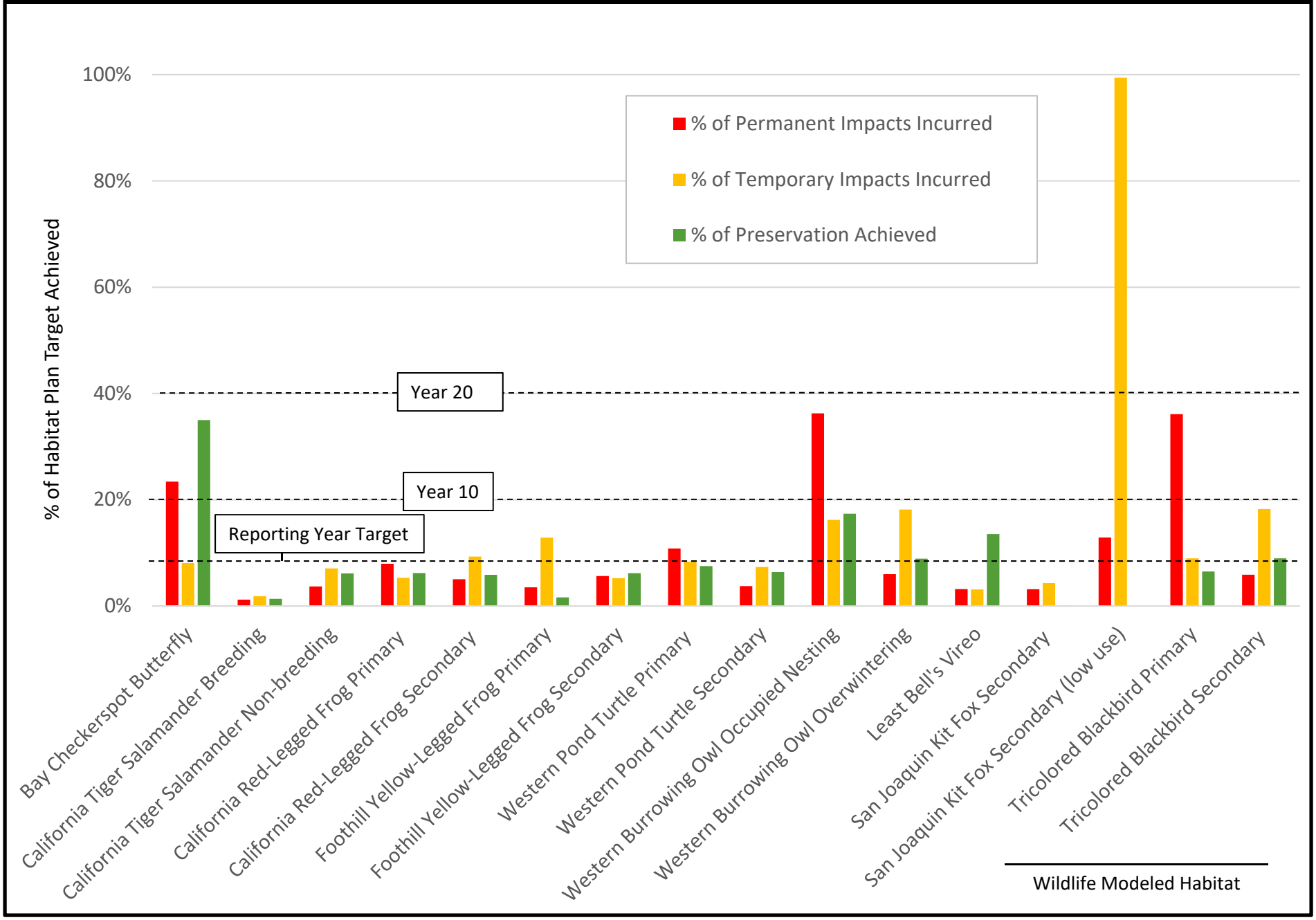
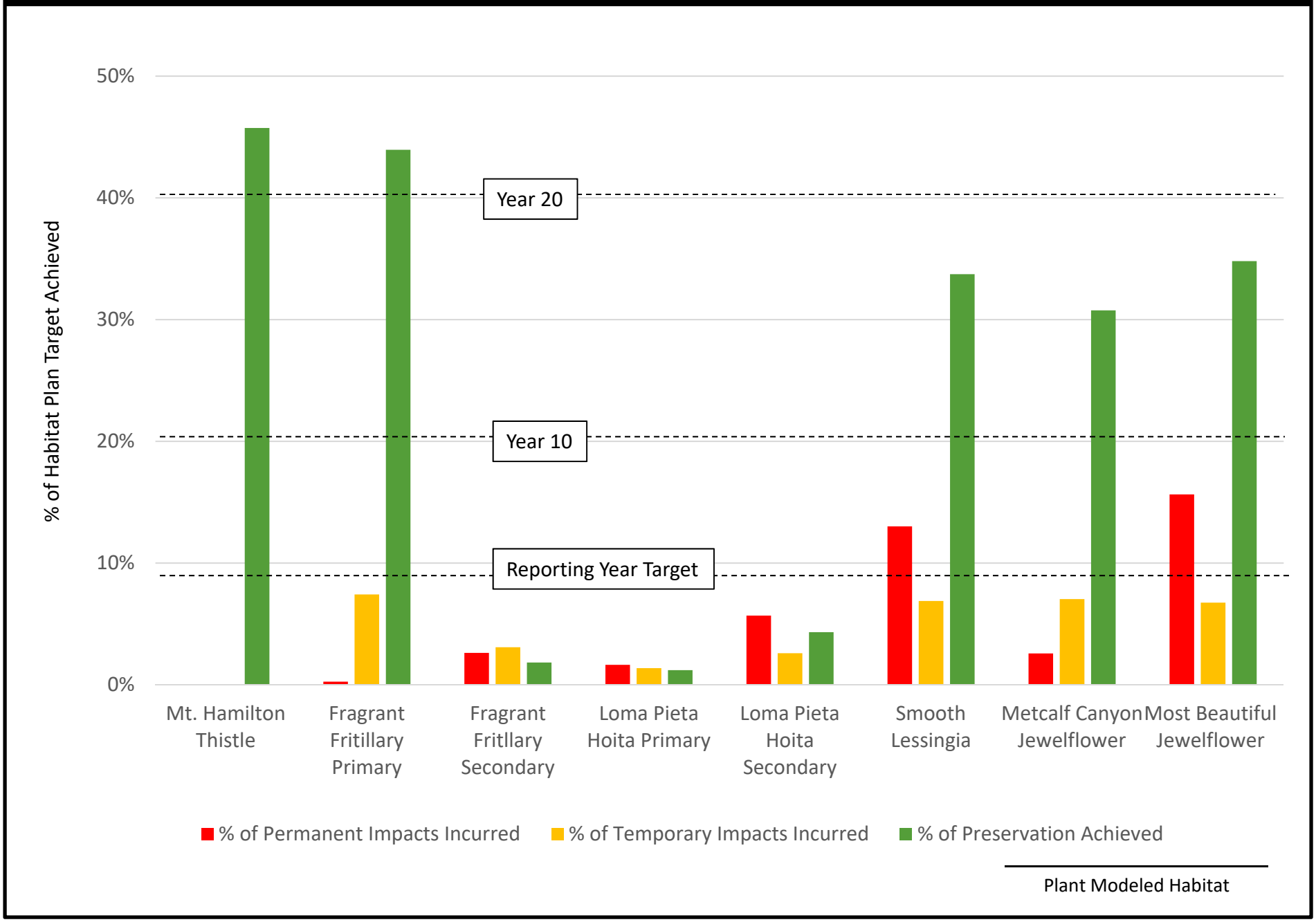


Figure ES-11. Habitat Plan Progress Summary: Impacts Incurred and Conservation Achieved for Plant Habitat



Chapter 1
Introduction

Santa Clara Valley Habitat Plan Background

The Santa Clara Valley Habitat Plan (Habitat Plan) provides an effective framework to protect, enhance, and restore natural resources in Santa Clara County while improving and streamlining the environmental permitting process for impacts on threatened and endangered species. The Habitat Plan is a Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP). This means it provides to participants a mechanism for securing both federal Section 10 and state NCCP permits for endangered species take coverage. In return, it will conserve 18 covered species (9 wildlife and 9 plants) and the natural communities on which these species rely. The Habitat Plan Permit Area (Permit Area) is 508,669 acres (460,205 acres where most covered activities will occur and 48,464 acres in the expanded study area for burrowing owl conservation), or approximately 60% of the area of Santa Clara County, in the San Francisco Bay Area. The Permit Area includes all of the Llagas, Uvas, and Pajaro watersheds, all of the Coyote Creek watershed except for the Baylands, and a large portion of the Guadalupe watershed. The Permit Area also encompasses small, adjacent areas outside these watersheds (**Figure 1**).

The Habitat Plan grew from a collaborative effort in the early 2000s among four partners—the County of Santa Clara (County), the City of San José, the Santa Clara Valley Water District (SCVWD), and the Santa Clara Valley Transportation Authority (VTA)—as compensation for impacts on endangered and threatened species and their habitats due to several local transportation projects, a research park, and a biological mitigation site. In 2005, these partners were joined by the Cities of Gilroy and Morgan Hill, who recognized the long-term benefits of the Habitat Plan for their communities. The final Habitat Plan was approved and adopted by these entities in 2013; at that time, the Santa Clara Valley Habitat Agency (Habitat Agency) was also formed, and together these seven agencies are referred to as the *Co-Permittees*.

The Habitat Agency is the agency primarily responsible for executing the requirements of the Habitat Plan, the federal and state endangered species permits, and the Implementing Agreement. The Implementing Agreement is a legal document between the Wildlife Agencies—U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW)—and the Co-Permittees to implement the Habitat Plan. The Habitat Agency is a Joint Powers Authority composed of the Cities of Gilroy, Morgan Hill, and San José, and the County.[2]

The County and three cities are responsible for Habitat Plan compliance with respect to private development projects in their jurisdictions, and each Co-Permittee is responsible for ensuring its own public projects are carried out in conformance with the Habitat Plan. The Habitat Agency holds the title to lands or easements it purchases, and it oversees cooperative agreements with land management entities that own and/or manage reserves as part of the Reserve System. The Habitat

[2] The Joint Powers Authority is limited to the four participating jurisdictions because the Joint Exercise of Powers Act requires that a Joint Powers Authority can only exercise powers held by all the participating agencies—and of the six participating agencies, only the four jurisdictions have the authority to adopt the Habitat Plan development fees. However, because all six agencies are responsible for implementing the Habitat Plan, each has a role in the Habitat Agency.

Agency may also provide funding to local land trusts and management agencies for them to purchase land for the Reserve System. The Habitat Agency provides funds for Reserve System management and monitoring to those agencies and organizations with whom it contracts for such services.

The Habitat Agency has two decision-making bodies, the Governing Board and the Implementation Board. The Governing Board is composed of two representatives of each of the four participating jurisdictions, for a total of eight members. Each representative is an elected official from the participating jurisdiction. The Governing Board is responsible for the governance and administration of the Habitat Agency. It may delegate its authority to the Implementation Board except for two duties that must remain with the Governing Board: adoption and modification of Habitat Plan fees and the approval of the Habitat Agency's annual budget. The Implementation Board is represented by all Co-Permittees. The 11-member Implementation Board has two representatives each from the Co-Permittees except for VTA, which, per its request, has one representative. For the Co-Permittees with two representatives, one must be an elected official. The Implementation Board is responsible for reviewing and approving the Annual Report prior to submittal to the Wildlife Agencies.

The Habitat Plan's requirements for the Reserve System are provided below.

- Acquisition, management, and monitoring of 33,652 acres of newly protected lands.
- Improved management and monitoring of an additional 12,844 acres of existing protected lands.
- Restoration of 353 acres of riparian habitats, 75 acres of wetlands, 72 acres of ponds, and 10.4 miles of streams.
- Protection of nine terrestrial and seven aquatic linkages.
- Ongoing research of issues related to the improved management of all Reserve System lands.

Annual Report Overview

The Annual Report provides the Governing Board, Implementation Board, USFWS, CDFW, and the general public the opportunity to review the Habitat Agency's actions and progress toward implementing the Habitat Plan. Annual Reports are prepared by the Habitat Agency over the term of the Habitat Plan to document permit compliance, impacts, conservation actions, management actions, restoration/creation actions, and monitoring results. The Annual Reports summarize the previous fiscal year's implementation activities (July 1 to June 30) and are to be completed by March 15 following the reporting fiscal year.

This is the third Annual Report prepared by the Habitat Agency. This report summarizes implementation actions from July 1, 2016, through June 30, 2017.

The goals of the Annual Report are as follows.

- Provide the information and data necessary for the Co-Permittees to demonstrate to the Wildlife Agencies and the public that the Habitat Plan is being implemented properly and as anticipated.
- Disclose any problems with Habitat Plan implementation so they can be corrected.
- Document issues with Habitat Plan implementation that may require consultation with the Wildlife Agencies.

- Identify administrative or minor changes to Habitat Plan components required to increase the success of implementation, including the success of meeting conservation measures.

The required elements of the Annual Report as defined by the Habitat Plan are summarized below. Each topic is discussed separately in its own chapter in this Annual Report.

- Chapter 2, *Covered Activities*, describes all projects and activities that occurred during the reporting period for which incidental take authorization was approved, including an accounting of the acreages of impact by project, land cover type, and covered species habitat. This chapter identifies conditions on covered activities applied to each project and reports impacts on riparian and wetland land cover types by watershed.
- Chapter 3, *Land Acquisition*, describes the land acquisitions that occurred during the reporting period, including a summary of land acquisition funding from local, state, and federal sources. This chapter identifies each land acquisition conservation measure implemented during the reporting period and summarizes natural community protection during the reporting period and permit term. In addition, this chapter documents progress toward all acquisition requirements, including land cover types, habitat connectivity, covered plant populations, and aquatic protection.
- Chapter 4, *Habitat Restoration and Creation*, describes natural community creation and restoration conservation measures implemented during the reporting period and summarizes cumulative accomplishments during the permit term, including aquatic restoration/creation by watershed.
- Chapter 5, *Western Burrowing Owl Management and Monitoring*, describes western burrowing owl monitoring efforts, management actions, and research studies untaken during the reporting period, and identifies future management agreements.
- Chapter 6, *Reserve System Management*, describes the Reserve System management planning activities that took place and the tools that were created during the reporting period.
- Chapter 7, *Monitoring, Research, and Adaptive Management*, summarizes the monitoring, research, and adaptive management activities that the Co-Permittees conducted under the Habitat Plan during the reporting period.
- Chapter 8, *Stay-Ahead Provision*, assesses compliance with the Stay-Ahead provision, a set of requirements to ensure that progress toward acquisition of Reserve System lands precedes impacts associated with covered activities. This assessment includes a cumulative summary of impacts and conservation for all land cover types.
- Chapter 9, *Changed and Unforeseen Circumstances*, describes actions taken or anticipated regarding changed circumstances,[3] including remedial actions.

[3] The federal "No Surprises" Rule defines changed circumstances as those circumstances affecting a species or geographic area covered by the HCP that can be reasonably anticipated by the applicant or federal wildlife agencies and that can be planned for.

Chapter 2
Covered Activities

A total of 54 projects received take coverage under the Habitat Plan during the reporting period, the majority of which were Urban Development Projects. Of these 54 projects, 26 were private projects (residential housing and commercial development), 25 were public projects (utilities and park facilities), and 3 were participating special entities (PSEs) (public or quasi-public entities). The PSEs were the Pacific Gas and Electric Company (PG&E) and the California Department of Transportation (Caltrans). The applicable conditions on covered activities were employed for each project to minimize and avoid impacts on covered species and natural communities.

This chapter describes the activities and projects (covered activities) within the Permit Area that were approved for take authorization pursuant to the Habitat Plan during the reporting period. The *Covered Activities Receiving Take Coverage* section summarizes major activity types and impacts by private, public, and PSE projects. The subsequent sections summarize impacts on land cover types, including aquatic impacts by watershed, impacts on species modeled and critical habitat, impacts on covered plants, and stream and riparian setback exemptions.

The Habitat Plan requires covered activities to compensate, avoid, and minimize impacts on covered species through a variety of conservation measures. The Habitat Plan allows incidental take coverage for the following covered activities.

Reporting Requirements

- Description of all covered activities implemented during the reporting period categorized by major activity type (per Chapter 2), acreage, and whether the project is public or private.
- Year-to-date and cumulative summaries (i.e., from the start of the permit term) of permanent and temporary impacts on all land cover types. Impacts on riparian and wetland land cover types will also be reported by watersheds.
- Year-to-date and cumulative summaries of impacts associated with projects exempt from fees and/or conditions of the Habitat Plan.
- Accounting of all conditions on covered activities applied to these activities.
- List of all riparian setback exceptions granted each calendar year within the reporting period.
- Year-to-date and cumulative summaries of permanent and temporary impacts on modeled habitat of covered species, and of permanent impacts on covered plant occurrences.
- Year-to-date and cumulative summaries of total impacts on critical habitat of the California red-legged frog, California tiger salamander, and Bay checkerspot butterfly.

- **Urban Development Projects** are projects and activities that occur inside the planning limits of urban growth but outside of in-stream areas, and is intended to be as inclusive as possible to accommodate urban growth and all ground-disturbing activities within designated urban areas.
- **In-Stream Capital Projects** are public infrastructure projects that occur within streams in both urban and rural areas. Activities within streams are those activities or projects that occur in or

immediately adjacent to creeks and that may result in impacts on a creek or canal. This category includes activities in the stream channel, along the stream bank, and on adjacent lands at top-of-bank within the riparian corridor.

- **In-Stream Operation and Maintenance Activities** are operations and maintenance activities in the stream channel, along the stream bank, and on adjacent lands at top-of-bank within the riparian corridor, including maintenance of access roads and trails in both urban and rural areas.
- **Rural Capital Projects** are public infrastructure projects outside the cities' planning limits of urban growth.
- **Rural Operation and Maintenance Activities** are rural operations and maintenance activities including utility line or facility operations and maintenance; facility maintenance, including vegetation and infrastructure management; and pond maintenance outside the Reserve System.
- **Rural Development Projects** are those rural projects that occur in accordance with existing general plans at the time of permit issuance. This includes activities that are subject to ministerial or discretionary approval by the County or cities. Most of this type of development is expected to be residential development in areas outside the planning limits of urban growth, which generally occurs in the unincorporated County, but some development may occur within city limits. Specifically, rural residential development is expected to occur on the non-urban hillsides of eastern San José, in the Coyote Valley Urban Reserve and South Almaden Valley Urban Reserve, in Morgan Hill's Southeast Quadrant, and in Gilroy's Hecker Pass Specific Plan area.
- **Conservation Strategy Implementation** are activities that take place within or outside the Reserve System consistent with the Habitat Plan conservation strategy. All conservation actions will take place within the Permit Area and the Expanded Burrowing Owl Conservation Area.

Covered Activities Receiving Take Coverage

A total of 54 projects received take coverage under the Habitat Plan during the reporting period. **Table 1** provides a summary of all the covered activities permitted in the reporting period. The 54 projects resulted in 266.5 acres of permanent land cover impacts, 47.9 acres of temporary land cover impacts, 16 feet of permanent impacts to streams, and 97 feet of temporary impacts to streams. **Figures 2 and 3** show the locations of private and public covered projects, respectively, in the Permit Area. Of the 54 projects receiving take coverage during the reporting period, 26 projects were private projects, 25 were public projects, and 3 were PSE projects. Covered activities are summarized as follows.

- 23 Urban Development Projects
- 3 In-Stream Operations and Maintenance Activities
- 1 In-Stream Capital Project
- 9 Rural Operations and Maintenance Activities
- 9 Rural Development Projects
- 8 Rural Capital Projects

- 1 Conservation Strategy Implementation Project

Covered activities mitigated impacts through the payment of Habitat Plan fees or land in lieu. Fees totaled $3,089,249.03 during the reporting period. See Chapter 10, *Finances*, of this Annual Report for details. No land has been received in lieu of fee payments to date; however, the Habitat Agency and the County continue to work in good faith to enroll County lands into the Reserve System (see Habitat Plan Section 5.23 *Reserve System*, *Existing Open Space in the Reserve System*).

A total of 165 projects have received take coverage under the Habitat Plan since permit issuance. Cumulative impacts total 1,370 acres of permanent impacts, 253 acres of temporary impacts, 182 feet of permanent impacts to streams, and 737 feet of temporary impacts to streams. Of the 165 projects, 87 were private, 64 were public, and 14 were PSE projects. Covered activity types are 87 urban development projects, 8 in-stream operations and maintenance activities, 6 in-stream capital projects, 23 rural operations and maintenance projects, 25 rural development projects, 11 rural capital projects, and 5 conservation strategy implementation projects.

Private Projects

During the reporting period, 26 private projects received streamlined permits through the Habitat Plan (**Table 1, Figure 2**). Permanent impacts totaled 157 acres and temporary impacts totaled 8 acres. City of San José permitted 4 projects, City of Morgan Hill permitted 6 projects, City of Gilroy permitted 7 projects, and the County permitted 10 projects. Projects included residential housing, community development, and other economic development activities providing a range of benefits for the communities in the Permit Area. Highlights of these approved projects are provided below.

- *Residential Housing*: The City of Gilroy issued a permit for San Sebastian Phases 1 and 2. This 35-acre project provides 54 single-family homes with private open space and roads.
- *Residential Housing*: The City of Morgan Hill issued a permit for Madison Gate. This 7-acre project consists of 15 single-family detached and 50 townhome-style condominiums.
- *Commercial Development:* The City of San José issued a permit for Silver Oak Plaza. This 3-acre commercial center will provide over 15,000 square feet of commercial space across four buildings for retail and restaurant use—three drive-throughs, gas station with car wash, and convenience store.

Over the permit term, a total of 88 private projects have been permitted. These projects resulted in 828 acres of permanent impacts and 111 acres of temporary impacts. City of San José permitted 28 projects, City of Morgan Hill permitted 24 projects, City of Gilroy permitted 16 projects, and the County permitted 20 projects.

Public Projects

During the reporting period, 25 public agency projects received streamlined permits through the Habitat Plan (**Table 1, Figure 3**). City of San José permitted 3 projects, City of Gilroy permitted 1 project, the County permitted 11 projects, and the SCVWD permitted 9 projects. Permanent impacts totaled 108 acres and temporary totaled 32 acres. These projects include water supply, park facilities, and other economic development activities providing a range of benefits for the communities in the Permit Area. Highlights of these approved projects are provided below.

- *Utilities.* The SCVWD and City of Gilroy installed solar photovoltaic power generating panels at the Penitencia, Santa Teresa, and South County Regional Wastewater Authority wastewater treatment plants.
- *Park Facilities.* The County built a new staging area and trails on Calero County Park. These facilities provide public access to the newly opened Ranch San Vicente portion and include a trail in memory of Lisa Killough, a dedicated public servant who was instrumental in expanding the County Park system and representing the County of Santa Clara Parks and Recreation Department (County Parks) during Habitat Plan development.

Over the permit term, a total of 64 public projects have been permitted. These projects resulted in 512 acres of permanent impacts and 115 acres of temporary impacts. City of San José permitted 9 projects, City of Gilroy permitted 1 project, the County permitted 24 projects, SCVWD permitted 27 projects, VTA permitted 1 project, and the Habitat Agency permitted 1 project.

Participating Special Entities

Public or quasi-public entities not subject to the jurisdiction of the Co-Permittees may seek coverage under the Habitat Plan to conduct projects or ongoing activities within the Permit Area that could affect listed species and require take authorization from USFWS or CDFW. These organizations may become PSEs, and may include existing or future school districts, water districts, irrigation districts, transportation agencies, local park districts, geologic hazard abatement districts, or other utilities or special districts that own land or provide public services. PSEs can request coverage under the Habitat Plan. Municipalities that are not Co-Permittees are not eligible to participate using this status. PSE projects have ranged from restoration projects to the construction of campus buildings and a parking lot.

During this reporting year, three PSEs were approved for take coverage under the Habitat Plan: two rural operations and maintenance projects and one rural capital project. The PSEs were PG&E and Caltrans. These projects resulted in a total of 1.9 acres of permanent impacts and 5.7 acres of temporary impacts.

Over the permit term, a total of 14 PSE applications have been permitted by the Habitat Agency. These projects resulted in 30 acres of permanent impacts and 26 acres of temporary impacts.

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 and sensitive natural communities. Conditions on covered activities include completion of preconstruction surveys, minimization of development footprints, 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 stormwater management, and design requirements for roads outside the urban development area. Each condition is described in detail in Chapter 6 of the Habitat Plan under Section 6.4, *Conditions on Specific Covered Activities*.

Numerous conditions on covered activities at the landscape, natural community, and species levels were applied during the reporting period as shown in **Table 2** and **Table 3**. Of the 54 covered

activities implemented during the reporting period, Conditions 1 and 3 applied to every project, wildlife conditions were triggered 26 times, natural community conditions were triggered 16 times, plants conditions were triggered 15 times, and other covered project categories were triggered 29 times (**Table 2**). **Table 3** provides a summary of the species-level measures triggered by covered activities during the reporting period. These measures include habitat surveys, preconstruction surveys, avoidance and minimization measures, and construction monitoring.

Impacts on Land Cover Types

Reporting period impacts occurred on terrestrial and aquatic land cover types across four watersheds. There was a total of 226.4 acres of permanent impacts and 47.9 acres of temporary impacts on non-stream land cover types, and 16 feet of permanent impacts and 97 feet of temporary impacts on streams. The majority of permanent impacts occurred in urban suburban (46.9 acres) and grain and row crops (140.0 acres) land cover types. To date, grasslands and coyote brush are being impacted at the fastest rates, with 10% and 34% of total allowable impacts incurred, respectively. **Table 4** summarizes covered activity impacts, tracked by land cover type. Impacts on aquatic land cover types occurred in four different watersheds—Coyote, Guadalupe, Uvas, and Llagas. Impacts on aquatic land cover types included 0.50 acre of permanent impacts and 1.00 acre of temporary impacts. **Table 5** summarizes impacts on aquatic habitat by watershed.

Impacts on Modeled and Critical Habitat

Table 6 summarizes the impacts on modeled habitat for the reporting period and cumulatively. During the reporting period, impacts were highest on California red-legged frog secondary habitat (165.2 acres), western burrowing owl overwintering habitat (145.7 acres), and tricolored blackbird secondary habitat (157.2 acres). Cumulatively, the take limit for temporary impacts to San Joaquin kit fox secondary habitat is nearly exhausted (99.4%). Impacts are also tracking high for permanent impacts to Bay checkerspot butterfly primary habitat (23.4%), tricolored blackbird primary habitat (36.1%), and western burrowing owl occupied nesting habitat 36.2% (**Table 6**).

Table 7 provides a summary of impacts on critical habitat from covered activities during the reporting period and cumulatively. There were impacts on three California red-legged frog, two California tiger salamander, and four Bay checkerspot butterfly critical habitat units. To date, total allowable permanent and temporary impacts incurred for each are 3.2% and 1.4% for California red-legged frog, 10.7% and 8.8% for California tiger salamander, and 7.8% and 13.1% for Bay checkerspot butterfly.

Impacts on Covered Plants

A total of 3 covered plant occurrences and 515 coyote ceanothus individual plants have been impacted to date (**Table 8**). During the reporting period, no covered plants occurrences were removed. Cumulative plant impacts are as follows.

Coyote Ceanothus. *PG&E T-1065 Hydrotest* removed 225 Coyote ceanothus individual plants. *Anderson Dam Phase 1B Geotechnical Investigation* removed 290 Coyote ceanothus individual plants.

Santa Clara Valley Dudleya. *Lands of Musallem* partially impacted an occurrence of Santa Clara Valley dudleya. The occurrence on-site is composed of 9 rock outcroppings with a total of 502 plants. The project botanist observed that the occurrence continues off-site. The project impacted 4 plants directly and an additional 118 plants indirectly impacted (within disturbance buffers). The occurrence was assumed removed as this project and future development in the area is likely to affect its long-term viability. Future projects affecting this occurrence will be tracked; however, no additional occurrence impact will be deducted.

Smooth Lessingia. *Almaden Dam Improvement Project Geotechnical Investigations* removed an occurrence of smooth lessingia (6 plants).

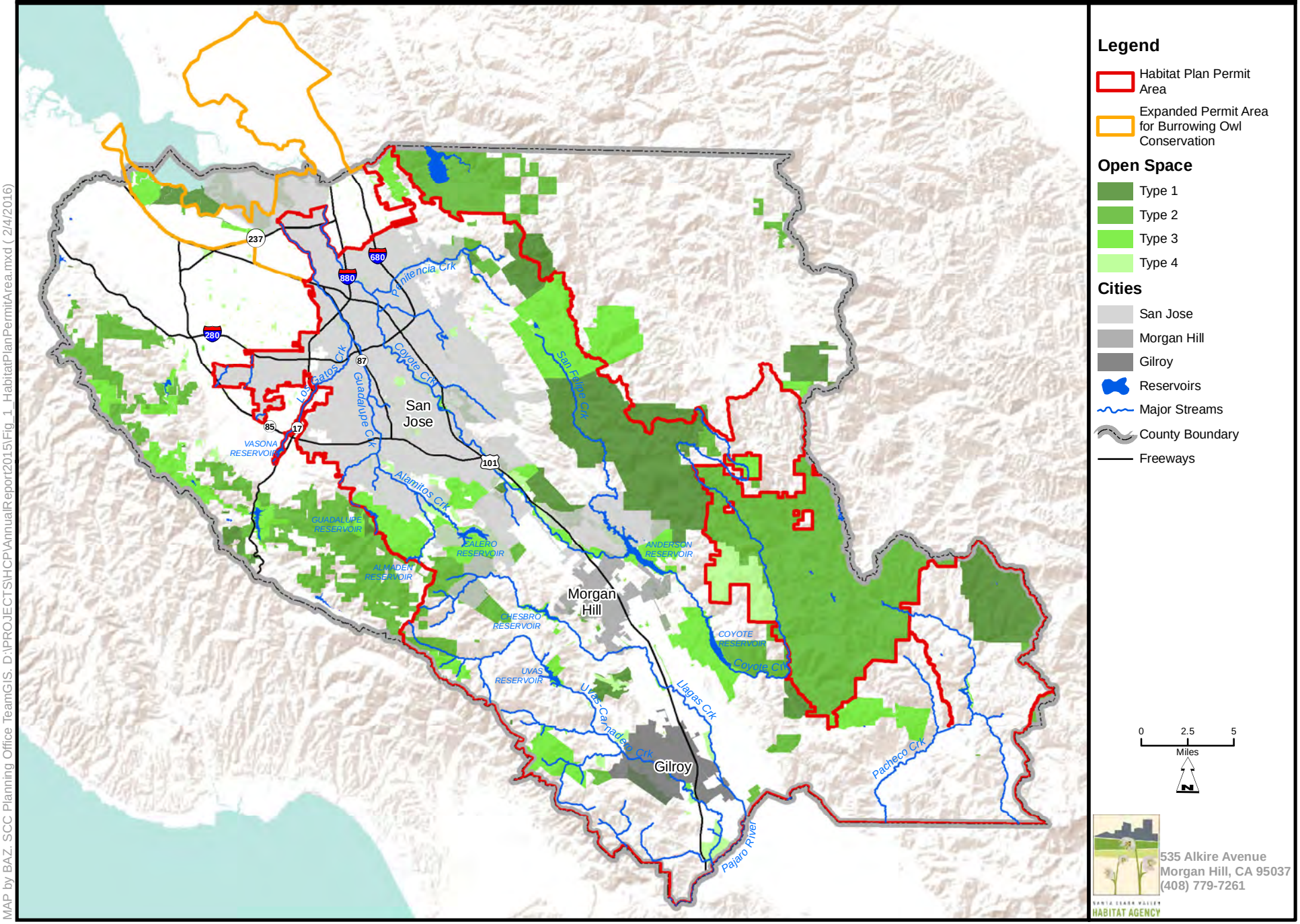
Most Beautiful Jewelflower. *Almaden Dam Improvement Project Geotechnical Investigations* removed an occurrence of most beautiful jewelflower (110 plants).

Compliance Tracking of Covered Plants

During the reporting period, the Habitat Agency revised the compliance tracking approach for impacts and conservation of the covered plant species to better align with the requirements of and the analysis used in the Habitat Plan. Under the revised approach, the Habitat Agency first determines whether a plant population affected or conserved overlaps with an occurrence as defined in the original Habitat Plan dataset (i.e., at the time of Habitat Plan approval). If the covered plant population found in the field overlaps with the plant occurrence point in the Habitat Plan data, or can be otherwise aligned (e.g., the same California Natural Diversity Database [CNDDB] number), the population is identified for the purposes of Habitat Plan compliance tracking as the plant occurrence identified in the Habitat Plan. If there is no overlap, then the plant population is considered a new occurrence not identified in the original Habitat Plan. Large populations that occur over a wide area (e.g., Santa Clara Valley dudleya or smooth lessingia) may overlap with multiple plant occurrences as identified in the Habitat Plan. Whichever Habitat Plan plant occurrences are aligned with field-verified occurrences are counted as either lost or conserved depending on whether the site is a covered activity or Reserve System lands.

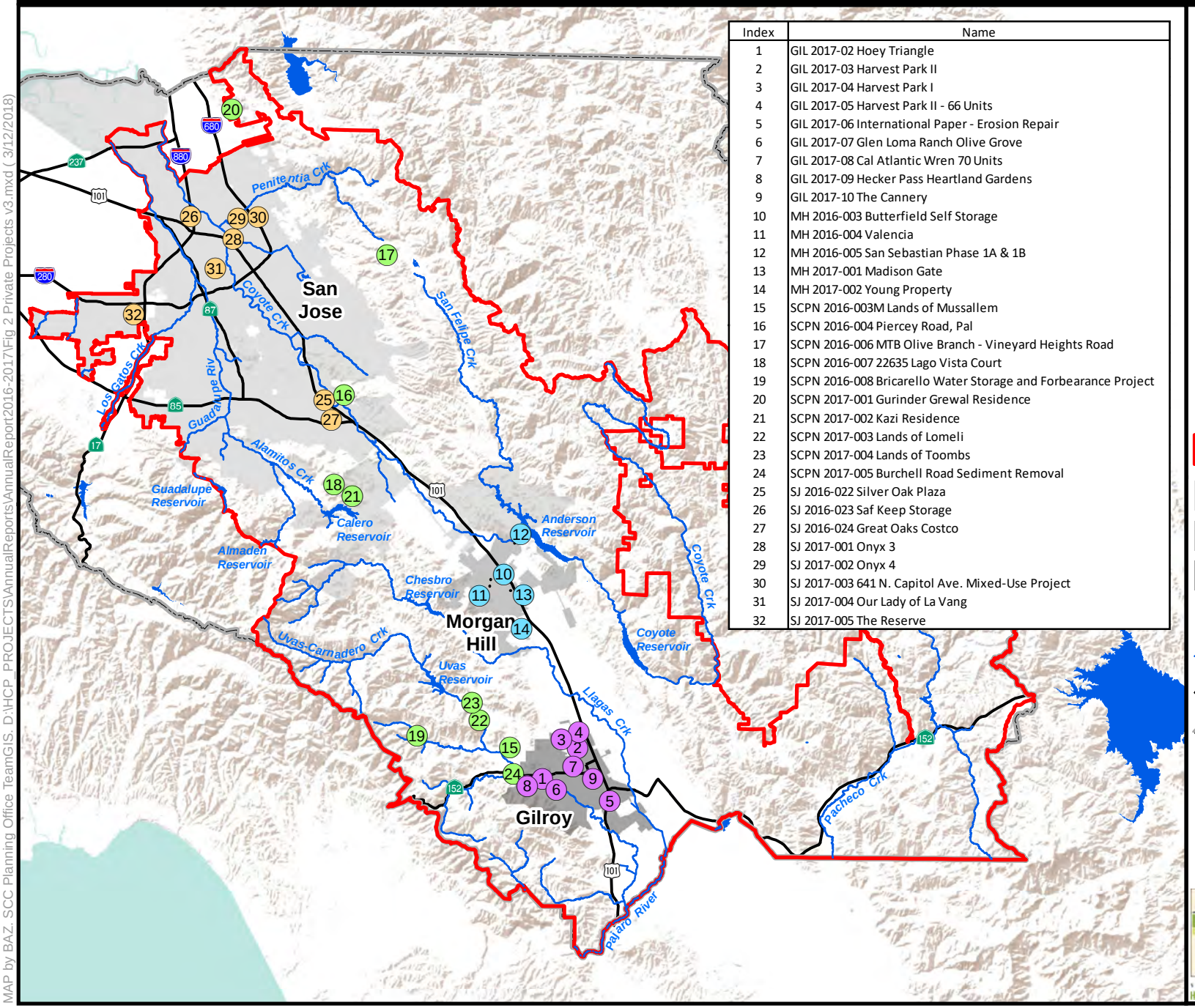
The Habitat Agency will track impacts to and conservation of covered plant occurrences as described in the Habitat Plan. The Habitat Agency will also track separately impacts to and conservation of new occurrences not known at the time of Habitat Plan approval. In some cases, the Habitat Plan allows for increased take of covered plants if more occurrences are protected in the Reserve System than the minimum required by the Habitat Plan.

Figure 1. Santa Clara Valley Habitat Plan Permit Area



MAP by BAZ. SCC Planning Office TeamGIS. D:\PROJECTS\HCP\AnnualReport2015\Fig_1_HabitatPlanPermitArea.mxd (2/4/2016)

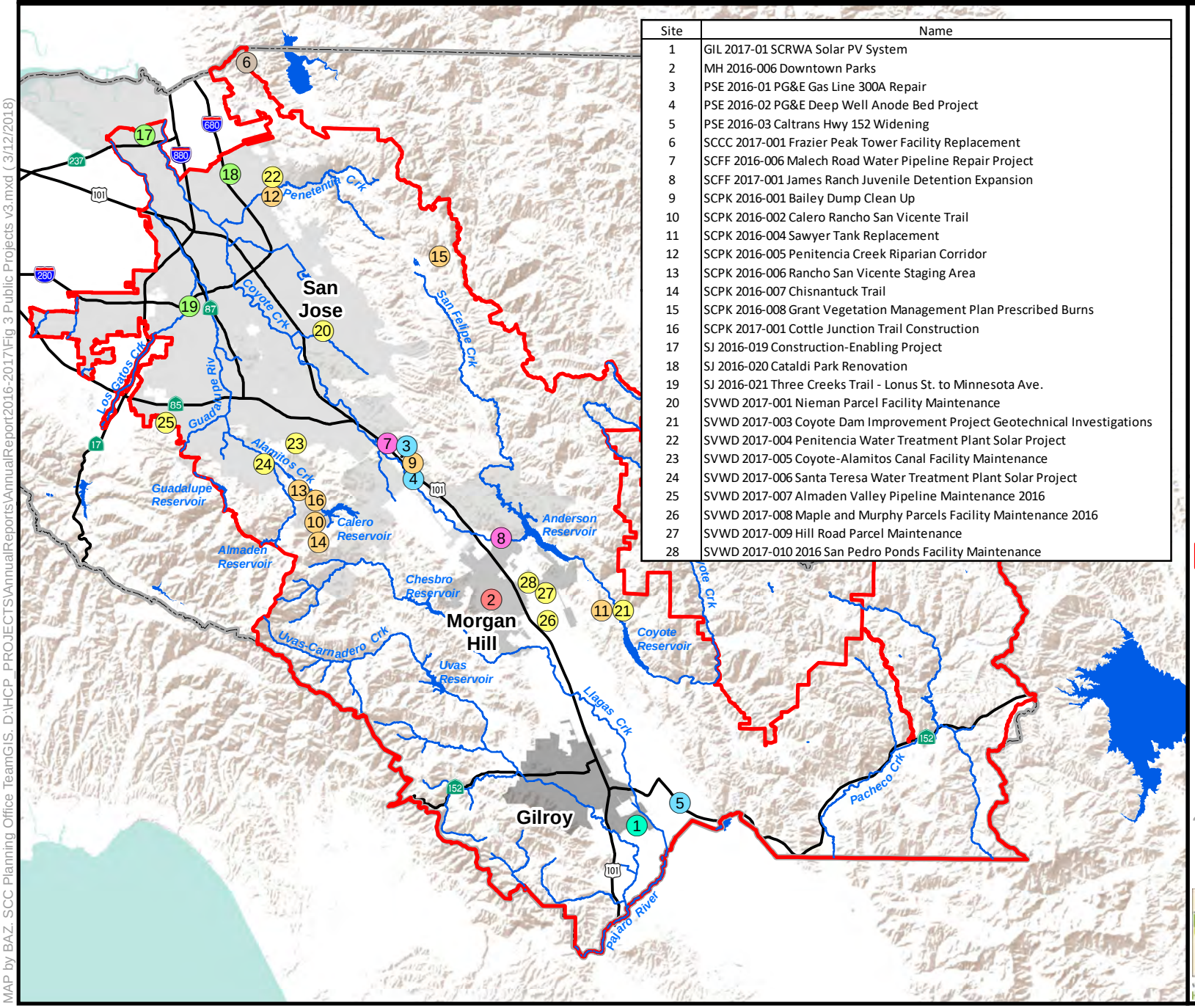
Figure 2. Location of FY16-17 Private Covered Projects



Index	Name
1	GIL 2017-02 Hoey Triangle
2	GIL 2017-03 Harvest Park II
3	GIL 2017-04 Harvest Park I
4	GIL 2017-05 Harvest Park II - 66 Units
5	GIL 2017-06 International Paper - Erosion Repair
6	GIL 2017-07 Glen Loma Ranch Olive Grove
7	GIL 2017-08 Cal Atlantic Wren 70 Units
8	GIL 2017-09 Hecker Pass Heartland Gardens
9	GIL 2017-10 The Cannery
10	MH 2016-003 Butterfield Self Storage
11	MH 2016-004 Valencia
12	MH 2016-005 San Sebastian Phase 1A & 1B
13	MH 2017-001 Madison Gate
14	MH 2017-002 Young Property
15	SCPN 2016-003M Lands of Mussallem
16	SCPN 2016-004 Piercey Road, Pal
17	SCPN 2016-006 MTB Olive Branch - Vineyard Heights Road
18	SCPN 2016-007 22635 Lago Vista Court
19	SCPN 2016-008 Bricarello Water Storage and Forbearance Project
20	SCPN 2017-001 Gurinder Grewal Residence
21	SCPN 2017-002 Kazi Residence
22	SCPN 2017-003 Lands of Lomeli
23	SCPN 2017-004 Lands of Toombs
24	SCPN 2017-005 Burchell Road Sediment Removal
25	SJ 2016-022 Silver Oak Plaza
26	SJ 2016-023 Saf Keep Storage
27	SJ 2016-024 Great Oaks Costco
28	SJ 2017-001 Onyx 3
29	SJ 2017-002 Onyx 4
30	SJ 2017-003 641 N. Capitol Ave. Mixed-Use Project
31	SJ 2017-004 Our Lady of La Vang
32	SJ 2017-005 The Reserve

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016-2017\Fig 2 Private Projects v3.mxd (3/12/2018)

Figure 3. Location of FY16-17 Public Covered Projects



Site	Name
1	GIL 2017-01 SCRWA Solar PV System
2	MH 2016-006 Downtown Parks
3	PSE 2016-01 PG&E Gas Line 300A Repair
4	PSE 2016-02 PG&E Deep Well Anode Bed Project
5	PSE 2016-03 Caltrans Hwy 152 Widening
6	SCCC 2017-001 Frazier Peak Tower Facility Replacement
7	SCFF 2016-006 Malech Road Water Pipeline Repair Project
8	SCFF 2017-001 James Ranch Juvenile Detention Expansion
9	SCPK 2016-001 Bailey Dump Clean Up
10	SCPK 2016-002 Calero Rancho San Vicente Trail
11	SCPK 2016-004 Sawyer Tank Replacement
12	SCPK 2016-005 Penitencia Creek Riparian Corridor
13	SCPK 2016-006 Rancho San Vicente Staging Area
14	SCPK 2016-007 Chisnantuck Trail
15	SCPK 2016-008 Grant Vegetation Management Plan Prescribed Burns
16	SCPK 2017-001 Cottle Junction Trail Construction
17	SJ 2016-019 Construction-Enabling Project
18	SJ 2016-020 Cataldi Park Renovation
19	SJ 2016-021 Three Creeks Trail - Lonus St. to Minnesota Ave.
20	SVWD 2017-001 Nieman Parcel Facility Maintenance
21	SVWD 2017-003 Coyote Dam Improvement Project Geotechnical Investigations
22	SVWD 2017-004 Penitencia Water Treatment Plant Solar Project
23	SVWD 2017-005 Coyote-Alamitos Canal Facility Maintenance
24	SVWD 2017-006 Santa Teresa Water Treatment Plant Solar Project
25	SVWD 2017-007 Almaden Valley Pipeline Maintenance 2016
26	SVWD 2017-008 Maple and Murphy Parcels Facility Maintenance 2016
27	SVWD 2017-009 Hill Road Parcel Maintenance
28	SVWD 2017-010 2016 San Pedro Ponds Facility Maintenance

Permitting Entity

- City of Gilroy (GIL) 1 Project
- City of Morgan Hill (MH) 1 Project
- City of San Jose (SJ) 3 Projects
- County of Santa Clara (SCFF) 2 Projects
- County of Santa Clara Communications (SCCC) 1 Project
- Habitat Agency (PSE) 3 Projects
- Santa Clara County Parks (SCPK) 8 Projects
- Santa Clara Valley Water District (SVWD) 9 Projects

- Habitat Plan Permit Area
- San Jose
- Morgan Hill
- Gilroy
- Reservoirs
- Major Streams
- Major Roads
- County Boundary

0 2.5 5 Miles

535 Alkire Avenue
Morgan Hill, CA 95037
(408) 779-7261

SANTA CLARA VALLEY HABITAT AGENCY

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016-2017\Fig 3 Public Projects v3.mxd (3/12/2018)

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
Urban Development								
Residential	Private	Gilroy	GIL-2017-02	Hoey	The project is within the Hecker Pass Specific Plan-East Cluster Area. This HCP application is for the grading permit.	Urban Development	1.91	
Residential	Private	Gilroy	GIL-2017-03	Harvest Park II	Proposed 55 SFR lots, 1 commercial lot, public & private streets with associated improvements.	Urban Development	13.52	
Residential	Private	Gilroy	GIL-2017-04	Harvest Park I	Proposed 32 unit apartment complex, parking lot, and associated improvements.	Urban Development	2.02	
Residential	Private	Gilroy	GIL-2017-05	Harvest II - 66 Units	Proposed 66 unit apartment complex, parking lot, and associated improvements	Urban Development	3.21	
Erosion Control	Private	Gilroy	GIL-2017-06	International Paper	The purpose of this project is to repair the eroded slope of the Princevalle Storm drain channel in four areas along the bank. The re-compacted material will be reinforced with erosion control measures to prevent any future erosion that is likely to occur	Urban Development		0.04
Residential	Private	Gilroy	GIL-2017-07	Glen Loma Ranch	The proposed project is in the north of Glen Loma Ranch Specific Plan area within City of Gilroy. The area is bounded by Uvas Creek to the north and the east, Club Drive to the south, Santa Teresa Boulevard to the west.	Urban Development	16.27	
Residential	Private	Gilroy	Gil-2017-09	Hecker Pass Heartland	73 Single Family Residences within the Hecker Pass Specific Plan-West Cluster area in Gilroy.	Urban Development	23.61	
Commercial	Private	Morgan Hill	MH-2016-003	Butterfield Self Storage	Self-storage facility within existing industrial/commercial park at the south/east corner of Jarvis Dr. & Butterfield Blvd	Urban Development	4.79	
Residential	Private	Morgan Hill	MH-2016-004	Valencia	41 new single-family homes. The project is comprised of two phases. This application is for Phase 1.	Urban Development	9.12	
Residential	Private	Morgan Hill	MH-2016-005	San Sebastian Phases 1 and 2	The proposed project includes the first two phases of San Serbastian Subdivision project. Phase 1A, Tract 10176, is a 21 single family residential subdivision with private open space and circulations. Phrase 1B, Tract 10330, is a 33 single family subdivision	Urban Development	32.08	3.53
Park Facilities	Public	Morgan Hill	MH-2016-006	Downtown City Parks	The project consists of the development of three new parks on City owned property in downtown Morgan Hill.	Urban Development	5.2	
Residential	Private	Morgan Hill	MH-2017-001	Madison Gate	The project consists of the development of 65 homes; 15 single family detached and 50 townhome- style condominiums.	Urban Development	7.05	

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
Residential	Private	Morgan Hill	MH-2017-002	Young Property	37 residence buildings are planned for the east side of West Little Llagas Creek observing a 35-foot buffer from the creek, with the west side of West Little Llagas Creek will remain undeveloped.	Urban Development	4.217	0.339
Residential	Private	Santa Clara County (Planning)	SCPN-2017-002	Kazi Residence	Project is to build a custom home on a vacant lot. The custom home will have two stories, basement, garage, and a small driveway. The project also includes a septic system. No additional structures are part of this project.	Urban Development	0.63	0.28
Wastewater Management	Public	San Jose	SJ-2016-019	Construction Enabling Project	Provides the necessary infrastructure to support increased Santa Jose / Santa Clara Regional Wastewater Facility Capital Improvement Program construction activity across the site.	Urban Development	13.32	
Recreational	Public	San Jose	SJ-2016-020	Cataldi Park Renovation	Construct a new exercise area, a tot lot with resilient rubber surfacing, 2000sf of concrete paving, add new park interpretive map, picnic tables and benches.	Urban Development	0.04	0.03
Recreational	Public	San Jose	SJ-2016-021	Three Creeks Trail	The 'Three Creeks Trail - Lonus Street To Minnesota Avenue' Project is the first phase of the larger Three Creeks Trail Master Plan - Western Alignment Project to be implemented by the Co-Permittee in the Willow Glen neighborhood of San Jose.	Urban Development	1.74	5.26
Commercial	Private	San Jose	SJ-2016-022	Silver Oak Plaza	This is a Planned Development Permit to construct a 15,602 square foot commercial center consisting of four buildings for retail and restaurant uses, which include three drive-through uses and gas station with car wash and convience store.	Urban Development	3.06	
Commercial	Private	San Jose	SJ-2016-023	SAF Keep Storage	The project consists of a three-story, 121,722 sq ft self storage building. The entire site will be developed, and will consist of landscaped areas, a driveway and a building pad.	Urban Development	1.75	
Commercial	Private	San Jose	SJ-2016-024	Great Oaks Costco	The site is currently a former orchard and will be developed with a Costco Warehouse store with associated parking and landscaping.	Urban Development	15.16	
Residential	Private	San Jose	SJ-2017-003	641 N. Capitol Ave	Mixed-use project in East San Jose (188 homes,~10,000 sf retail, ~28,00 sf office, ~1 acre public park, ~70,000 sf storage): new construction on vacant	Urban Development	10.6	

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
Utilities	Public	Santa Clara Valley Water District	SVWD-2017-004	Penitencia Water Treatment - Solar	Install, operate, and maintain solar photovoltaic (PV) power generating facilities at the Penitencia Water	Water Supply	1.63	
Utilities	Public	Santa Clara Valley Water District	SVWD-2017-006	Santa Teresa Water Plant - Solar	Install, operate, and maintain solar photovoltaic (PV) power generating facilities at the Santa Teresa Wat	Water Supply	1.66	0.06
In-Stream Operations & Maintenance								
Flood Protection	Public	Santa Clara County (Parks)	SCPK-2016-001	Bailey Dump	Project consists of the removal of household garbage and construction debris (primarily on the ground surface with minimum sub-surface waste) from a defined area along the eastern bank of Coyote Creek near Bailey Avenue and Hwy 101.	In-Stream O&M		0.66
Vegetation Management	Public	Santa Clara County (Parks)	SCPK-2016-005	Penitencia Creek Tree Removal	A tree service company will trim and/or remove of up to 80 trees with diameters ranging from 19” to 33”, with one multi-trunked tree with a DBH of more than 60". 73 of the trees are eucalyptus but there are also 7 trees of heaven that will be removed.	In-Stream O&M	0.44	
Water Supply	Public	Santa Clara Valley Water District	SVWD-2017-010	San Pedro Ponds	The project was for maintenance of the groundwater recharge facility. The work included weed abatement for fire protection and road maintenance.	In-Stream O&M	3.03	4.64

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
In-Stream Capital Projects								
Water Supply	Public	Santa Clara Valley Water District	SVWD-2017-003	Coyote Dam	The Santa Clara Valley Water District (District) has retained AECOM to conduct fault trenching as part of the safety evaluation of Coyote Dam. The geologic field investigation will include geologic mapping and excavation	In-Stream Capital Projects	0.23	
Rural Operations & Maintenance								
Other	Public	Gilroy	GIL-2017-01	SCRWA Solar	The South County Regional Wastewater Authority (SCRWA) is installing a solar energy system located at the wastewater treatment plant (WWTP) in the City of Gilroy.	Rural O&M	10	0.07
Utilities	PSE	Habitat Agency	PSE-2016-02	PGE Deep Well Anode	PG&E proposes to install a deep well anode to provide cathodic protection to the 30-inch diameter gas pipeline L-300A Mile Post 482.51 in Morgan Hill. The project is known as the C-225 Project.	Rural O&M		0.2
Utilities	PSE	Habitat Agency	PSE-2016-04	PG&E Gas Line Repair 300A	PG&E proposes to excavate an 8x14 bellhole at a known anomaly location on gas line 300B in Santa Clara County. The anomaly location represents damage to the pipeline which must be inspected and repaired in order to maintain safety and reliability. Crews will excavate pipe, sandblast the coating, assess/repair (as needed), and backfill. The project will take approxmately 2 weeks and there will be no new installation of facilities or permanent impacts.	Rural O&M		0.5
Other	Public	Santa Clara County (Parks)	SCPK-2016-004	Sawyer Tank	This project entails the replacement of a 3,000 gallon water tank and accessory building, including 600 feet of new piping	Rural O&M	0.2	
Facility Maintenance	Public	Santa Clara Valley Water District	SVWD-2017-001	Nieman Facility Maintenance	This project is for the annual facility maintenance of Santa Clara Valley Water District parcels in San Jose, CA. The facility maintenance is primarily for vegetation maintenance for access and fuel reduction.	Rural O&M	2.06	
Facility Maintenance	Public	Santa Clara Valley Water District	SVWD-2017-005	Coyote-Alamitos Canal Facility Maintenance	This project is for the annual facility maintenance of the Coyote-Alamitos Canal facility. The facility maintenance is primarily for vegetation maintenance for access and fuel reduction. The facility maintenance may also include maintenance of the road	Rural O&M	42	

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
Facility Maintenance	Public	Santa Clara Valley Water District	SVWD-2017-007	Almaden Valley Pipeline	This project is for the annual facility maintenance of the Almaden Valley Pipeline at the indicated locations. These are additional areas from the previous project (SVWD-2016-007). The facility maintenance is primarily for vegetation maintenance for access	Rural O&M	4.29	
Facility Maintenance	Public	Santa Clara Valley Water District	SVWD-2017-008	Maple and Murphy Parcels	This project is for the facility maintenance of the parcels of land owned by the district on Maple Ave between Murphy Ave and Colombet Ave indicated above. The facility maintenance is primarily for vegetation maintenance for access.	Rural O&M		8.78
Facility Maintenance	Public	Santa Clara Valley Water District	SVWD-2017-009	Hill Road Parcel Maintenance	This project is for the facility maintenance of the parcel of land owned by the district on Hill Rd between San Pedro Ave and Barrett Ave indicated above. The facility maintenance is primarily for vegetation maintenance for access and fuel reduction.	Rural O&M	1.66	
Rural Development								
Residential	Private	Santa Clara County (Planning)	SCPN-2016-003M	Mussallem	Proposed single family residence, driveway, and associated improvements. This is a modification to SCPN-2016-003 issued 6/29/16 for relocation of water tanks, adding 2065 sq ft of permanently disturbed area.	Rural Development	0.05	
Residential	Private	Santa Clara County (Planning)	SCPN-2016-004	Piercy Road - Pal	New detached secondary dwelling and a basement addition to existing single family home.	Rural Development	0.17	0.11
Residential	Private	Santa Clara County (Planning)	SCPN-2016-007	Lago Vista	The property is located at 22635 Lago Vista Court in the unincorporated area of the City of San Jose, CA. The parcel covering 9.66 acres is situated on a minor hill, 9.66+/- acre site. The project proposes construction of a 6000 sq ft single family residence	Rural Development		1.14
Residential	Private	Santa Clara County (Planning)	SCPN-2016-008	Bricarello	is is a steelhead restoration project that will install three 10,500 gallon potable water storage tanks on a ncrete pad of approximately 600 square feet, in order to augment the dry season water supply of the existing gle-family residence on the property.	Rural Development	0.01	0.01

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
Residential	Private	Santa Clara County (Planning)	SCPN-2016-009	MTB Olive Branch	The current phase of the project is the development of a 2,1 85-foot long and 18-foot wide (with two 3-foot wide shoulders) private roadway; development of two detention basins (one at 1 ,520 sq. ft. and another at 6, 736 ft.); a water tank pad	Rural Development	3.86	1.27
Residential	Private	Santa Clara County (Planning)	SCPN-2017-001	Gurinder - Grewal	Construction of a single-family residence, driveway, stormwater detention basin, and septic leach field.	Rural Development	1	0.17
Residential	Private	Santa Clara County (Planning)	SCPN-2017-003	Lomeli	Grading for proposed single family residence and associated site improvements that include driveway, detention pond and septic system.	Rural Development	1.47	0.38
Residential	Private	Santa Clara County (Planning)	SCPN-2017-004	Toombs	The proposed development is located at 12401 Merriman Lane in Gilroy, CA. The proposed project will be located in the southern middle of the property and will be developed in a semi-developed site.The proposed project will consist of a single family residence.	Rural Development	0.96	0.38
Residential	Private	Santa Clara County (Planning)	SCPN-2017-005	Burchell	The project will remove up to 800 cubic yards of sediment from the floodplain approxiamately 200 feet from the bank of Uvas Creek.	Rural Development		0.54
Rural Capital Projects								
Transportation	PSE	Habitat Agency	PSE-2016-03	Caltrans 152 Widening	The California Department of Transportation (Caltrans) is proposing the Santa Clara Stae Route 152 Shoulder Widening Project (proposed project) to improve safety by reducing the number of cross-centerline and run-off-the-road accidents	Rural Capital Projects	1.81	6.98
Facility Development/ Upgrades	Public	Santa Clara County (Communications)	SCCC-2017-001	Frazier Peak Tower	Upgrades to the existing communications site and install a new 60 ft monopola tower.	Rural Capital Projects	0.15	0.56
Water Supply Projects	Public	Santa Clara County (Fleets and Facilities)	SCFF-2016-006	Malech Road Water Pipeline	The project site extends from an existing water pump station adjacent to Malech Road, up an undeveloped hillside toward "Road P", which is a long driveway on which the Mariposa Lodge and the Santa Clara County Sheriffs shooting range are located.	Rural Capital Projects	1	1.2

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
Facility Development/ Upgrades	Public	Santa Clara County (Fleets and Facilities)	SCFF-2017-001	James Ranch Detention Facility Expansion	The proposed development is located on County of Santa Clara property at 19050 Malaguerra Avenue in Morgan Hill. The project would expand existing juvenile detention facilities by adding a dormitory, gym, dining, administration buildings, a parking lot, and other facilities.	Rural Capital Projects	9.68	
Park Facilities	Public	Santa Clara County (Parks)	SCPK-2016-002	Calero RSV Trail	Rancho San Vicente trail project includes construction of an approximately 4 mile single-track, natural surface trail. This project implements a portion of the Calero County Park Trails Master Plan (reviewed/approved during HCP Plan development).	Rural Capital Projects	2.7	4.8
Facility Development/ Upgrades	Public	Santa Clara County (Parks)	SCPK-2016-006	RSV Staging	The Rancho San Vicente staging area is to be located on McKean Road at the intersection of Fortini Road. The development of the staging area includes a paved entry road, automatic gate, permeable surface parking lot for 67 automobiles and two ADA-accessib	Rural Capital Projects	4.18	2.23
Park Facilities	Public	Santa Clara County (Parks)	SCPK-2016-007	Chisantuck	The project is the re-alignment of the Chisnantuck Trail. The current trail has steep trail grades in some areas and the new trail would keep trail grades low to facilitate better simultaneous use for a multi-use trail. Construction will occur to build an	Rural Capital Projects	1.58	3.77
Park Facilities	Public	Santa Clara County (Parks)	SCPK-2017-001	Cottle Trail	The proposed project is construction of the Cottle Junction Trail. The trail connects trails along the western edge of Calero Reservoir to the newly constructed Lisa Killough Trail (previously referred to as the Rancho San Vicente Trail). Construction wil	Rural Capital Projects	1.36	

Covered Activity Type		Covered By	Project #	Project Name	Project Description	Covered Activity Category	Permanent Impacts	Temporary Impacts
Conservation Strategy Implementation								
Vegetation Management	Public	Santa Clara County (Parks)	SCPK-2016-008	Grant Park Prescribed Burn	The proposed project is a prescribed burning of annual grassland, chapparal, and oak woodland in Joseph D. Grant County Park. The purpose of the prescribed burn is to increase the diversity of native grasses and forbs, control of noxious and invasive weed	Conservation Strategy Implementation		
Total							**266.5**	**47.9**

Covered Activity		Conditions																				
Project #	**Project Name**	**Condition 1.** Avoid Direct Impacts on Legally Protected Plant and Wildlife Species	**Condition 2.** Incorporate Urban-Reserve System Interface Design Requirements	**Condition 3.** Maintain Hydrologic Conditions and Protect Water Quality	**Condition 4.** Avoidance and Minimization for In-Stream Projects	**Condition 5.** Avoidance and Minimization Measures for In-Stream Operations and Maintenance	**Condition 6.** Design and Construction Requirements for Covered Transportation Projects	**Condition 7.** Rural Development Design and Construction Requirements	**Condition 8.** Implement Avoidance and Minimization Measures for Rural Road Maintenance	**Condition 9.** Prepare and Implement a Recreation Plan	**Condition 10.** Fuel Buffer	**Condition 11.** Stream and Riparian Setbacks	**Condition 12.** Wetland and Pond Avoidance and Mimimization	**Condition 13.** Serpentine and Associated Covered Species Avoidance and Minimization	**Condition 14.** Valley Oak and Blue Oak Woodland Avoidance and Minimization	**Condition 15.** Western Burrowing Owl	**Condition 16.** Least Bell's Vireo	**Condition 17.** Tricolored Blackbird	**Condition 18.** San Joaquin Kit Fox	**Condition 19.** Plant Salvage when Impacts are Unavoidable	**Condition 20.** Avoid and Minimize Impacts to Covered Plant Occurrences
GIL-2017-02	Hoey	x		x													x	x			
GIL-2017-03	Harvest Park II	x		x				x													
GIL-2017-04	Harvest Park I	x		x																	
GIL-2017-05	Harvest II - 66 Units	x		x																	
GIL-2017-06	International Paper	x		x																	
GIL-2017-07	Glen Loma Ranch	x		x								x					x	x			
Gil-2017-09	Hecker Pass Heartland Gardens	x		x													x	x			
MH-2016-003	Butterfield Self Storage	x		x																	
MH-2016-004	Valencia	x		x																	
MH-2016-005	San Sebastian Phases 1 and 2	x	x	x								x						x			
MH-2016-006	Downtown City Parks	x		x	x							x									
MH-2017-001	Madison Gate	x		x																	
MH-2017-002	Young Property	x		x	x	x	x					x									
SCPN-2017-002	Kazi Residence	x		x				x													
SJ-2016-019	Construction Enabling Project	x		x												x					
SJ-2016-020	Cataldi Park Renovation	x		x																	
SJ-2016-021	Three Creeks Trail	x		x									x					x			
SJ-2016-022	Silver Oak Plaza	x		x														x			
SJ-2016-023	SAF Keep Storage	x		x												x					
SJ-2016-024	Great Oaks Costco	x		x																	
SJ-2017-003	641 N. Capitol Ave	x		x																	

Covered Activity		Conditions																			
Project #	**Project Name**	**Condition 1.** Avoid Direct Impacts on Legally Protected Plant and Wildlife Species	**Condition 2.** Incorporate Urban-Reserve System Interface Design Requirements	**Condition 3.** Maintain Hydrologic Conditions and Protect Water Quality	**Condition 4.** Avoidance and Minimization for In-Stream Projects	**Condition 5.** Avoidance and Minimization Measures for In-Stream Operations and Maintenance	**Condition 6.** Design and Construction Requirements for Covered Transportation Projects	**Condition 7.** Rural Development Design and Construction Requirements	**Condition 8.** Implement Avoidance and Minimization Measures for Rural Road Maintenance	**Condition 9.** Prepare and Implement a Recreation Plan	**Condition 10.** Fuel Buffer	**Condition 11.** Stream and Riparian Setbacks	**Condition 12.** Wetland and Pond Avoidance and Minimization	**Condition 13.** Serpentine and Associated Covered Species Avoidance and Minimization	**Condition 14.** Valley Oak and Blue Oak Woodland Avoidance and Minimization	**Condition 15.** Western Burrowing Owl	**Condition 16.** Least Bell's Vireo	**Condition 17.** Tricolored Blackbird	**Condition 18.** San Joaquin Kit Fox	**Condition 19.** Plant Salvage when Impacts are Unavoidable	**Condition 20.** Avoid and Minimize Impacts to Covered Plant Occurrences
SVWD-2017-004	Penitencia Water Treatment - Solar	x		x																	x
SVWD-2017-006	Santa Teresa Water Plant - Solar	x		x																	
SCPK-2016-001	Bailey Dump	x		x		x												x			
SCPK-2016-005	Penitencia Creek Tree Removal	x		x														x			x
SVWD-2017-010	San Pedro Ponds	x		x														x			
SVWD-2017-003	Coyote Dam	x		x									x					x			x
GIL-2017-01	SCRWA Solar	x		x													x	x			
PSE-2016-02	PG&E Deep Well Anode	x	x	x					x					x						x	x
PSE-2016-04	PG&E Gas Line Repair 300A	x		x					x		x							x			x
SCPK-2016-004	Sawyer Tank	x		x																	
SVWD-2017-001	Nieman Facility Maintenance	x		x																	x
SVWD-2017-005	Coyote-Alamitos Canal Facility Maintenance	x		x									x								x
SVWD-2017-007	Almaden Valley Pipeline	x		x																	
SVWD-2017-008	Maple and Murphy Parcels	x		x																	

Covered Activity		Conditions																			
Project #	**Project Name**	**Condition 1.** Avoid Direct Impacts on Legally Protected Plant and Wildlife Species	**Condition 2.** Incorporate Urban-Reserve System Interface Design Requirements	**Condition 3.** Maintain Hydrologic Conditions and Protect Water Quality	**Condition 4.** Avoidance and Minimization for In-Stream Projects	**Condition 5.** Avoidance and Minimization Measures for In-Stream Operations and Maintenance	**Condition 6.** Design and Construction Requirements for Covered Transportation Projects	**Condition 7.** Rural Development Design and Construction Requirements	**Condition 8.** Implement Avoidance and Minimization Measures for Rural Road Maintenance	**Condition 9.** Prepare and Implement a Recreation Plan	**Condition 10.** Fuel Buffer	**Condition 11.** Stream and Riparian Setbacks	**Condition 12.** Wetland and Pond Avoidance and Minimization	**Condition 13.** Serpentine and Associated Covered Species Avoidance and Minimization	**Condition 14.** Valley Oak and Blue Oak Woodland Avoidance and Minimization	**Condition 15.** Western Burrowing Owl	**Condition 16.** Least Bell's Vireo	**Condition 17.** Tricolored Blackbird	**Condition 18.** San Joaquin Kit Fox	**Condition 19.** Plant Salvage when Impacts are Unavoidable	**Condition 20.** Avoid and Minimize Impacts to Covered Plant Occurrences
SVWD-2017-009	Hill Road Parcel Maintenance	x		x																	
SCPN-2016-003M	Mussallem	x		x				x													
SCPN-2016-004	Piercy Road - Pal	x		x				x						x		x					x
SCPN-2016-007	Lago Vista	x		x				x						x							x
SCPN-2016-008	Bricarello	x		x				x									x	x			
SCPN-2016-009	MTB Olive Branch	x		x				x													
SCPN-2017-001	Gurinder - Grewal	x		x				x				x						x			
SCPN-2017-003	Lomeli	x		x				x													
SCPN-2017-004	Toombs	x		x				x													
SCPN-2017-005	Burchell	x		x				x													
PSE-2016-03	Caltrans 152 Widening	x		x			x		x			x					x	x			
SCCC-2017-001	Frazier Peak Tower	x		x				x													
SCFF-2016-006	Malech Road Water Pipeline	x		x					x					x						x	x
SCFF-2017-001	James Ranch Detention Facility Expansion	x	x	x														x		x	x
SCPK-2016-002	Calero RSV Trail	x		x				x						x	x						x
SCPK-2016-006	RSV Staging	x		x				x													
SCPK-2016-007	Chisantuck	x		x				x							x						
SCPK-2017-001	Cottle Trail	x		x				x						x	x						
SCPK-2016-008	Grant Park Prescribed Burn	x		x									x		x			x			
# of Times Condition Applied		**54**	**3**	**54**	**2**	**2**	**2**	**16**	**4**	**0**	**1**	**6**	**4**	**6**	**4**	**3**	**6**	**17**	**0**	**3**	**12**

Table 3. Measures Required at the Species Level For Covered Activities – Reporting Period

	Species-Level Measures-Wildlife																		Species-Level Measures-Plants																	
	Western Burrowing Owl				Least Bell's Vireo				Tricolored Blackbird				San Joaquin Kit Fox				Bay Checkerspot Butterfly				Smooth Lessingia		Fragrant Fritillary		Metcalf Canyon Jewelflowe		Most Beautiful Jewelflowe		Tiburon Paintbrush		Coyote Ceanothus		Santa Clara Valley Dudleya		Mount Hamilton Thistle		Loma Prieta Hoita	
Project Name	Habitat Survey	Preconstruction Surveys	AMM	Construction Monitoring	Habitat Survey	Preconstruction Surveys	AMM	Construction Monitoring	Habitat Survey	Preconstruction Surveys	AMM	Construction Monitoring	Habitat Survey	Preconstruction Surveys	AMM	Construction Monitoring	Habitat Survey	Preconstruction Surveys	AMM	Construction Monitoring	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM	Preconstruction Surveys	AMM
Hoey					x	x			x	x																												
Harvest Park II																																						
Harvest Park I																																						
Harvest II - 66 Units																																						
International Paper																																						
Glen Loma Ranch					x	x			x	x																												
Hecker Pass Heartland Gardens					x	x			x	x																												
Butterfield Self Storage																																						
Valencia																																						
San Sebastian Phases 1 and 2									x	x																												
Downtown City Parks																																						
Madison Gate																																						
Young Property																																						
Kazi Residence																																						
Construction Enabling Project	x	x																																				
Cataldi Park Renovation																																						
Three Creeks Trail									x	x																												
Silver Oak Plaza									x	x																												
SAF Keep Storage	x	x																																				
Great Oaks Costco																																						
641 N. Capitol Ave																																						
Penitencia Water Treatment - Solar																																						
Santa Teresa Water Plant - Solar																																						
Bailey Dump									x	x																												
Penitencia Creek Tree Removal									x	x																												
San Pedro Ponds									x																													
Coyote Dam									x																													
SCRWA Solar					x	x			x	x																												
PGE Deep Well Anode																	x	x			x																	
PG&E Gas Line 300A Repair									x	x																												
Sawyer Tank																																						
Nieman Facility Maintenance																																						
Coyote-Alimitos Canal Facility Maintenance																																						
Almaden Valley Pipeline																																						
Maple and Murphy Parcels																																						
Hill Road Parcel Maintenance																																						
Mussallem																																						
Piercy Road - Pal	x												x	x			x	x							x		x		x									
Lago Vista																	x	x																				
Bricarello					x	x			x	x																												
MTB Olive Branch																																						
Gurinder - Grewal									x	x																												
Lomeli																																						
Toombs																																						
Burchell					x				x																													
Caltrans 152 Widening					x				x																													
Frazier Peak Tower																																						
Malech Road Water Pipeline																	x				x																	
James Ranch Detention Facility Expansion									x	x																												
Calero RSV Trail																	x	x									x										
RSV Staging																																						
Chisantuck																																						
Cottle Trail																																						
Grant Park Prescribed Burn									x	x																												

Table 4. Summary of Impacts to Land Cover Types - Reporting Period and Cumulative

	Reporting Period (acres, unless otherwise noted)		Cumulative (acres, unless otherwise noted)					
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Total Allowable Permanent Impact**	**Percentage used of Total Allowable Permanent Impacts (%)**	**Total Allowable Temporary Impact**	**Percentage used of Total Allowable Temporary Impacts (%)**
Terrestrial								
California Annual Grassland	26.6	16.4	194.9	32.8	2,006	10%	574	1.9%
Serpentine Bunchgrass	1.5	0.8	23.7	3.5	550	4%	91	0.0%
Serpentine Rock Outcrop/Barrens			0.0	0.0	22	0%	2	0.0%
Serpentine Seep			0.0	0.0	0.5	2%	0.4	0.0%
Rock Outcrop (Non-Serpentine)			0.0	0.0	0.5	0%	0.2	0.0%
Northern mixed chaparral/chamise chaparral			0.7	0.0	86	1%	31	0.0%
Mixed serpentine chaparral			0.7	1.2	131	1%	30	1.0%
Northern coastal scrub/Diablan coastal scrub	0.4	0.3	1.4	0.3	178	1%	66	0.0%
Coyote brush scrub	0.6	0.2	3.4	0.3	10	34%	10	1.0%
Valley oak woodland	0.3		1.5	0.5	201	0.7%	45	1.1%
Mixed oak woodland and forest	6.8	4.5	13.8	5.8	1,441	1.0%	302	0.4%
Coast live oak woodland and forest	2.6	0.7	7.2	0.7	840	0.9%	181	0.0%
Blue oak woodland	1.0	1.4	1.5	1.4	131	1.1%	39	0.0%
Foothill pine-oak woodland			0.2	0.0	46	0.4%	26	0.0%
Mixed evergreen forest			0.0	0.0	50	0.0%	25	0.0%
Redwood forest			0.0	0.0	109	0.0%	56	0.0%
Ponderosa pine woodland			0.0	0.0	0	--	1	0.0%
Knobcone pine woodland			0.0	0.0	8	0.0%	2	0.0%
Subtotal terrestrial	39.7	24.3	*249.0*	*46.5*	*5,810*	*4.3%*	*1,482*	*0.9%*
Aquatic								
Willow riparian forest and scrub	0.40	0.71	1.44	0.72	180	0.8%	103	0.0%
Central California sycamore alluvial woodland			0.00	0.00	7	0.0%	6	0.0%
Mixed riparian woodland and forest	0.10	0.29	0.95	0.96	109	0.9%	101	0.4%
Coastal and valley freshwater marsh			0.16	3.87	25	0.6%	7	55.3%
Seasonal wetland			0.23	0.07	15	1.5%	2	2.5%
Pond			0.04	0.17	52	0.1%	9	0.0%

Table 4. Summary of Impacts to Land Cover Types - Reporting Period and Cumulative

	Reporting Period (acres, unless otherwise noted)		Cumulative (acres, unless otherwise noted)					
Land Cover Type	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Total Allowable Permanent Impact**	**Percentage used of Total Allowable Permanent Impacts (%)**	**Total Allowable Temporary Impact**	**Percentage used of Total Allowable Temporary Impacts (%)**
Reservoir			32.80	0.30	-	-	-	-
Subtotal Aquatic	0.50	1.00	*35.62*	*6.09*	*388*	*9.2%*	*228*	*2.0%*
Stream (length in linear feet)								
Total stream length	16.00	97.00	*182.0*	*737*	*49,632*	*0.4%*	*253,440*	*0.0%*
Agricultural								
Orchard	11.3	3.0	25.1	4.5	625	4.0%	24	-
Vineyard			0.0	0.0	37	-	3	-
Agriculture developed	9.1		25.3	1.0	-	-	-	-
Grain, row-crop, hay and pasture, disked/short-	140.0	12.1	533.1	71.7	7,356	7.2%	284	5.1%
Subtotal Agricultural	160.4	15.1	*583.5*	*77.1*	*8,018*	*7.3%*	*311*	*4.9%*
Developed								
Rural residential	5.6	1.4	12.9	1.9	1,603	0.8%	139	0.1%
Golf courses/ Urban parks	11.4	0.1	78.0	9.9	2,095	3.7%	40	0.2%
Ornamental woodland	1.1		1.3	0.1	30	-	8	-
Barren	0.9	0.6	1.3	0.9	32	3.9%	15	2.0%
Urban Suburban	46.9	5.5	408.9	63.4	-	-	-	-
Subtotal Developed	65.8	7.6	*502.3*	*76.1*	*3,760*	*13.4%*	*202*	*3.8%*
Totals								
Acres	**266.4**	**47.9**	**1370.4**	**205.8**	**17,976**	**7.6%**	**2,223**	**9.3%**
Linear Feet	**16.00**	**97.00**	**182.00**	**737.00**	**49,632**	**0.4%**	**253,440**	**0.3%**

	Impacts			
Aquatic Land Cover Type (acres)	**Reporting Period**		**Cumulative**	
Watershed	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Coyote				
Willow riparian forests, woodlands, and scrub	0.40		1.30	-
Central California sycamore alluvial woodland			-	-
Mixed riparian woodland and forest	0.09	0.01	0.09	0.01
Coastal and valley freshwater marsh			-	3.87
Seasonal wetland			-	0.03
Pond			-	-
Reservoir			-	-
Subtotal aquatic	0.49	0.01	1.39	3.91
Stream (linear feet)	16.00		16.00	-
Guadalupe				
Willow riparian forests, woodlands, and scrub		0.71	0.12	0.71
Central California sycamore alluvial woodland			-	-
Mixed riparian woodland and forest	-	-	0.27	0.17
Coastal and valley freshwater marsh			-	-
Seasonal wetland		-	0.20	0.02
Pond			-	-
Reservoir			32.80	0.30
Subtotal aquatic	**-**	**-**	***33.39***	***1.20***
Stream (linear feet)			137.00	640.00
Pajaro				
Willow riparian forests, woodlands, and scrub			0.01	0.01
Central California sycamore alluvial woodland			-	-
Mixed riparian woodland and forest			0.58	0.50
Coastal and valley freshwater marsh			0.04	-
Seasonal wetland			-	-
Pond			0.00	0.00
Reservoir			-	-
Subtotal aquatic	**-**	**-**	***0.63***	***0.51***
Stream (linear feet)			-	-
Uvas				
Willow riparian forests, woodlands, and scrub			0.01	-
Central California sycamore alluvial woodland			-	-
Mixed riparian woodland and forest	0.01	0.28	0.01	0.28
Coastal and valley freshwater marsh			0.12	-
Seasonal wetland			0.03	-
Pond			0.04	0.00
Reservoir			-	-
Subtotal aquatic	0.01	0.28	***0.21***	***0.28***
Stream (linear feet)			29.00	-
Llagas				

	Impacts			
Aquatic Land Cover Type (acres)	**Reporting Period**		**Cumulative**	
Watershed	**Permanent**	**Temporary**	**Permanent**	**Temporary**
Willow riparian forests, woodlands, and scrub	0.00		0.00	-
Central California sycamore alluvial woodland			-	-
Mixed riparian woodland and forest			-	-
Coastal and valley freshwater marsh			-	-
Seasonal wetland			-	0.02
Pond			-	0.17
Reservoir			-	-
Subtotal aquatic	0.00	-	***0.00***	***0.19***
Stream (linear feet)		97.00	-	97.00
San Tomas				
Willow riparian forests, woodlands, and scrub			-	-
Central California sycamore alluvial woodland			-	-
Mixed riparian woodland and forest			-	-
Coastal and valley freshwater marsh			-	-
Seasonal wetland			-	-
Pond			-	-
Reservoir			-	-
Subtotal aquatic			**-**	**-**
Stream (linear feet)			-	-
Alamitos Creek				
Willow riparian forests, woodlands, and scrub			-	-
Central California sycamore alluvial woodland			-	-
Mixed riparian woodland and forest			-	-
Coastal and valley freshwater marsh			-	-
Seasonal wetland			-	-
Pond			-	-
Reservoir			-	-
Subtotal aquatic			**-**	**-**
Stream (linear feet)			-	-
Total				
Willow riparian forests, woodlands, and scrub	0.40	0.71	1.44	0.72
Central California sycamore alluvial woodland	-	-	-	-
Mixed riparian woodland and forest	0.10	0.29	0.95	0.96
Coastal and valley freshwater marsh	-	-	0.16	3.87
Seasonal wetland	-	-	0.23	0.07
Pond	-	-	0.04	0.17
Reservoir	-	-	32.80	0.30
Total aquatic	**0.50**	**1.00**	**35.62**	**6.09**
Total stream length	**16.00**	**97.00**	**182.00**	**737.00**

Table 6. Summary of Impacts to Modeled Covered Species Habitat

	Reporting Period (acres, unless otherwise noted)		Cumulative (acres, unless otherwise noted)					
Modeled Habitat	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Maximum Allowable Permanent Impacts to Modeled Habitat (acres)**	**Percentage used of Total Allowable Permanent Impacts (%)**	**Maximum Allowable Temporary Impacts to Modeled Habitat (acres)**	**Percentage used of Total Allowable Temporary Impacts (%)**
Bay Checkerspot Butterfly								
Primary Habitat	2.0	2.1	70.2	4.4	300	23.4%	54	8.1%
California Tiger Salamander								
Breeding Habitat	0.0	0.0	0.9	0.3	77	1.2%	14	1.8%
Non-breeding Habitat	137.1	62.7	472.0	108.2	12,855	3.7%	1,529	7.1%
Total	137.1	62.7	472.9	108.4	12,932	3.7%	1,543	7.0%
California Red-Legged Frog								
Primary Habitat	1.4	1.4	23.7	6.1	299	7.9%	116	5.3%
Secondary Habitat	165.2	68.6	651.3	138.3	12,937	5.0%	1,489	9.3%
Total	166.6	70.3	675.0	144.7	13,236	5.1%	1,605	9.0%
Foothill Yellow-Legged Frog (length in miles)								
Primary Habitat	0.04	0.000	0.1	0.1	2	3.5%	0.7	12.9%
Secondary Habitat	0.01	0.008	0.3	0.1	5	5.6%	1.3	5.2%
Total	0.05	0.008	0.4	0.2	7	5.0%	2.0	7.9%
Western Pond Turtle								
Primary Habitat	10.7	9.7	197.4	36.7	1,824	10.8%	440	8.3%
Secondary Habitat	89.0	25.6	291.7	72.4	7,825	3.7%	986	7.3%
Total	99.6	35.3	489.1	109.1	9,649	5.1%	1,426	7.7%
Western Burrowing Owl								
Occupied Nesting Habitat	22.5	-	71.8	3.2	198	36.2%	20	16.2%
Potential Nesting Habitat	-	-	-	-	4,000	0.0%	604	0.0%
Overwintering Habitat	145.7	62.4	578.9	138.3	9,671	6.0%	762	18.1%
Total	168.2	62.4	601.4	138.3	13,869	4.3%	1,385	10.0%
Least Bell's Vireo								
Primary Habitat	0.03	0.5	2.3	1.3	72	3.2%	43	3.1%
San Joaquin Kit Fox								
Secondary Habitat	0.0	0.0	6.2	2.0	198	3.1%	46	4.3%
Secondary Habitat (low use)	0.8	2.3	3.6	6.0	28	12.9%	6	99.4%
Total	0.8	2.3	9.8	7.9	226	4.3%	52	15.3%
Tricolored Blackbird								
Primary Habitat	1.3	1.4	99.7	8.3	276	36.1%	93	9.0%

Table 6. Summary of Impacts to Modeled Covered Species Habitat

	Reporting Period (acres, unless otherwise noted)		Cumulative (acres, unless otherwise noted)					
Modeled Habitat	**Permanent**	**Temporary**	**Permanent**	**Temporary**	**Maximum Allowable Permanent Impacts to Modeled Habitat (acres)**	**Percentage used of Total Allowable Permanent Impacts (%)**	**Maximum Allowable Temporary Impacts to Modeled Habitat (acres)**	**Percentage used of Total Allowable Temporary Impacts (%)**
Secondary Habitat	157.2	63.2	607.0	140.0	10,317	5.9%	768	18.2%
Total	158.5	64.6	706.7	148.4	10,593	6.7%	861	17.2%
Mt. Hamilton Thistle								
Primary Habitat	0.0	0.0	0.0	0.0	26	0.0%	4	0.0%
Fragrant Fritillary								
Primary Habitat	1.7	2.4	14.2	4.4	5503	0.3%	59	7.4%
Secondary Habitat	16.3	8.3	71.6	20.2	2,729	2.6%	655	3.1%
Total	18.0	10.6	85.7	24.5	3,279	2.6%	714	3.4%
Loma Prieta Hoita								
Primary Habitat	14.1	5.3	34.7	5.6	2,117	1.6%	413	1.4%
Secondary Habitat	0.2	0.3	15.1	1.6	266	5.7%	60	2.6%
Total	14.3	5.6	49.8	7.2	2,383	2.1%	473	1.5%
Smooth Lessingia								
Primary Habitat	2.3	2.7	71.6	4.7	550	13.0%	68	6.9%
Metcalf Canyon Jewelflower								
Primary Habitat	1.7	2.4	14.2	4.3	550	2.6%	62	7.0%
Most Beautiful Jewelflower								
Primary Habitat	2.5	3.0	86.0	6.2	550	15.6%	92	6.8%
Secondary Habitat	0.0	0.0	0.0	0.0	0	0.0%	0	0.0%
Total	2.5	3.0	86.0	6.2	550	15.6%	92	6.7%

Table 7. Summary of Impacts to Critical Habitat from Covered Activities

	Reporting Period (acres)		Cumulative (acres)					
Species	Permanent	Temporary	Permanent	Temporary	Maximum Allowable Permanent Impact to Critical Habitat (acres)	Percentage used of Total Allowable Permanent Impacts (%)	Maximum Allowable Temporary Impact to Critical Habitat (acres)	Percentage used of Total Allowable Temporary Impacts (%)
California Red-Legged Frog								
STC Unit 1	3.8	1.1	12.8	1.8				
STC Unit 2	0.2		20.0	2.0				
ALA Unit 2	-	-	-	-				
Total	4.0	1.1	32.8	3.8	1,035	3.2%	277	1.4%
California Tiger Salamander			-	-				
EBR Unit 5	-	-	-	-				
EBR Unit 6	3.7	1.1	4.2	1.1				
EBR Unit 7	-	-	-	-				
EBR Unit 8	6.4	6.4	22.2	9.8				
EBR Unit 9	-	-	-	-				
EBR Unit 10a	-	-	-	-				
EBR Unit 10b	-	-	-	-				
EBR Unit 11	-	-	-	-				
EBR Unit 12	-		2.8	0.1				
Total	10.1	7.5	29.2	11.0	272	10.7%	125	8.8%
Bay Checkerspot Butterfly			-	-				
Tulare Hill	-	-	-	-				
Metcalf	0.8	0.1	1.6	0.2				
Santa Teresa Hills	2.5	0.6	2.5	0.6				
Calero Reservoir	2.6	4.7	8.3	6.3				
Kirby	1.0	1.4	29.9	4.1				
Kalana	-	-	0.3	(0.0)				
Hale	-	-	-	-				
Bear Ranch	-	-	-	-				
San Martin	-	-	-	-				
Total	6.9	6.8	42.7	11.2	550	7.8%	86	13.1%

			Impacts (Occurrences)			
Common Name	**Scientific Name**	**Known Occurrences that May Be Removed by Covered Activities[1]**	**Reporting Period**		**Cumulative**	
			Extant	New	Extant	New
Tiburon paintbrush	*Castilleja affinis ssp. Neglecta*	0	-	-	0	0
Coyote ceanothus[2]	*Ceanothus ferrisiae*	3,650	-	-	515	0
Mt. Hamilton thistle	*Cirsium fontinale var. campylon*	6	-	-	0	0
Santa Clara Valley dudleya	*Dudleya abramsii ssp. Setchellii*	11	-	-	0	1
Fragrant fritillary	*Fritillaria liliacea*	1	-	-	0	0
Loma Prieta hoita	*Hoita strobilina*	0	-	-	0	0
Smooth lessingia	*Lessingia micradenia var. glabrata*	6	-	-	0	1
Metcalf Canyon jewelflower	*Streptanthus albidus ssp. Albidus*	2	-	-	0	0
Most beautiful jewelflower	*Streptanthus albidus ssp. Peramoenus*	6	-	-	0	1

[1] These could change over time if additional occurrences are found. This column provides the limit of impacts by number of occurrences allowable under the Habitat Plan. The impact limit assumes that no new occurrences of the species are discovered during the permit term and that occurrences impacted are in worse condition than those protected within reserves . Impact limits were determined based on estimated impacts of covered activities. In some cases, impacts were capped to ensure regulatory standards are met.

[2] 3,650 individuals of the occurrence on either side of Anderson Dam could be removed by covered activities, or up to 5% of the total population.

Chapter 3
Land Acquisition

Reserve System

Reporting Requirements

- A year-to-date and cumulative summary of the extent of modeled habitat for covered species protected. This will be calculated by overlaying the most current species habitat models.
- Location, extent, and timing of land acquisition and Habitat Plan reserve establishment within each Conservation Analysis Zone.
- An assessment of the progress toward all acquisition requirements by local, state, and federal sources, including land cover types, landscape linkages, covered plant occurrences, and wetland protection. This assessment will include evaluation of compliance with the reserve design and assembly principles in Chapter 5 (e.g., minimizing edge).
- A copy of all easements recorded during the reporting year.

The Reserve System includes 2 properties spanning approximately 1,839 acres. These lands include habitat for 17 of the 18 covered species and are known to be occupied by ten species (3 covered wildlife species and 7 covered plant species). Land cover types include 13 of 21 required for acquisition and span Coyote-4 and Pacheco-6 Conservation Analysis Zones. Protection of landscape linkages 6, 7, and 15, and 17 are contributed to with these lands.

The Habitat Plan Reserve System will be at least 46,496 acres in size when completely enrolled, and will encompass up to an estimated 46,920 acres. Land preservation is an important component of the Habitat Plan conservation strategy, acquired through fee title purchase from willing sellers or through establishment of conservation easements to create the Habitat Plan Reserve System. The Reserve System links existing protected areas and newly protected lands. When completed, the Reserve System will protect substantial areas of high-quality habitat for covered species and provide extensive opportunities for habitat enhancement, restoration, and creation. The minimum terrestrial land acquisition requirement is 32,850 acres, and which must be accomplished by 2058 (Year 45). In addition to newly acquired land, 13,291 acres of existing open space will be incorporated into the Reserve System to enhance its long-term management.

Regardless of impacts, the Habitat Agency must acquire, at a minimum, 250 acres of riparian forest and scrub, 40 acres of central California sycamore alluvial woodland, 10 acres of coast and valley freshwater marsh (perennial wetland), 5 acres of seasonal wetland, 50 acres of ponds, and 100 miles of streams. The following principles guide the development of the Reserve System.

- Maximize size efficiently
- Preserve irreplaceable and threatened resources
- Preserve the highest-quality communities
- Preserve connectivity

- Minimize edge
- Buffer urban impacts
- Fully represent environmental gradients
- Consider watersheds
- Consider full ecological diversity within communities
- Consider management needs

This chapter provides a summary of the sites acquired and quantifies contributions to requirements for conservation analysis zones (CAZs), covered plant species occurrences, land cover requirements, species modeled habitat, and landscape linkages. The section *Sites Under Review* provides a summary of acquisitions in progress.

Conservation Analysis Zones

The Plan Area is subdivided into 34 discrete CAZs to develop priorities and identify potential locations for acquisition (**Figure 4**). These zones define the areas in which conservation actions could occur outside existing protected areas. CAZs were defined within the six primary watersheds of the study area: Guadalupe, Coyote, Llagas, Uvas, Pacheco, and Pescadero.

To ensure that acquisition occurs in locations that will maximize the benefits to natural communities and covered species, acquisition requirements are also defined by CAZ or by a combination of CAZs. The Habitat Plan describes land acquisition and enhancement requirements for select CAZs where geographic specificity was required to ensure that Habitat Plan biological goals and objectives were met. **Figure 4** illustrates the relative level of land acquisition effort that would be required in each CAZ (high, moderate, or low).

Sites Acquired

This section summarizes the progress toward land acquisition requirements during this reporting period and to date (**Table 9a** through **Table 12**). Working with Caltrans, the Habitat Agency successfully enrolled the second property in the Reserve System, the Pacheco Creek Reserve totaling 55-acres.

Reporting Period

Pacheco Creek Reserve

The Pacheco Creek Reserve is a 55-acre property located in the southeastern portion of the Santa Clara County on the southeast side of State Route (SR) 152, approximately 13.6 miles east of Gilroy. There is a federally owned property to the east-southeast of the site which provides a buffer between the site and private land.

The Pacheco Creek Reserve is located in conservation analysis zone CAZ) Pacheco-6 (moderate conservation effort) (**Figure 5**) and contributes to conservation analysis zone requirements identified for Pacheco 1-6 and other Habitat Plan requirements. At the landscape-level, the site adjoins SR 152, which crosses two bridges that provide opportunities to enhance wildlife movement

under the road. It protects 0.84 miles of Pacheco Creek. At the natural community-level, the site protects 55 acres of five natural land cover types (**Tables 9a and 9b**), the majority of which is a healthy riparian woodland natural community (willow riparian forest and scrub, mixed riparian forest and woodland, and Central California sycamore alluvial woodland [unmapped]) (**Figure 6**) and provides opportunities for enhancement and restoration of these same land cover types. At the species-level, the site protects potential habitat for 9[4] of the 18 covered species (**Tables 10a and 10b**). The site fulfills 0.03% of the acquisition requirements in conservation analysis zones Pacheco 1-6 (**Table 11a** and **Table 11b**). The Pacheco Creek Reserve contributes to the protection of two linkages (#15 Henry W. Coe State Park southeast to San Benito County line and #17 Main stem of Pacheco Creek) (**Table 12**; **Figure 7**)

The Habitat Agency agreed to implement a 100-oak tree contingency planting (on- or off-site), accept the property, and ensure its protection in perpetuity in return for receiving the property on a no-cost basis. The Habitat Agency, in return, will manage the property in accordance with the Habitat Plan to meet Reserve System requirements for land preserved in perpetuity. The cost of the plants, installation, and monitoring will be paid by the Habitat Agency and the Habitat Agency will be responsible for implementation and monitoring of the oak mitigation. Some of this obligation may be implemented as part of the *Pacheco Creek Riparian Planting Project* (see Chapter 4).

Cumulative

The Reserve System includes two properties—the Coyote Ridge Open Space Preserve (Coyote Ridge Reserve) and the Pacheco Creek Reserve—with an additional two properties under short-term management agreements for western burrowing owl (Warm Springs Unit at Don Edwards National Wildlife Refuge [Refuge] and Santa Clara-San José Regional Wastewater Treatment Facility Bufferlands). The Reserve System includes a total of 1,839 acres of protected land, of which terrestrial land cover types comprise 1,772 acres, fulfilling approximately 5% of the total terrestrial land acquisition requirement (32,850 acres) under the Habitat Plan. The Reserve System contributes to the following individual land cover type acquisition requirements: 1,348.7 acres (33.7%) of serpentine bunchgrass grassland, 260.3 acres (2%) of California annual grassland, 0.2 acre (0.2%) of serpentine rock outcrop/barren, 0.4 acre (3.6%) of serpentine seep, 43.2 acres (6.2%) of mixed serpentine chaparral, 1.1 acres (0.1%) of valley oak woodland, 14.5 acres (0.2%) of mixed oak woodland and forest, 94.2 acres (3%) of coast live oak forest and woodland, 9.3 acres (11.7%) of foothill pine-oak woodland, 64.8 acres (7.1%) of willow riparian forest and scrub and mixed riparian forest and woodland, 1.9 acres (3.1%) of seasonal wetland, and 0.3 acre (0.2%) of pond. The Reserve System also include 13.6 miles of streams, which is 12.3 % of the 2,392 acres stream acquisition goal for in the Habitat Plan. In addition, a total of 0.8 acre of coastal valley and freshwater marsh (perennial wetland), seasonal wetland, and pond have been restored within the Reserve System (Table 9a).

The Reserve System protects habitat for 16 covered species. The Reserve System fulfills over 30% of the modeled habitat protection goals for six of these covered species (Bay checkerspot butterfly, Mount Hamilton thistle, fragrant fritillary, smooth lessingia, Metcalf Canyon jewelflower, and most beautiful jewelflower) (**Tables 10a**). The Reserve System includes two conservation analysis zones, Coyote-4 and Pacheco-6, fulfilling 387 acres (2%) of the total 21,000 natural land cover acquisition

[4] California tiger salamander, California red-legged frog, foothill yellow-legged frog, western pond turtle, western burrowing owl, tricolored blackbird, Least Bell's vireo, San Joaquin kit fox, and fragrant fritillary

requirements in conservation analysis zones (**Table 11a**). The Reserve System also contributes to the protection of four landscape linkages, two on the Reserve (#6, #7) and two on the Pacheco Creek Reserve (#15 and #17) (**Table 12**; **Figure 7**)

Sites Under Review

Acquisitions in Progress

The following section describes the potential acquisitions currently under consideration by the Habitat Agency. **Figure 8** provides a map of these sites.

Rancho El Toro

Rancho El Toro is a 12,220-acre site found in the Diablo Foothills, in the southwestern corner Santa Clara County. Located in the Pacheco Creek Watershed, it contains 90 miles of stream, supports 14 natural land cover types, and provides habitat for 13 covered species. It would fulfill 82% of the acquisition requirements for streams. The site is located within the moderate and low priority Conservation Analysis Zones Pacheco 1-6. Land acquisition in these conservation analysis zones will protect important stands of riparian woodland and scrub, valley oak woodland, and northern mixed chaparral. Acquisition of low-slope grassland in this area may also provide suitable breeding habitat for San Joaquin kit fox, although such events are expected to be rare. Rancho El Toro contributes to Linkage 15, which provides a key linkage within the Diablo Range that will likely benefit species such as San Joaquin kit fox. If kit foxes move from the Salinas Valley to the San Luis Reservoir area in Merced and Stanislaus Counties, they may use this site as a secondary route around the San Luis Reservoir.

Sargent Ranch

Sargent Ranch is a 5,242.5-acre site located in the southwestern portion of Santa Clara County. Pescadero Creek runs along the western edge and Uvas-Carnadero Creek runs along the northeastern side of the property. The Pajaro River runs along the southern and southeastern sides of the property. Conservation Analysis Zones Pescadero-1, Uvas-5, and Uvas-6 overlap with the property boundary. Acquisition of this property will contribute to Habitat Plan Linkages 19 and 20 and Santa Cruz Mountains to Gabilan Range Bay Area Critical Linkage. Species corridors that overlap with this Bay Area Critical Linkage include mountain lion, American badger, bobcat, and black-tailed deer. Land acquisition in this watershed will protect large stands of riparian woodland and potential breeding habitat for least Bell's vireo, along with diverse land cover types in the southern Santa Cruz Mountains that range from California annual grassland to redwood forest to valley oak woodland. These lands may also support secluded rock outcrops or large trees overlooking extensive stands of annual grassland that would provide suitable nesting sites for raptors.

Calero Preserve

The Calero Preserve is a 3,020-acre[5] subset of Calero County Park. Once part of the Pueblo lands of San José and the Rancho San Vicente land grant, this 3,020-acre area is nestled in the eastern foothills of the Santa Cruz Mountains. The site spans CAZs Guadalupe-1 and Llagas-2, providing a critical landscape linkage from the protected lands south of Calero Reservoir with Almaden Quicksilver County Park and extensive protected lands outside the Permit Area to the west in the Santa Cruz Mountains. The site protects 12 natural land cover types, provides habitat for 13 covered species, and contains known occurrences of 6 covered plant species. It contains critical habitat for Bay checkerspot butterfly and California tiger salamander and would fulfill 38% of the serpentine grassland acquisition requirements in Guadalupe-1.

Laumond and Creighton

The Laumond and Creighton properties are 407.1 acres in the Diablo Foothills in the northeast corner of Santa Clara County. The site is located northeast of Sierra Vista Open Space Preserve and north of the Cherry Flat Reservoir. Upper Penitencia Creek runs through the northern portion of the site, and the city of San José lies 2.5 miles southwest of the site. The surrounding area is primarily made up of undeveloped conservation lands owned by The Nature Conservancy and the SCVWD. Laumond and Creighton protect important linkages between protected lands in the northeast corner of the Permit Area and protected lands in Alameda County and between Upper Penitencia Creek and the San Francisco Bay. Laumond and Creighton contains habitat for eight covered species and critical habitat for two covered species. There are no known occurrences of covered plants; however, suitable habitat is present for two covered plant species. The entire site is identified as critical habitat for California red-legged frog in the Santa Clara critical habitat-1 unit. It also provides 276.2 acres of critical habitat for California tiger salamander in the East Bay Region unit.

Richmond Ranch

The Richmond Ranch is a 3,777.4-acre site located in the Diablo Range, bordering the city of San José and Joseph D. Grant County Park. It is northwest of the Reserve acquisition. Located in the Coyote Creek watershed, it supports 14 natural land cover types, provides habitat for 14 covered species, and has known occurrences of 2 covered plants. It contains critical habitat for three covered species and would fulfill 21% of the natural land cover acquisition requirements for CAZ Coyote-4. Acquisition of this site will contribute to Habitat Plan Linkage 5 and provide connectivity with Type 1 Open Space.

UTC 2-Shingle Valley

The UTC 2–Shingle Valley is a 3,290-acre site on Coyote Ridge and Shingle Valley in the Diablo Range. Located in the Coyote Creek watershed, it supports 14 natural land cover types, provides habitat for 14 covered species, and has known occurrences of 6 covered plant species. It contains critical habitat for three covered species and fulfills 68% of the natural land cover acquisition requirements for CAZ

[5] This County enrollment will count both towards existing open space requirements and new acquisition requirements. Lands acquired during the preparation of the Habitat Plan (after the Planning Agreement was signed) are consider interim conservation and may count toward new acquisition requirements once the site is incorporated into the Reserve System through placement of a conservation easement. A portion of Calero County Park, Rancho San Vicente, acquired in October 2009 using County Park Charter Funds, is considered interim conservation.

Coyote-4. Acquisition of this site will contribute to Habitat Plan Linkages 5, 6, and 7 and the Santa Cruz Mountains to Gabilan Range Bay Area Critical Linkage.

San José-Santa Clara Regional Wastewater Facility

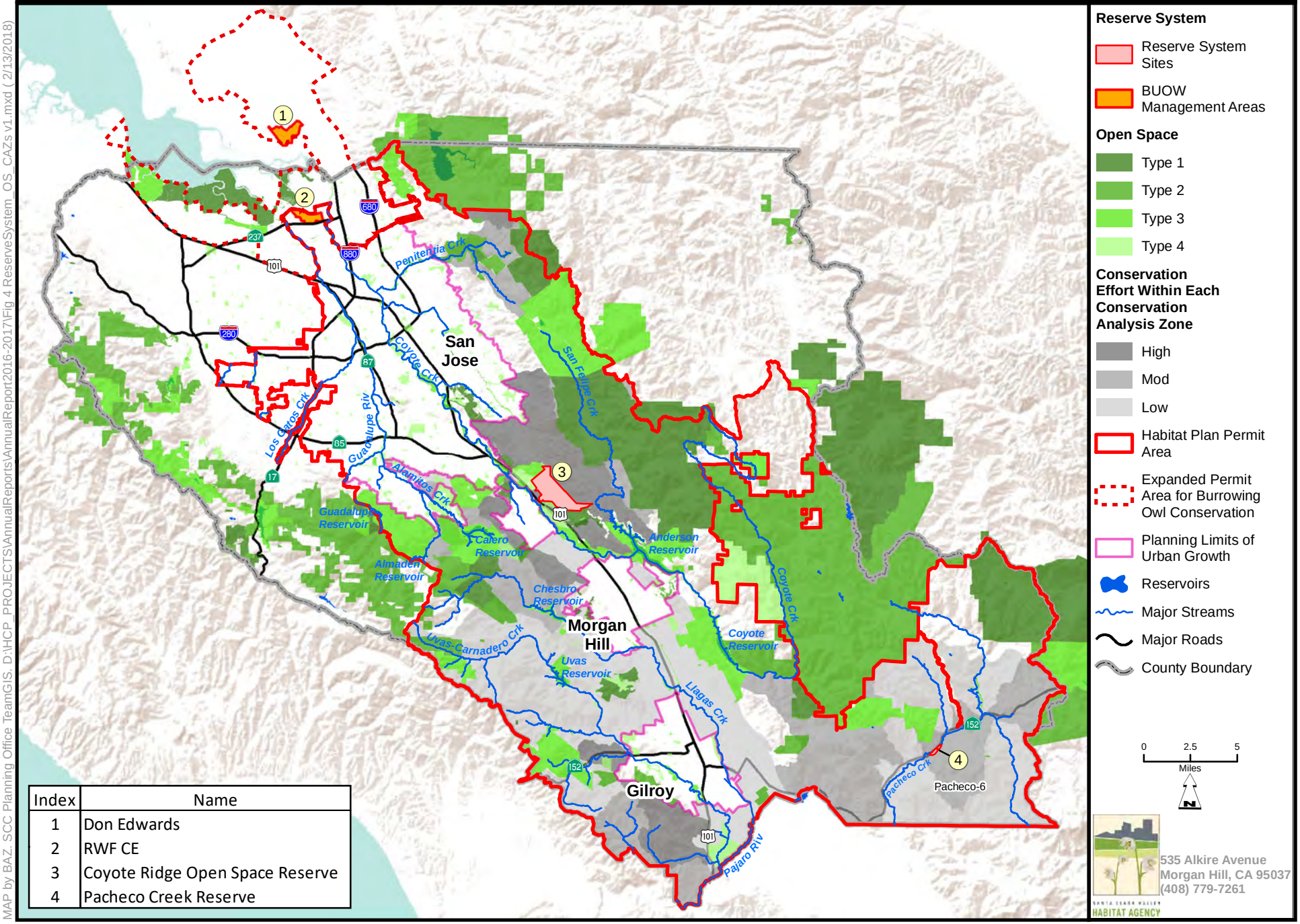
The San José-Santa Clara Regional Wastewater Facility (SJ-SCRWF) is the most successful western burrowing breeding site in the permit area. The City of San José will enroll 72 acres of their bufferlands in lieu of fees for four Capital Improvement Projects.

Mitigation Banks

Lucky Day Mitigation Bank

The Lucky Day Ranch Mitigation Bank is a 1,867-acre site in the southwestern edge of Santa Clara County, in the lower foothills of the Santa Cruz Mountains. Located in the Uvas and Llagas Creek watersheds, it supports 14 natural land cover types and modeled habitat for 11 covered species. It contains critical habitat for California tiger salamander and occupied overwintering habitat for western burrowing owl. The site fulfills 100% of the natural land cover acquisition requirements for CAZ Uvas-2. Acquisition of this site will contribute to Habitat Plan Linkage 12. Purchase of credits from this bank could be used to fulfill wetland restoration, land cover, and species model habitat requirements, depending on the bank's final approval.

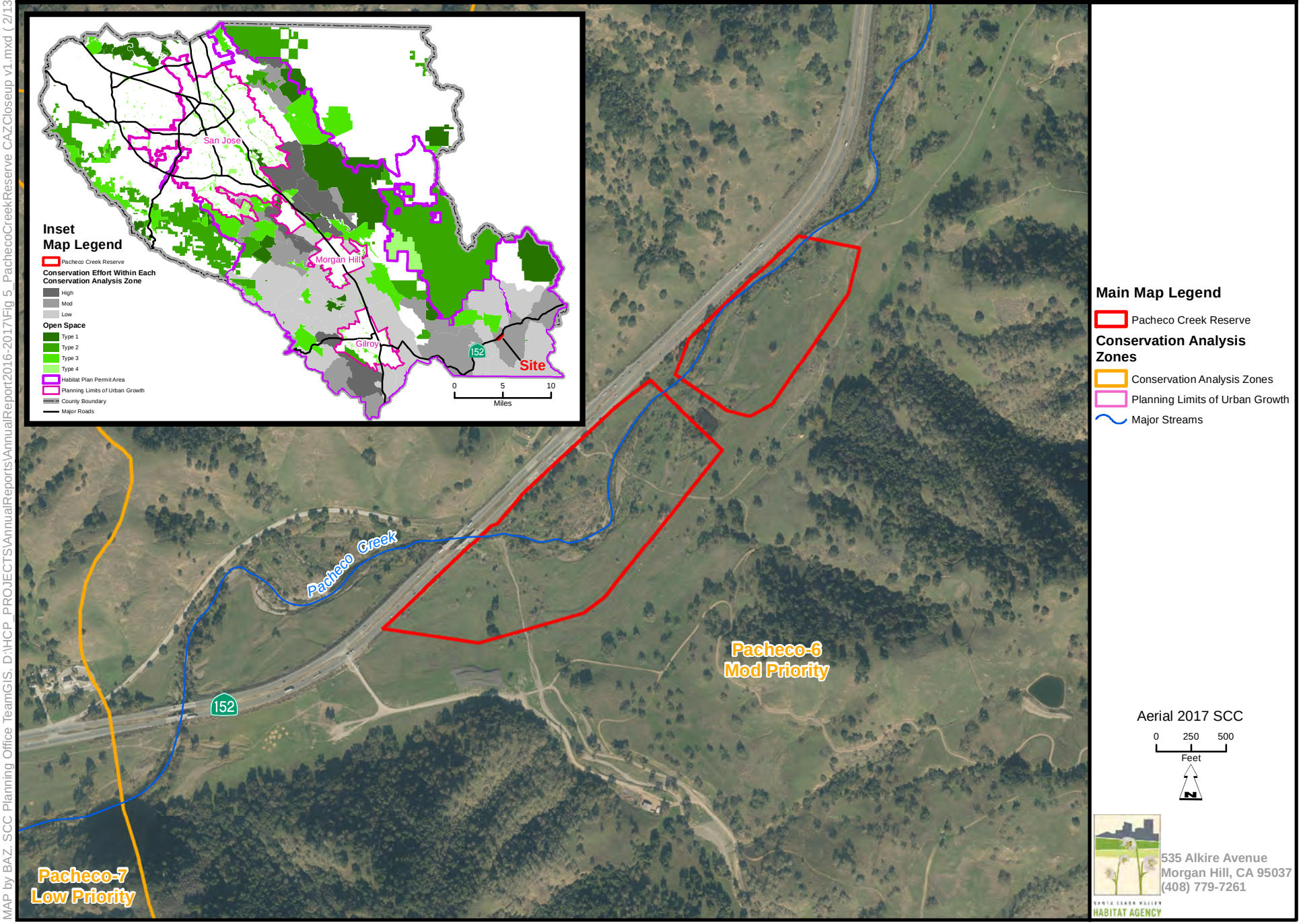
Figure 4. Reserve System, Existing Open Space, and Conservation Analysis Zones



Index	Name
1	Don Edwards
2	RWF CE
3	Coyote Ridge Open Space Reserve
4	Pacheco Creek Reserve

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016-2017\Fig 4 ReserveSystem_OS_CAZs v1.mxd (2/13/2018)

Figure 5: Pacheco Creek Reserve: Conservation Analysis Zone Map

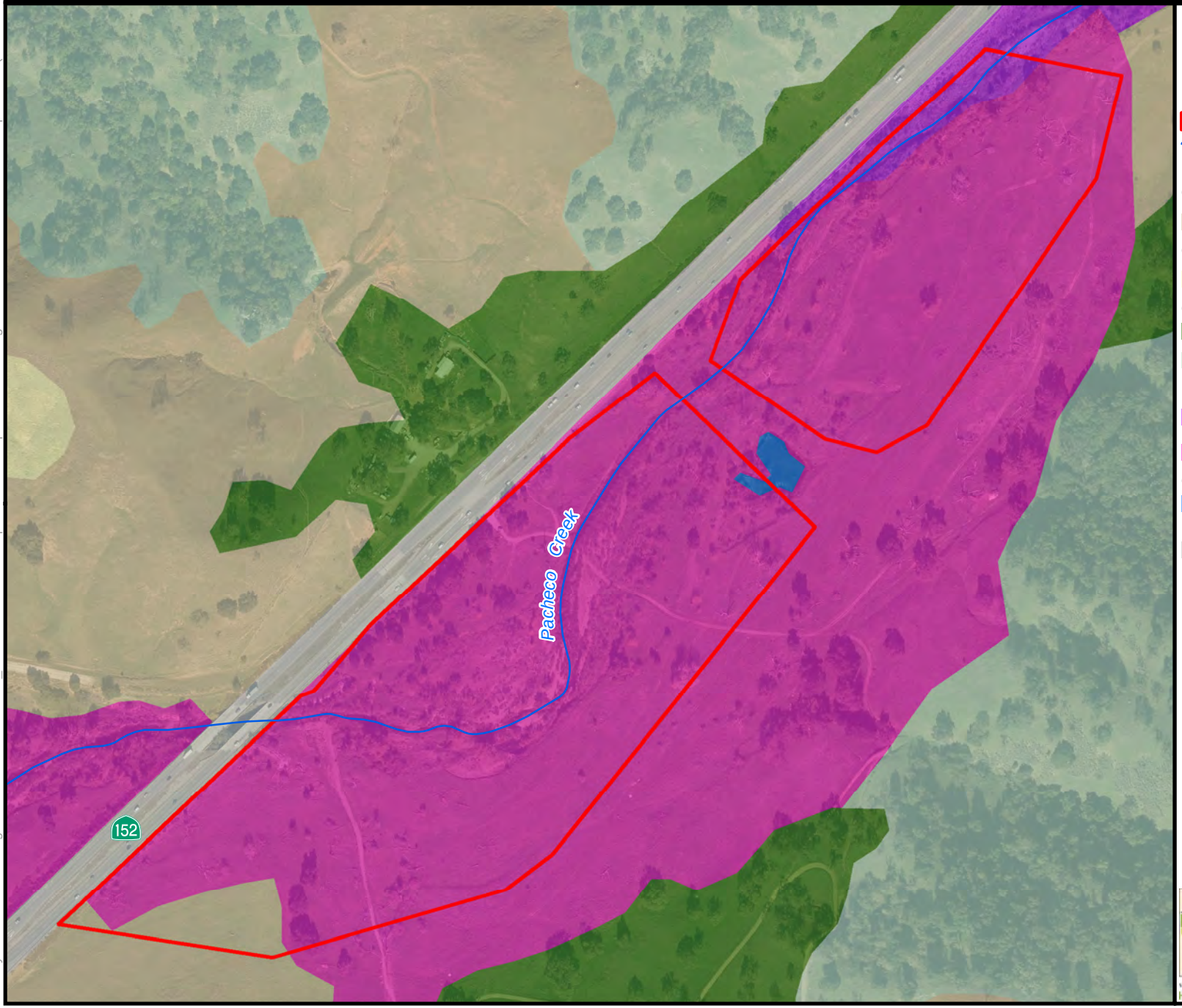


535 Alkire Avenue
Morgan Hill, CA 95037
(408) 779-7261

HABITAT AGENCY

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016-2017\Fig 5_PachecoCreekReserve CAZCloseup v1.mxd (2/13/2018)

Figure 6 Pacheco Creek Reserve: Land Cover



Main Map Legend

- Pacheco Creek Reserve
- Major Streams

Land Cover

Grasslands
- California Annual Grassland

Chaparral & Coastal Scrub
- Northern Mixed Chaparral / Chamise Chaparral

Oak Woodland
- Valley Oak Woodland
- Mixed Oak Woodland and Forest

Riparian Forest and Scrub
- Willow Riparian Forest and Scrub
- Mixed Riparian Forest and Woodland

Open Water
- Pond

Developed
- Urban-Suburban

Aerial 2017 SCC

0 125 250
Feet

N

535 Alkire Avenue
Morgan Hill, CA 95037
(408) 779-7261

SANTA CLARA VALLEY HABITAT AGENCY

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016-2017\Fig 6 Pacheco Creek Land Cover Map v1.mxd (2/13/2018)

Figure 7. Pacheco Creek Reserve

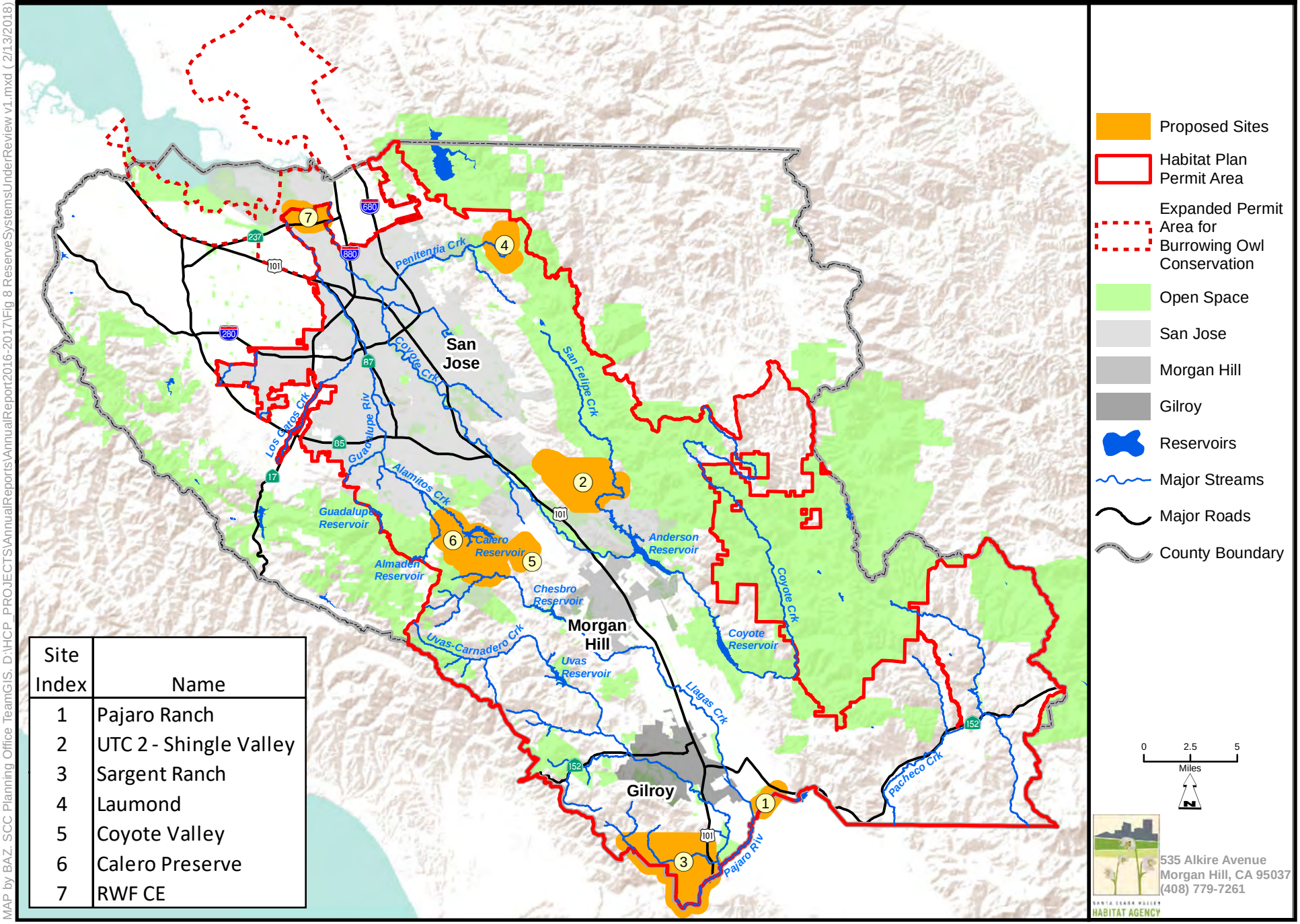
Photo 1. Pacheco Creek Reserve

Photo 2. Pacheco Creek

Photo 3. Pacheco Creek Gravel Bar

Photo 4. Pacheco Creek Reserve Underpass

Figure 8. Reserve System Sites Under Review



Site Index	Name
1	Pajaro Ranch
2	UTC 2 - Shingle Valley
3	Sargent Ranch
4	Laumond
5	Coyote Valley
6	Calero Preserve
7	RWF CE

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016-2017\Fig 8 ReserveSystemsUnderReview v1.mxd (2/13/2018)

Table 9a. Summary of Land Acquisition Contribution to Land Cover Requirements To Date

	Land Cover Requirements (acres)			Reporting Period (acres)				Cumulative (acres)				Percent Complete (%)	
Land Cover Type	**Total in Study Area (acres)**	**Total Protection Requirements (acres)**	**Restoration + Creation**	**Protection**	**Existing Easements**	**Total Protection + Easement**	**Restoration + Creation**	**Protection**	**Existing Easements**	**Total Protection + Easement**	**Restoration + Creation**	**Protection**	**Restoration + Creation**
California Annual Grassland	81,795	13,300	-	2.1		2.1		260.3	6.4	264.6	-	2.0%	-
Serpentine Bunchgrass Grassland	10,308	4,000	-					1,348.7	20.7	1,369.4	-	33.7%	-
Serpentine Rock Outcrop/ Barrens	260	120	-			0.0		0.2	0.0	0.2	-	0.2%	-
Serpentine Seep	34	10	-			0.0		0.4	-	0.4	-	3.6%	-
Rock Outcrop	87	10	-			0.0		-	-	0.0	-	-	-
Northern Mixed Chaparral / Chamise Chaparral	23,763	400	-			0.0		-	-	0.0	-	-	-
Mixed Serpentine Chaparral	3,712	700	-			0.0		43.2	-	43.2	-	6.2%	-
Northern Coastal Scrub / Diablan Sage Scrub	10,306	1,400	-			0.0		0.0	-	0.0	-	0.0%	-
Valley Oak Woodland	12,895	1,700	-			0.0		1.1	-	1.1	-	0.1%	-
Mixed Oak Woodland and Forest	84,488	7,100	-			0.0		14.5	-	14.5	-	0.2%	-
Blue Oak Woodland	11,160	1,100	-			0.0		0.0	-	0.0	-	0.0%	-
Coast Live Oak Forest and Woodland	31,652	2,900	-			0.0		94.2	0.2	94.4	-	3.2%	-
Foothill Pine—Oak Woodland	10,960	80	-			0.0		9.3	-	9.3	-	11.7%	-
Mixed Evergreen Forest	5,775	20	-			0.0		-	-	0.0	-	-	-
Willow Riparian Forest and Scrub and Mixed Riparian Forest and Woodland	6,310	917	339	62.2		62.2		64.8	0.2	2.8	-	7.1%	-
Central California Sycamore Alluvial Woodland	373	54	14			0.0		-	-	0.0	-	-	-
Redwood Forest	9,693	10	-			0.0		-	-	0.0	-	-	-
Coastal and Valley Freshwater Marsh (Perennial Wetland)	381	95	45			0.0		-	-	0.0	0.2	-	0.4%
Seasonal Wetland	201	60	30			0.0		1.9	-	1.9	0.2	3.1%	0.8%
Pond	1,110	104	72	0.10		0.1		0.3	-	0.2	0.2	0.3%	0.3%
Subtotal (acres)	**305,263**	**34,080**	**500**	**64.4**	**0.0**	**64.4**	**0.00**	**1,838.9**	**27.5**	**1866.4**	**0.62**	**5.4%**	**0.1%**
Streams (miles)	2,392.0	110.4	10.4	0.8	0.0	0.8		13.6	0.1	13.7		12.3%	-
Land Cover Types without Acquisition, Restoration, or Creation Requirements													
Coyote brush scrub	180	-	-					-	-	0.0	-	-	-
Ponderosa Pine Woodland	419	-	-					-	-	0.0	-	-	-
Knobcone Pine Woodland	711	-	-					-	-	**0.0**	-	-	-
Reservoir	2,767	-	-					-	-	0.0	-	-	-
Orchard	2,697	-	-					-	-	0.0	-	-	-
Vineyard	1,393	-	-					-	-	0.0	-	-	-
Agriculture developed / covered agriculture	1,935	-	-					-	-	0.0	-	-	-
Grain, row-crop, hay and pasture, disked/short-term fallowed	33,648	-	-					-	-	0.0	-	-	-
Urban-suburban	89,438	-	-	0.01				0.1	-	0.1	-	-	-
Rural - residential	12,414	-	-					-	-	0.0	-	-	-
Barren	211	-	-					-	-	0.0	-	-	-
Landfill	364	-	-					-	-	0.0	-	-	-
Golf courses / urban parks	8,673	-	-					-	-	0.0	-	-	-
Ornamental woodland	95	-	-					-	-	0.0	-	-	-
Subtotal	**154,944**	**0**	**0**	**0.01**	**0.0**	**0.0**	**-**	**0.1**	**0.0**	**0.1**	**-**	**-**	**-**
TOTAL (acres)	**460,207**	**34,080**	**500**	**64.4**	**0.0**	**64.4**	**0.00**	**1,811.8**	**54.7**	**1866.5**	**0.62**	**5.3%**	**0.1%**
TOTAL Streams (miles)	**2,392.0**	**110.4**	**10.4**	**0.8**	**0.0**	**0.8**	**0.00**	**13.6**	**0.1**	**13.7**		**12.3%**	**-**

	Land Acquisition and Restoration Properties		
	Pacheco Creek		
Land Cover Type	**Protection**	**Existing Easements**	**Total Protection + Easement**
California Annual Grassland	2.1		2.1
Serpentine Bunchgrass Grassland			
Serpentine Rock Outcrop/ Barrens			
Serpentine Seep			
Rock Outcrop			
Northern Mixed Chaparral / Chamise Chaparral			
Mixed Serpentine Chaparral			
Northern Coastal Scrub / Diablan Sage Scrub			
Valley Oak Woodland			
Mixed Oak Woodland and Forest			
Blue Oak Woodland			
Coast Live Oak Forest and Woodland			
Foothill Pine—Oak Woodland			
Mixed Evergreen Forest			
Willow Riparian Forest and Scrub and Mixed Riparian Forest and Woodland	62.20		62.20
Central California Sycamore Alluvial Woodland			
Redwood Forest			
Coastal and Valley Freshwater Marsh (Perennial Wetland)			
Seasonal Wetland			
Pond	0.10		0.10
Subtotal (acres)	**64.4**	**0.0**	**64.4**
Streams (miles)	0.8		0.8
Land Cover Types without Acquisition, Restoration, or Creation Requirements			
Coyote brush scrub			
Ponderosa Pine Woodland			
Knobcone Pine Woodland			
Reservoir			
Orchard			
Vineyard			
Agriculture developed / covered agriculture			
Grain, row-crop, hay and pasture, disked/short-term fallowed			
Urban-suburban			0.01
Rural - residential			
Barren			
Landfill			
Golf courses / urban parks			
Ornamental woodland			
Subtotal	**0.0**	**0.0**	**0.01**
TOTAL	**64.4**	**0.0**	**64.4**
Streams (miles)	**0.8**		**0.8**

Table 10a. Summary of Land Acquisition Contribution to Modeled Habitat Requirements To Date

	Modeled Habitat Requirements (acres)			Reporting Period (acres)			Cumulative (acres)				Percent Complete (%)		
	Protection	Existing Open Space	Total	Protection	Existing Easement	Existing Open Space	Total	Protection	Existing Easement	Existing Open Space	Total	Protection	Existing Open Space	Total
Bay Checkerspot Butterfly														
Primary Habitat	3,800	754	4,554					1,329.2	19.8		1,349.0	35%	-	30%
California Tiger Salamander														
Breeding Habitat	150	45	195	0.1			0.1	2.0	0.0		2.0	1%	-	1%
Non-breeding Habitat	30,000	11,700	41,700	64.3			64.3	1,836.9	27.5		1,864.4	6%	-	4%
Total	30,150	11,745	41,895	64.4			64.4	1,838.9	27.5		1,866.4	6%	-	4%
California Red-Legged Frog														
Primary Habitat	1,300	130	1,430	62.3			62.3	80.4	0.2		80.6	6%	-	6%
Secondary Habitat	30,000	11,800	41,800	2.1			2.1	1,756.7	27.3		1,784.0	6%	-	4%
Total	31,300	11,930	43,230	64.4			64.4	1,837.1	27.5		1,864.6	6%	-	4%
Foothill Yellow-Legged Frog (length in miles)														
Primary Habitat	30	7	37	0.2			0.2	0.5	0.0		0.5	2%	-	1%
Secondary Habitat	50	17	67	0.3			0.3	3.1	0.0		3.1	6%	-	5%
Total	80	24	104	0.5			0.5	3.6	0.0		3.6	4%	-	3%
Western Pond Turtle														
Primary Habitat	7,000	2,800	9,800	28.1			28.1	524.8	2.5		527.3	7%	-	5%
Secondary Habitat	20,000	9,100	29,100	36.3			36.3	1,274.7	23.4		1,298.1	6%	-	4%
Total	27,000	11,900	38,900	64.4			64.4	1,799.5	25.9		1,825.4	7%	-	5%
Western Burrowing Owl														
Overwintering Habitat	17,000	4,310	21,310	2.1			2.1	1,514.2	27.1		1,541.3	9%	-	7%
Occupied and Potential Nesting Habitat	5,300	0	5,300	0.0			0.0	920.0	0.0		920.0	17%	-	17%
Total	22,300	4,310	26,610	2.1			2.1	1,514.2	27.1		1,541.3	7%	-	6%
Tricolored Blackbird														
Primary Habitat	1,000	40	1,040	62.3			62.3	64.9	0.2		65.1	6%	-	6%
Secondary Habitat	18,000	3,800	21,800	2.1			2.1	1,611.6	27.1		1,638.7	9%	-	8%
Total	19,000	3,840	22,840	64.4			64.4	1,676.5	27.3		1,703.8	9%	-	7%
Least Bell's Vireo														
Primary Habitat	460	2	462	62.2			62.2	62.2	-		0.0	14%	-	0%
San Joaquin Kit Fox							0.0	0.0						
Secondary Habitat	4,000	-	4,000	2.1			2.1	2.1	-		0.0	0%	-	0%
Secondary Habitat (Low Use)	100	-	100				0.0	0.0	-		0.0	0%	-	0%
Total	4,100	-	4,100	2.1			2.1	2.1	-		0.0	0%	-	0%

Modeled Habitat Requirements (acres)				Reporting Period (acres)			Cumulative (acres)				Percent Complete (%)		
	Protection	Existing Open Space	Total	Protection	Existing Easement	Existing Open Space	Total	Protection	Existing Easement	Existing Open Space	Total	Protection	Existing Open Space	Total
Mt. Hamilton Thistle											0.0			
Primary Habitat	150	60	210				0.0	68.6	0.2		68.8	46%	-	33%
Fragrant Fritillary											0.0			
Primary Habitat	3,000	1,000	4,000				0.0	1,318.3	18.0		1,336.3	44%	-	33%
Secondary Habitat	20,000	3,000	23,000	2.1			2.1	365.6	6.3		371.9	2%	-	2%
Total	23,000	4,000	27,000	2.1			2.1	1,683.9	24.3		1,708.2	7%	-	6%
Loma Prieta Hoita											0.0			
Primary Habitat	9,000	3,500	12,500				0.0	108.7	0.2		108.9	1%	-	1%
Secondary Habitat	1,000	600	1,600				0.0	43.2	0.0		43.2	4%	-	3%
Total	10,000	4,100	14,100				0.0	151.9	0.2		152.1	2%	-	1%
Smooth Lessingia											0.0			
Primary Habitat	4,000	1,100	5,100				0.0	1,349.0	20.7		1,369.7	34%	-	27%
Metcalf Canyon Jewelflower														
Primary Habitat	3,200	1,000	4,200				0.0	984.2	4.6		988.8	31%	-	24%
Most Beautiful Jewelflower														
Primary Habitat	4,000	1,700	5,700				0.0	1,392.2	20.7		1,412.9	35%	-	25%

Table 10b. Land Acquisition Contribution to Modeled Habitat Requirements – Reporting Period

	Reporting Period Properties (acres)		
	Pacheco Creek		
Modeled Habitat	**Protection**	**Existing Easement**	**Total**
Bay Checkerspot Butterfly			
Primary Habitat			
California Tiger Salamander			
Breeding Habitat	0.1		0.1
Non-breeding Habitat	64.3		64.3
Total	64.4		64.4
California Red-Legged Frog			
Primary Habitat	62.3		62.3
Secondary Habitat	2.1		2.1
Total	64.4		64.4
Foothill Yellow-Legged Frog (length in miles)			
Primary Habitat	0.2		0.2
Secondary Habitat	0.3		0.3
Total	0.5		0.5
Western Pond Turtle			
Primary Habitat	28.1		28.1
Secondary Habitat	36.3		36.3
Total	64.4		64.4
Western Burrowing Owl			
Overwintering Habitat	2.1		2.1
Occupied and Potential Nesting Habitat	0.0		0.0
Total	2.1		2.1
Tricolored Blackbird			
Primary Habitat	62.3		62.3
Secondary Habitat	2.1		2.1
Total	64.4		64.4
Least Bell's Vireo			
Primary Habitat	62.2		62.2
San Joaquin Kit Fox			
Secondary Habitat	2.1		2.1
Secondary Habitat (Low Use)			0.0
Total	2.1		2.1
Mt. Hamilton Thistle			
Primary Habitat			0.0
Fragrant Fritillary			
Primary Habitat			0.0
Secondary Habitat	2.1		2.1
Total	2.1		2.1

Table 10b. Land Acquisition Contribution to Modeled Habitat Requirements – Reporting Period

	Reporting Period Properties (acres)		
	Pacheco Creek		
Modeled Habitat	**Protection**	**Existing Easement**	**Total**
Loma Prieta Hoita			
Primary Habitat			0.0
Secondary Habitat			0.0
Total			0.0
Smooth Lessingia			
Primary Habitat			0.0
Metcalf Canyon Jewelflower			0.0
Primary Habitat			0.0
Most Beautiful Jewelflower			
Primary Habitat			0.0

Conservation Analysis Zone	Natural Land Cover Types in Zone(s) (acres)	Natural Land Cover Acquisition Requirement in Zone(s) (acres)	Reporting Period Total Contribution (acres)	Cumulative Total Contribution (acres)	Percentage of Requirement Met by all acquisitions
Alameda-1	1,338				
Coyote-7	49,567				
Subtotal	*5,905*	*2,300*			
Coyote-4	9,146	4,200		322.9	8%
Subtotal	*9,146*	*4,200*		322.9	*8%*
Uvas-1	10,891	1,000			
Uvas-2	8,573	800			
Uvas-3	4,761				
Uvas-4	4,357				
Uvas-5	8,630	4,600			
Uvas-6	831	200			
Subtotal	*38,043*	*6,600*			
Pacheco-1	9,093				
Pacheco-2	7,535				
Pacheco-3	5,849				
Pacheco-4	5,477				
Pacheco-5	12,959				
Pacheco 6	8,278		64.5	64.5	-
Subtotal	*49,190*	*2,400*	*64.5*	64.5	*3%*
Coyote 2	4,954	900			
Pacheco 8	11,706	3,800			
Subtotal	*21,697*	*5,500*			
Total	**123,981**	**21,000**	**64.5**	**387**	**2%**

			Reporting Period Land Acquisitions (acres)	
			Pacheco Creek	
Conservation Analysis Zone	**Natural Land Cover Types in Zone(s) (acres)**	**Natural Land Cover Acquisition Requirement in Zone(s) (acres)**	**Contribution by Acquisition (acres)**	**Percentage of Requirement Met by Acquisition**
Alameda-1	1,338			
Coyote-7	49,567			
Subtotal	*5,905*	*2,300*		
Coyote-4	9,146	4,200		
Subtotal	*9,146*	*4,200*		
Uvas-1	10,891	1,000		
Uvas-2	8,573	800		
Uvas-3	4,761			
Uvas-4	4,357			
Uvas-5	8,630	4,600		
Uvas-6	831	200		
Subtotal	*38,043*	*6,600*		
Pacheco-1	9,093			
Pacheco-2	7,535			
Pacheco-3	5,849			
Pacheco-4	5,477			
Pacheco-5	12,959			
Pacheco 6	8,278		64.5	-
Subtotal	*49,190*	*2,400*	*64.5*	*3%*
Coyote 2	4,954	900		
Pacheco 8	11,706	3,800		
Subtotal	*21,697*	*5,500*		
Total	**123,981**	**21,000**	**64.5**	**0.3%**

Table 12. Summary of Land Acquisition Contributions to Wildlife Linkages

Wildlife Linkage Ref. # from Habitat Plan Figure 5-6	Linkage (Listed Generally from North to South)	Approx. Length[a] (miles)	General Linkage Purpose	Acquisitions that Contribute to Linkage	Reporting Year Total (acres)	Cumulative Total (acres)
6	Coyote Ridge from Silver Creek Hills to Anderson Dam	9.5	Provide connectivity for serpentine species within core habitat along Coyote Ridge. Link patches of protected lands along the ridge.	Coyote Ridge Open Space Preserve		1,803
7	Coyote Ridge to Anderson Lake County Park and Henry W. Coe State Park	7.5	Provide connectivity along an elevation gradient and between protected open space along Coyote Ridge and large blocks of protected open space centered on Henry W. Coe State Park. Provide connectivity among stands of valley oak woodland at different elevations.	Coyote Ridge Open Space Preserve		1,803
15	Henry W. Coe State Park southeast to San Benito County line	3.5	Provides linkage across Pacheco Creek and Highway 152 within the Diablo Range. Highway 152 is permeable to wildlife only in certain places.	Pacheco Creek Reserve	64.4	64.4
17	Main stem of Pacheco Creek	12	Provides passage for resident and anadromous fish between Monterey Bay, the Pajaro River, and potential spawning and rearing habitat on south fork of Pacheco Creek and Cedar Creek. Passage through main stem of Pacheco Creek is restricted in dry years.	Pacheco Creek Reserve	64.4	64.4

Chapter 4
Habitat Restoration and Creation

The Habitat Agency has implemented three restoration and creation projects on two separate sites, and is in the planning stages for an additional three projects (**Figure 9**). Projects restored 0.65 acres of perennial and seasonal wetlands and ponds. They benefitted 5 of 18 covered species—California red-legged frog, California tiger salamander, western pond turtle, Mount Hamilton thistle (*Cirsium fontinale* var. *campylon*), and Coyote ceanothus. One project improved a regional connection between the Diablo Range and Santa Cruz Mountains. Restoration projects span the Guadalupe, Coyote, Pacheco, and Pajaro Watersheds.

Habitat restoration and creation is a critical component of the Habitat Plan's conservation strategy. Restoration and creation of specific habitats and land cover types are required in addition to protection of land within the Reserve System. Specifically, if all anticipated impacts occur, implementation of the Habitat Plan will result in restoration or creation of an estimated 353 acres of riparian, 75 acres of wetlands, 72 acres of ponds, and 10.4 miles of streams. Together, land preservation and restoration/creation provide benefits to covered species, natural communities, biological diversity, hydrologic function, and ecosystem function to compensate for impacts on, and to contribute to, recovery of covered species.

Reporting Requirements

- The location, extent, and timing of restoration or creation of applicable land cover types.
- A description of all natural community creation/restoration conservation actions implemented during the reporting period. Riparian and wetland restoration and creation will also be reported by the watersheds shown in Figure 3-6 in the Habitat Plan to facilitate regional coordination of wetland mitigation for the U.S. Army Corps of Engineers and the San Francisco and Central Coast Regional Water Quality Control Boards.
- Year-to-date and cumulative summaries of the extent of land cover types restored or created. The success rate for restoration and creation projects will also be documented. If conservation easements were used, the report will describe who holds the easements. A map containing this information will also be provided.
- Year-to-date and cumulative summaries of stream and riparian restoration conducted outside of the Reserve System.
- The location, extent, timing, and progress of plant occurrence creation and enhancement (Table 5-16 in the Habitat Plan).
- Year-to-date and cumulative summaries of the protection or creation of covered plant occurrences and occupied habitat for selected covered wildlife species as defined in Chapter 5 of the Habitat Plan.

Restoration and Creation Projects

Calero County Park Pond and Wetland Restoration Project

The *Calero County Park Pond and Wetland Restoration Project* is composed of two distinct restoration sites, both contained within the northwest portion of Calero County Park (**Figures 10a and 10b**). Calero County Park is located in the

eastern foothills of the Santa Cruz Mountains in the Alamitos Creek watershed. The project sites were selected in partnership with County Parks, USFWS, CDFW, and the Resource Conservation District of Santa Cruz County. This project resulted in the restoration/creation of 0.17 acres of coastal valley freshwater marsh, 0.26 acres of seasonal wetland, and 0.22 acres of pond to benefit California tiger salamander, California red-legged frog, western pond turtle, and Mount Hamilton thistle (**Table 13**). Water conveyance systems for cattle were installed to ensure sufficient year-round water for the park's pastures.

Project Description

The project focused on improving aquatic natural communities, improving covered species habitat, and installing water conveyance infrastructure for cattle at a pond (**Figure 10a**) and wetland sites (**Figure 10b**). The pond site was heavily grazed by cattle, had a limited ponding duration, and was occupied by invasive aquatic predators. These conditions reduced habitat quality for California red-legged frog, California tiger salamander, western pond turtle, and Mount Hamilton thistle. The pond restoration objectives were to:

- Restore breeding habitat for California tiger salamander and foraging and dispersal habitat for California red-legged frog,
- Restore wetland habitat functions including habitat for Mount Hamilton thistle,
- Create seasonal wetland habitat,
- Establish basking habitat for the western pond turtle,
- Improve pond habitat climate change resiliency, and
- Provide water for cattle.

To accomplish these objectives, the following actions were taken at the pond.

- Fencing installed to exclude cattle from a portion of the pond.
- Pond excavated to increase ponding depth and duration, and basking logs for western pond turtle installed.
- Uplands at the pond fringe excavated to establish new seasonal wetlands.
- Native wetland vegetation planted the pond fringe.
- Pond outfall structure replaced with gated structure to allow for draining for aquatic predator control at the deepened pond.
- Ditch excavated and wood log jams install above spring box to increase seep inflow.
- Two 400-gallon troughs, 3,200-gallon water storage tank, and conveyance infrastructure installed for cattle.

The wetland site was heavily grazed and subject to sedimentation largely due to access by cattle. The wetland restoration objectives were to:

- Restore wetland habitat functions,
- Establish seasonal wetland habitat,
- Restore breeding habitat for California tiger salamander and foraging and dispersal habitat for California red-legged frog,

- Improve wetland habitat climate change resiliency, and
- Provide water for cattle.

To accomplish these objectives, the following actions were taken.

- Fencing installed to exclude cattle.
- Uplands adjacent to existing wetlands excavated to establish new wetlands.
- Sediment within existing wetlands excavated to restore California red-legged frog foraging habitat.
- Native wetland vegetation planted.
- One 400-gallon trough and water conveyance infrastructure installed for cattle.

Management and Maintenance

The project was managed and maintain consist with *Calero County Park Pond and Wetland Restoration Project Mitigation and Monitoring Plan* (H. T. Harvey and Associates 2016). During calendar year 2017, the following actions were completed.

- Sediment removal from springbox (March 8 and March 18)
- Weeding and nonnative plant species removal of from Mount Hamilton thistle area and wetland planting zones (March 18, April 24, and June 15)
- Invasive plant species control (April 24, May 17, June 15, and August 29)
- Pond draining and aquatic predator control (September 18–19)
- Spring flow diverts to storage tank (September 18–October 31)
- Cleaned out piping and troughs at pond (October 31)

Monitoring Results

Year 1 monitoring of the Calero Restoration Project occurred in 2017 and indicated that six of the seven[6] first-year ecological performance standards were met at both the pond and wetland restoration sites. Ecological performance standards and Year 1 monitoring results are summarized in **Table 14**.

- **Target Hydrologic Regime.** The maximum pond water depth was 4.8 feet on August 31, 2017; therefore, the depth of inundation at the pond site exceeded the performance standard of at least 2 feet through August 31, 2017.
- **Sedimentation and Geomorphic Stability.** There was little to no change between the as-built and Year 1 topographic survey results at both the pond and wetland sites. A minor slump occurred on the western slope of the pond berm north of the pond outlet. This slump was repaired in accordance with maintenance recommendations. These results indicated that the pond and wetland sites demonstrated minimal sedimentation and remained geomorphically stable.

[6] Two of the ecological performance standards could not be evaluated in Year 1 because the first year established the baseline conditions, thus the number of ecological performance standards evaluated in Year 1 is seven rather than nine.

- **California Red-legged Frog/California Tiger Salamander Surveys**. California tiger salamander and western pond turtles were both observed in the pond and California tiger salamander were also observed in the wetland. Eight California tiger salamander larvae (three larger than 3 inches in length and five ranging from 2 to 3 inches in length) were observed in the pond site and two California tiger salamander larvae (larger than 3 inches in length) were observed in the wetland site during the dipnet and seine survey conducted on April 28, 2017. In addition, nine California tiger salamander larvae were observed in the wetland site during the visual encounter survey conducted on April 5, 2017 and two larvae were observed during the visual encounter survey on May 25, 2017. Three hundred ninety-five California tiger salamander larvae were observed in the pond site on September 19, 2017. Eight adult western pond turtles were observed in the pond site during a daytime visual survey on April 2, 2017. These results indicated the performance standard for California tiger salamander breeding and western pond turtle occurrence at the pond site was met in Year 1.

  The performance standard for the California red-legged frog is for successful breeding at the pond site in at least 1 of the first 5 monitoring years. The California red-legged frog was not observed in the pond or wetland sites; although this performance standard was not met it was not required to be completed in Year 1 and does not require remedial actions.

- **Aquatic Predator Presence/Absence**. Twenty-seven adult bullfrogs, hundreds of bullfrog larvae, and thousands of crayfish ranging from juveniles to adults were observed and dispatched during surveys conducted before and during pond draining. The performance standard for aquatic predators pertains only to the pond and requires draining the pond to control predators if annual monitoring determines an increase in bullfrog or crayfish abundance relative to the previous year's monitoring. Year 1 survey results will be used to establish the baseline for assessing changes in aquatic predator abundance in future monitoring years and to recommend management activities. Therefore, the aquatic predator performance standard was not evaluated in Year 1.

- **Mount Hamilton Thistle Abundance**. Mount Hamilton thistle individuals were observed at the pond site during a survey on May 16, 2017 and at the wetland site during a site visit on July 14, 2017. One hundred eleven individuals were observed within the existing population in the seep wetland at the pond site. One Mount Hamilton thistle individual was observed at the wetland site during a site visit on July 14, 2017. Year 1 survey results will be used to establish the baseline for assessing changes in the Mount Hamilton thistle population to determine whether there is a stable or increasing population at the pond site. Although Year 1 monitoring results indicate that there is the potential for a new population to establish at the wetland site, the criterion does not apply to the wetland site.

- **Wetland Vegetation Percent Cover**. Wetland vegetation cover was high at both the pond and wetland sites during vegetation monitoring on August 8, 2017. The average percent cover of wetland vegetation was 34.9% at the pond site, 57.0% at the wetland site, exceeding the Year 1 wetland vegetation percent cover performance standard of 15% cover at each site. Native wetland species were the dominant wetland vegetation cover; needle spikerush (*Eleocharis montevidensis*) provided the most wetland cover at the pond site (17.9%) and mannagrass (*Torreyochloa pallida* var. *paucifolia)* provided the most wetland cover (25.6%) at the wetland site. No vegetation cover was observed in the open water portion of the pond site, which met the Year 1 performance standard of vegetation cover not exceeding 50% cover in the open water pond habitat.

The number of wetland species exceeded the Year 1 performance standard of at least 3 wetland species at each site, evaluated separately. Eighteen wetland species were observed at the pond site and 17 wetland species were observed at the wetland site during quadrat sampling.

- **Invasive plant cover**. Invasive plant cover met the Year 1 invasive plant cover performance standard of less than 5% cover across the sites combined and at each site, evaluated separately. The average percent cover of invasive plants was 3.4% at the pond site, 0.2% at the wetland site, and 2.1% for the sites combined. Four invasive plant populations were observed at the pond site during a focused visual survey on August 8, 2017. Two low-density (6–25% cover) populations of Himalayan blackberry (*Rubus armeniacus*) (high California Invasive Plant Council [Cal-IPC] invasiveness rating) were observed growing in uplands along the berm. Low-density populations of yellow star thistle (*Centrauea solstitialis*) (high Cal-IPC invasiveness rating) and purple star thistle (*Centaurea calcitrapa*) (moderate Cal-IPC invasiveness rating) were observed in uplands along the access road and at the trough locations. A low-density population of whitetop (*Lepedium draba*) (moderate Cal-IPC invasiveness rating) was observed in uplands along the access road where it intersects the berm. Minimal invasive plant cover was observed at the wetland site, and therefore, no mapping was prepared during a focused visual survey on August 8, 2017.
- **Water for cattle**. Water was available year-round for cattle from troughs and the water storage tank at the pond site and water was available until midsummer from the trough at the wetland site.

Adaptive Management

Several adaptive management actions took place during the 2017. They are as follows.

- Fence post damage (September). Corner fence post was damaged and repaired in same month.
- Berm slump repair (October 21)
- Raised the pond outlet weir elevation by 0.3 feet to ensure the maximum extent of restored habitat at the pond mitigation site (October 21).
- Flash cattle grazing at the wetland mitigation site (late July/early August). The Mount Hamilton Thistle individual found at the wetland was no longer present post-grazing. Habitat Agency notified County Parks of unauthorized grazing in September 2017. County Parks will meet with grazer in 2018 to talk about water needs and restricted water availability at the wetland site. Grazing will not be allowed at wetland site unless prescribed by monitoring results.

Management Recommendations

The following management recommendations were made based on the first-year monitoring results.

- Fix overflow line at tank
- Remove sediment from the springbox to optimize seep flow to the pond mitigation site.
- Evaluate 2018 survey data on aquatic predators and special-status species to determine the need for pond draining in late summer/fall 2018.
- If pond draining is warranted, conduct a seine survey just before draining the pond to record data on the abundance and maturity of aquatic predators and capture and relocate any special-status species.

- Reduce human impacts to pond side slopes while pond soils are saturated. Side slopes on the south and north end of the pond have been disturbed due to entering and exiting the pond for invasive species eradication efforts. Further disturbance may compromise the bentonite liner, resulting in increased permeability in the pond bed and reduced water levels. One access/egress location should be established and possibly fortified with stepping stones or other means to limit impacts to the side slopes and liner of the pond.
- Drain pond mitigation site and associated fringing wetlands in mid-September and allowed to dry completely until winter rains refill the pond.
- Remove invasive and nonnative plant species from the seep wetland area of the pond mitigation site and on the small berm near the upper pool at the wetland mitigation site to reduce competition between nonnative vegetation and Mount Hamilton thistle individuals.
- Targeted invasive species for control or removal during vegetation management activities: Himalayan blackberry, yellow star thistle, purple star thistle, whitetop, and Harding grass. (Naturalized, nonnative species with a moderate invasiveness rating and which are commonly found in similar wetland and mesic California annual grassland habitats in the region such as Italian rye grass, Hyssop lythrum, and Bermuda grass should not be targeted for control or removal, which may cause substantial ground disturbance and impact wetland habitat functions.)
- Update monitoring methods during future years as follows: include all species with a high Cal-IPC invasiveness rating and only include specific species with a moderate Cal-IPC invasiveness rating that are deemed by a qualified restoration ecologist to adversely affect habitat quality are considered invasive plant species.
- Transport water to wetland trough from pond troughs or the water storage tank at the pond mitigation site, rather than allow cattle to access the wetland.
- Observe performance of log jams and repair if necessary to maintain their effectiveness at removing sediment from seep flows.
- Clean out of the pond troughs once a year in the fall to reduce accumulated silt.
- Consider hand removal of the earthen berm at the wetland spring box to increase hillside seepage contributions to the lower wetland during the dry season. This berm may currently limit connectivity between the seep and the wetland.

Hedgerow on Pajaro Ranch

Restoration of a hedgerow on Pajaro Ranch was conducted to provide a covered corridor that would encourage wildlife movement along the Pajaro River. The Pajaro River corridor provides movement habitat for anadromous fish between Monterey Bay and spawning habitat in the Pacheco Creek watershed. It also provides an important linkage for upland and riparian wildlife between Diablo Range and Santa Cruz Mountains. Now channelized in some locations, this project will create a hedgerow along the historical Pajaro River alignment.

Coyote Ceanothus Population Creation Project

There are a three known occurrences of Coyote ceanothus in the world, all of which are located in the Permit Area. These occurrences are located in the vicinity of Morgan Hill on serpentine soils. The

Habitat Plan requires protection of five occurrences of this species, with creation of one or more occurrences permitted under the Habitat Plan.

The focus on meeting the biological goals and objectives for the species has been centered on population creation because it is highly unlikely that any additional occurrences will be discovered in the Permit Area. The SCVWD leads creation of a new occurrence for this species. Efforts began in 2009 and 2010 with an updated population census and detailed ecological observations of all three known occurrences, a series of collaborative research studies on the population genetics of the species, modeling of suitable habitat, surveys for additional undiscovered populations, and identification of potentially suitable introduction sites for population creation. The data collected were used in developing the details of the conservation strategy for Coyote ceanothus in the final Habitat Plan, released in 2012. Additional research studies since 2010 have documented not only population dynamics, but water potential and microclimate needs, propagation methods, and soil symbiotic relationships. The data have been used to develop a comprehensive population creation strategy on mitigation land purchased by the SCVWD on Coyote Ridge, in an area located north of the Anderson Dam population.

The *Coyote Ceanothus Population Creation Project* began in 2013 with annually plantings to date. Planting annually allows experimentation with seeding and planting methods, leading to the development and refinement of successful restoration techniques prior to a full-scale planting effort. It also allows the establishment of multiple age classes, which increases genetic diversity and population structure, as well as safeguarding against future stochastic events. The ultimate goal of the project is a self-sustaining population of approximately 2,000 plants in a functional community.

Phase III of the *Coyote Ceanothus Population Creation Project* (winter 2016) involved a combination of direct seeding and installation of container stock.[7] Three of the four test plots on Coyote Ridge were prepped with 20 new planting basins in each plot for direct seeding of Coyote ceanothus seed on December 22, 2016. Direct seeding of Coyote ceanothus did not occur in the Lower Sage test plot due to heavy mortality of seedlings observed there in 2016 after implementation of the Phase II planting effort. Mortality was mostly due to predation by deer and wild pigs. Germination of Coyote ceanothus was first observed on February 14, 2017.

In addition, Coyote ceanothus was grown by The Watershed Nursery as container stock under phytosanitary conditions in summer 2016 and ten container plants were planted in each of the four test plots on Coyote Ridge. Planting of container stock used phytosanitary planting procedures and occurred on December 7, 2016. All basins were fertilized prior to planting.

Annual monitoring of seedling survival and health and vigor was conducted in early October 2017 of all planted basins. Results indicated that survivorship of 2015 direct seeded Coyote ceanothus was highest in the Upper Sage test plot (72%), and lowest in the Lower Sage test plot (10%). Results of the 2016 planting effort indicated that container stock had a greater percent survival than direct seeding in all plots 1 year after planting. The lowest percent survival of container stock was in the Lower Sage test plot (80%), while the Pine test plot had no mortality of any planted container stock. Average percent survival per test plot, for both direct seed and container stock, was greatest in the Pine plot.

Health and vigor of seedlings also varied by plot, but generally was the highest in the Pine plot and the lowest in the Lower Sage plot. The health and vigor of direct seeded (2015) Coyote ceanothus in

[7] Phases I and II occurred in 2013 and 2015. Results were included in previous annual reports.

the Lower Sage plot ranged from a mere 5–10% of seedlings classified in the "excellent" to "good" categories, with 90% of seedlings having a health and vigor rating of "dead" at time of monitoring. The Pine plot had the greatest number of 2016 direct seeded Coyote ceanothus seedlings with a rating of "good" to "excellent" (a combined 85%). All four test plots had extremely high percentages of 2016-planted container stock seedlings categorized in the "good" to "excellent" categories, and a range of mortality values from 0–20%. The most successful plot for seedling health and vigor was the Pine plot, with 100% of planted container seedlings in the "excellent" category for health and vigor during the October 2017 monitoring effort. "Excellent" was the most common rating in all four plots for container stock.

It is expected that direct seeded basins would have higher mortality than container stock and an initially lower health and vigor rating, since the seedlings are younger and more delicate until they form a well-developed root mass. Over time, differences in seedling establishment between the two different planting methods are expected to diminish. From 2 years of direct seeding, it appears that an average germination rate of Coyote ceanothus per plot of around 66% is normal. Between 98% and 99% of all direct seeded basins had a least one seed germinate (four are planted). The most successful plot in 2016 was the Pine plot, not planted in 2015 due to *Phytophthora* concerns. Both the direct seeded and container stock planted in Pine in 2016 did extremely well, with plants showing exceptional vigor. The soils here appear to be conducive to Coyote ceanothus early establishment, and the lack of shrub cover likely reduces the potential for seedling predation and herbivory. This plot has some shade from overstory grey pines and is located on an east-facing slope (Janell Hilman 2018 pers. comm.).

Pacheco Creek Riparian Planting Project

In conjunction with Prunuske Chatham Inc., Point Blue Conservation Science (PBCS) designed and finalized planting locations and project designs in coordination with the Habitat Agency for the Pacheco Creek Riparian Planting Project. Native riparian species were planted in three planting zones along Pacheco Creek and its tributary in the Pacheco Creek Reserve. PBCS installed a total of 812 native trees (e.g., box elder [*Acer negundo*]), shrubs (e.g., California grape [*Vitis californica*], toyon [*Heteromeles artbutifolia*], California rose [*Rosa californica*]), and grasses and forbs (e.g., mugwort [*Artemisia douglasiana*], meadow barley [*Hordeum brachyantherum*], Mexican rush [*Juncus mexicanus*]), which included native plants from local nurseries and willow (*Salix* spp.), cottonwood (*Populus* spp.), as well as coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*) seeds harvested directly from the site for replanting. PBCS coordinated approximately 24 classes from local schools, as well as other volunteers, to participate in local planting days. PBCS and volunteers also installed mats and browse protection around plants to increase survival and prevent damage from weeds and herbivores. The restoration project was completed in the spring of 2017. For a period of 3 years, PBCS will maintain the plants, including repairing weed, browse protection, and assessing threats, and will monitor the plantings on an annual basis to assess plant health and vigor. The estimated time for completion of maintenance and monitoring of the riparian plantings is October 30, 2020.

Restoration Project Planning

The Habitat Agency collaborated with Santa Clara County Parks, Santa Cruz County Resource Conservation District, Santa Clara Valley Open Space Authority, and Point Blue Conservation Science to evaluate, prioritize, and select restoration sites for the next planning and construction period. In

spring 2016, site visits to Joseph D. Grant County Park and the Reserve identified 18 potential wetland, pond, stream, or riparian restoration projects. Habitat Plan biological goals and objectives and restoration needs were used to select three projects for implementation. The *San Felipe Creek Restoration Project* on Joseph D. Grant County Park and *Coyote Ridge Open Space Ponds Restoration Project* on the Coyote Ridge Reserve remained in the planning stages during this reporting period. Planning also began on the *Pacheco Creek Riparian Planting Project* on the Pacheco Creek Reserve.

San Felipe Creek Restoration Project on Joseph D. Grant County Park

A stream and riparian restoration project along San Felipe Creek on Joseph D. Grant County Park was selected for 2018 construction. San Felipe Creek runs through a historically farmed valley and the reach is currently denuded of riparian vegetation and incised. A watershed approach will be taken to understand historic and current hydrologic and geomorphic conditions as well as the spatial and temporal distribution of water. This information will be used to

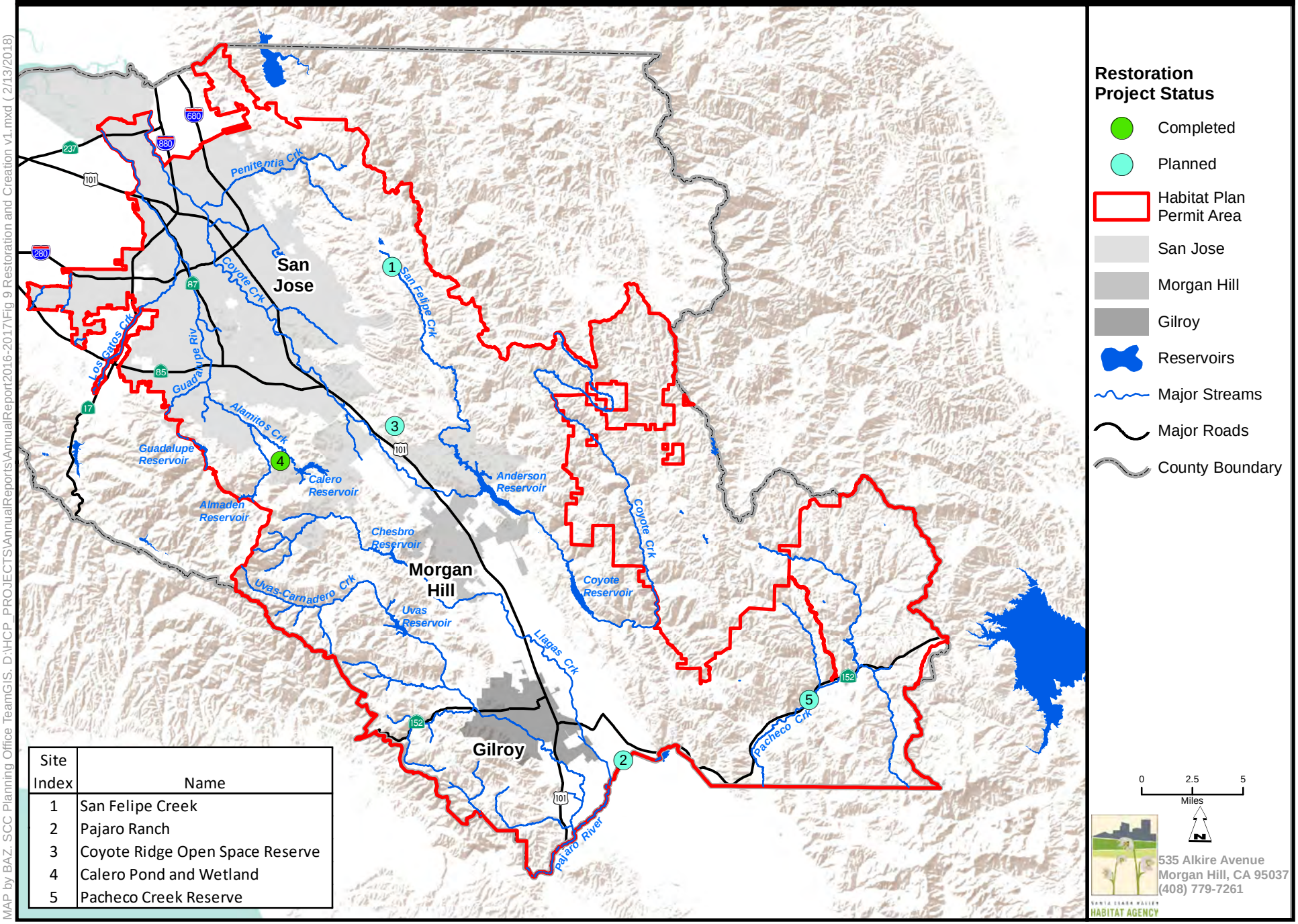
- Protect, expand, and enhance habitat for plant and wildlife species consistent with park activities, including recreation and grazing
- Capture and retain water to sustain hydrologic resources and reduce overdraft impacts in the groundwater basin
- Reduce on-site and downstream water quality impacts
- Reestablish connectivity of tributaries to the creek and the creek to the 100-year floodplain
- Improve the quality of stream and the hydrologic and geomorphic processes that support it
- Establish a functional riparian canopy and scrub community at a variety of succession stages
- Improve or establish a functional aquatic and riparian community that benefits covered species and promotes native biodiversity

Coyote Ridge Ponds Restoration Project on Coyote Ridge Open Space Preserve

The Coyote Ridge Reserve Ponds Restoration Project will repair the two failed earthen dams, excavate and re-contour the prior pond basins, create new wetland areas and re-establish the vegetation. Midway along the northeast property line, two existing ponds (Site 3 on **Figure 9**) are located high in the watershed, each cut into a separate natural drainage. Each pond has an earthen dam with a spillway that drains down the east face of the ridge and sends the water into tributaries feeding the San Felipe Creek within the Coyote Creek watershed. Both of these ponds have lost functionality due to the degradation of their earthen dams. In both cases, a head cut in the dams is preventing water from collecting in the ponds. The resulting drainage from the ponds has severely eroded and incised the spillways that channel the water downhill. Project goals are as follows.

- Create and restore aquatic habitat.
- Create habitat for two or more covered species– the California red-legged frog and the California tiger salamander and possibly western pond turtle.
- Reduce downstream sedimentation and improve the overall water quality of the Coyote Creek watershed.

Figure 9. Completed and Planned Restoration Projects



Site Index	Name
1	San Felipe Creek
2	Pajaro Ranch
3	Coyote Ridge Open Space Reserve
4	Calero Pond and Wetland
5	Pacheco Creek Reserve

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016-2017\Fig 9 Restoration and Creation v1.mxd (2/13/2018)

Figure 10a. Wetland Mitigation Site Photo Documentation

Photo 1. Preconstruction conditions
at the Wetland Mitigation Site (August, 2016)

Photo 2. Post construction conditions
at the Wetland Mitigation Site (December, 2016)

Photo 3. Year 1 conditions
at the Wetland Mitigation Site (August 8, 2017)

Figure 10b. Pond Mitigation Site Photo Documentation

Photo 1. Preconstruction conditions
at the Pond Site (August, 2016)

Photo 2. Post construction conditions
at the Pond Site (December, 2016)

Photo 3. Year 1 conditions
at the Pond Mitigation Site (August 8, 2017)

	Aquatic Land Cover (acres)							
Watershed	**Willow riparian forests, woodlands, and scrub**	**Central California sycamore alluvial woodland**	**Mixed riparian woodland and forest**	**Coastal and valley freshwater marsh**	**Seasonal wetland**	**Pond**	**Stream (linear feet)**	**Aquatic Land Cover Total**
Coyote								
Restoration								
Creation								
subtotal								
Guadalupe								
Restoration				0.16	0.21	0.22		0.59
Creation					0.03			0.03
subtotal				*0.16*	*0.24*	*0.22*		*0.62*
Pajaro								
Restoration								
Creation								
subtotal								
Uvas								
Restoration								
Creation								
subtotal								
Llagas								
Restoration								
Creation								
subtotal								
Total				**0.16**	**0.24**	**0.22**		**0.62**

Ecological Performance Standard	Year 1 Success Criteria	Year 1 Monitoring Results	Standard Met in Year 1
Target Hydrologic Regime	Depth of inundation at pond at least two feet through Aug 31, if average rainfall year	The maximum pond depth was 4.8 feet on August 31, 2017	**Yes**
Sedimentation and Geomorphic Stability	The pond, wetland, and springbox-seep water collection structures will demonstrate minimal sedimentation and geomorphic stability	Little to no change from the as-builts and Year 1 topographic survey results.	**Yes**
California Red-legged Frog/ California Tiger Salamander Surveys	At pond, continued successful breeding of California red-legged frog in at lesat one monitoring year; continued successful breeding of California tiger salamander and continued occurrence of the western pond turtle	California red-legged frog were not observed during Year 1. However, California tiger salamander demonstrated successful breeding and the western pond turtle continued to occur at the pond mitigation site	**No**
Aquatic Predator Presence/Absence	Abundance of bullfrogs and crayfish below baseline conditions at the pond; minimal predator occurrence at the wetland	Unable to determine if criterion was met because Year 1 surveys established the baseline of aquatic predator abundance. Year 2 surveys will be compared to Year 1 baseline to determine whether performance standard is met.	**N/A**
Mt. Hamilton Thistle Abundance	NA	Unable to determine if criterion was met because Year 1 survey established the baseline of Mt. Hamilton thistle abundance and population extent. Year 2 surveys will be compared to Year 1 baseline to determine whether performance standard is met.	**N/A**

Ecological Performance Standard	Year 1 Success Criteria	Year 1 Monitoring Results	Standard Met in Year 1
Wetland Vegetation Percent Cover	15% in planting zones; less than 50% in open water pond habitat; at least three wetland species will be present	The average percent cover of wetland vegetation was 34.9% at the pond mitigation site and 57.0% at the wetland mitigation site. Eighteen wetland species were observed at the pond mitigation site and 17 wetland species were observed at the wetland mitigation site. No vegetation cover was observed in the open water portion of the pond mitigation site	**Yes**
Invasive Plant Cover	Less than 5%	Invasive plant cover was less than 5% across the mitigation sites combined and at each site. Low density patches of invasive plants were observed and low invasive plant cover was observed along wetland vegetation monitoring transects	**Yes**
Wetland Delineation	NA	A wetland delineation will be performed in Year 5. Wetland conditions were observed to be establishing quickly in the target wetland areas following project construction	**NA**
Water for Cattle	Sufficient water to support the same grazing intensity of the Reserve lands as the existing conditions	Water was available year round for cattle from troughs and the water storage tank at the pond mitigation site and water was available until midsummer from the trough at the wetland mitigation site	**Yes**

Chapter 5

Western Burrowing Owl Management and Monitoring

The 2017 western burrowing owl surveys resulted in the documentation of 74 breeding adult burrowing owls and 64 documented fledged young. The number of breeding season adults at the Santa Clara Regional Wastewater facility was the highest recorded, with 34 adults observed. Management agreements with the SJ-SCRWF and the Refuge will include a total of 920 acres, approximately 17% of the total required under the Habitat Plan. Three burrowing owl studies and a burrowing owl workshop were also conducted in the reporting year.

Reporting Requirements

- Management agreements for western burrowing owl nesting habitat, lands acquired in fee title, interagency memorandums of agreement, or any other agreements entered into for the purposes of protecting, enhancing, restoring, or creating covered species habitat.
- Year-to-date and cumulative summaries of exceptions to the burrowing owl passive relocation prohibition, as described in Habitat Plan Chapter 6.

The Habitat Agency will manage a minimum of 5,300 acres of western burrowing owl occupied breeding habitat over the next 45 years. Of this acreage, a minimum of 600 acres must be protected in fee title or placed under conservation easement. For the remaining 4,700 acres, a combination of land acquisition (fee title or easement) and long-term management agreements may be used, with the goal of having all 5,300 acres under some sort of permanent protection by year 45. Maintaining suitable habitat and increasing breeding pairs in a highly altered environment, such as exists around the San Francisco Bay area, will require active land management; therefore, ensuring long-term management is essential for the continued existence of western burrowing owls in the South Bay area. Lands acquired or protected using permanent or temporary management agreements will be managed to protect and enhance the owl populations. Temporary management agreements (e.g., 5- to 20-year agreements as opposed to agreements in perpetuity) may be used to protect nesting habitat in areas not immediately planned for development or on lands where permanent protection is not possible or necessary. **Figure 11** shows the Expanded Burrowing Owl Conservation Area and the potential to increase the burrowing owl population within the Permit Area.

This chapter provides a summary of western burrowing owl-related management actions undertaken during the reporting period, research studies, current management agreements, and ongoing and future agreements.

Protection of Western Burrowing Owl Habitat

Management Agreements

San José-Santa Clara Regional Wastewater Facility

The SJ-SCRWF bufferlands (bufferlands) is home to the most successful burrowing owl breeding site in the permit area. The bufferlands are owned and controlled by the Cities of San José and Santa

Clara. In 2016, the Habitat Agency entered into a 5-year management agreement with the City of San José that covers 201 acres of the bufferlands. A conservation easement (under development) held by the Habitat Agency will cover 72 acres of the 201 acres, all of which will be managed under a single management plan.

Management focuses on actions that benefit the burrowing owl. This includes maintaining proper vegetation height, excluding predators, coordinating trapping efforts, and performing wildlife surveys. Mowing and wire trimming around active burrows keeps vegetation low within a 30-foot radius. Invasive plants are managed to benefit the owls. Perimeter fencing, low perches, prey refugia (e.g., rock piles, brush piles, and vegetated mounds) and natural and artificial burrows are installed and maintained as necessary (Benabente et al. 2016).

The bufferlands are composed of open grasslands and wetlands. The wetlands, located primarily in the northwestern part of the site, are not suitable burrowing owl nesting habitat, but can be used for foraging. The vast majority of the site is open grasslands vegetated with non-native grasses and plants such as thistle (Carduus spp.). Such grasslands are suitable owl nesting and foraging habitat, if managed for burrowing owls. For many years, the site was farmed, but over time, the City of San José purchased the land to buffer for potential odors and safety hazards from the wastewater facility. Active burrowing owl management since 2012 increased the number of nesting owls and their breeding success. Data for this population has been collected somewhat consistently since 1996 with the number of adult owls generally fluctuating between 2 and 20 adults observed during the breeding season. In 2017 the number of breeding season adults was the highest recorded since adoption of the Habitat Plan, with 34 adults observed (up from 20 in 2015, and 25 in 2016). There were 17 nesting pairs observed, but only nine were successful. Of the 17 nesting pairs, 12 pairs nested in natural burrows and five nested in artificial burrows. The nine successful pairs fledged 29 chicks; a 50% decline compared to 2016 when the 12 pairs produced 58 chicks.

Several factors could contribute to the single year decline in fledgling success. During the initial years (2014–2015) there was an increase in vegetation management activities with no loss of adjacent foraging habitat (about 500 acres of adjacent foraging). In 2016 and 2017 there were decreases in the adjacent foraging habitat to the northeast, and especially along Disk Drive, which is closer to the primary areas where breeding activities take place. Additionally, in early 2017, there was significant flooding on-site at the start of the breeding season, which effectively reduced the available foraging area and prevented the use of burrows that had historically supported breeding pairs (Santa Clara Valley Habitat Agency 2018).

Don Edwards San Francisco National Wildlife Refuge

The Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) Warm Springs Unit (Warm Springs) is managed by USFWS to provide habitat to several endangered and special-status species, including western burrowing owls. It is composed of 719 acres of vernal pool grasslands in South Fremont, within the North San José/Baylands region. Western burrowing owls have been regularly observed in and around Warm Springs since it was purchased in 1992, and they have been regularly observed in the mitigation lands since biological surveys were initiated in the late 1990s. In 2015, the Habitat Agency entered into a 5-year management agreement over Warm Springs of the Refuge with the San Francisco Bay Bird Observatory and the Refuge. The emphasis of this agreement is to perform a series of monitoring and habitat enhancement tasks to better understand the status of the western burrowing owl population and to improve nesting and foraging habitat of this species in Warm Springs. Warm Springs is dominated by alkali grasslands and seasonal wetlands. Of the 719

acres at Warm Springs, approximately 200 acres are seasonal wetlands. Vegetation height can be characterized as low, except in the highly weedy patches or fields. The site is grazed by cattle, which are rotated among 10 fenced pastures to keep vegetation low and improve habitat conditions for three federally listed species as well as for the western burrowing owl. Cattle grazing has occurred at Warm Springs throughout most of the twentieth century. On acquisition of Warm Springs in 1992, however, the Refuge ceased all grazing practices in the absence of a formal management plan.

A habitat management program for Warm Springs was initiated in 2004 (Kakouros and Burns 2014, Lordeo, n.d.). This program included the reintroduction of grazing, as well as prescribed burning, invasive plant control, and expanded biological monitoring. The program set five main goals.

1. Reduce residual dry matter (RDM).
2. Enhance hydrology for vernal pool functions and species.
3. Increase native plant species richness and cover.
4. Reduce invasive plants, excluding nonnative grasses.
5. Maintain a grassland community of shorter stature (i.e., less than 6 inches) throughout the upland areas of Warm Springs within 5 years in order to provide habitat that supports at least five pairs of western burrowing owls 10 years from program approval.

In Warm Springs, western burrowing owls nest in upland areas. They have been repeatedly observed foraging in the vernal pool areas during the summer once the ponds have dried. The highest number of owls observed was in 2005, when approximately 28 pairs nested within the Refuge (approximately 60 adults observed in total) and reproductive success was relatively high (WRA 2011). In 2014, eight nesting pairs of burrowing owls were recorded in Warm Springs. The surveys documented a total of 17 adults during the peak breeding season and 5 juveniles in 4 different nests, although actual juvenile numbers were likely higher.

Since the initiation of the management agreement, western burrowing owl management has focused on conducting vegetation management in the immediate area around occupied burrows across all of Warm Springs. The goal is to maintain vegetation height at 6 inches or shorter during the breeding season. In addition, vegetative islands and debris piles to increase the prey base for burrowing owls were installed. In order to reduce predation pressure and enhance survival of burrowing owls at Warm Springs, predator management activities by were implemented by U.S. Department of Agriculture Animal and Plant Health Inspection Service across the entire 719 acres.

In 2015, the Habitat Agency funded the San Francisco Bay Bird Observatory to perform a series of monitoring and habitat enhancement tasks in collaboration with the Refuge with the goals of better understanding the status of the burrowing owl population, improving nesting and foraging habitat of this species, and stabilizing or increasing the breeding population in Warm Springs. In 2015, the breeding burrowing owl population in Warm Springs was restricted to seven adult owls. That year, there were three nesting pairs, which successfully fledged a total of 13 chicks.

In 2016, all 719 acres were surveyed. The number of breeding adults in Warm Springs was 9–10, an increase over the 2015 population. Of the five nests observed, two nests successfully fledged chicks (40% nest success). Nest productivity in 2016 was 6.5 chicks per successful nest and 2.6 chicks per all nests.

In 2017 the number of breeding season adults was 12 adults (up from 9 in 2016), 7 chicks were fledged from 5 nesting attempts and 2 successful nests. These birds were associated with 14 active

burrow locations. All breeding pairs were found nesting in natural—as opposed to artificial—burrows. Overall 2 of 5 nesting attempts were successful (40%) with an average of 3.5 chicks per successful nest (or 1.4 chicks per attempt). From 2015–2017, predator control efforts have removed 34 feral cats, 7 red foxes, 3 raccoons, 48 opossums, and 125 striped skunks.

Based on the first 3 years of the plan implementation, the team recommends the following.

- More time on early season vegetation assessment and monitoring.
- Focus vegetation management on currently occupied burrows and burrow complexes near occupied burrows. Refuge will coordinate vegetation management with the rancher elsewhere.
- Work with Refuge biologists, ranchers, and volunteers to increase vegetation management through weed whacking, spraying, and other tools. The Refuge is working with a rancher to graze the site.
- Continue to pursue machine-learning algorithms to process owl photos.
- Explore methods of attracting grounds squirrels to field 8, including mowing the upland portions of fields 8 and 9.
- Consider supplemental feeding near natal burrows to increase fledging success.
- Evaluate the cost effectiveness of predator control.

Progress to Date

Number of Adults

- Increase in the number of adults during the breeding season between previous reporting year (62 individuals) to current reporting year (74 individuals).

Acres under Protection

- 920 acres of occupied burrowing owl habitat is under management agreements, which is 17% of the total 5,300 acres required to be protected and/or managed. For the entire 50-year permit term, the Habitat Agency needs to protect and/or manage 106 acres of burrowing owl habitat per year. Given that FY1617 is Year 4 of Plan implementation, the Habitat Agency needs to acquire 424 acres to stay on track. In addition, the 72-acre conservation easement on the SJ-SCRWF will be 12% of the goal of 600 acres of occupied nesting habitat protected in fee title or conservation easement. To stay on track with this protection goal, the Habitat Agency needs to protect 12 acres per year. Therefore, the Habitat Agency is well ahead of their habitat acquisition and enhancement goals for burrowing owl habitat.

Exceptions to Passive Relocation Prohibition

Passive relocation is currently prohibited under the Habitat Plan. As of June 30, 2015, there have been no exceptions to the passive relocation prohibition in Habitat Plan Chapter 6.

Monitoring Actions

South Bay Western Burrowing Owl Survey Network

Annual western burrowing owl surveys are being completed through a collaborative effort between resource agencies, cities, and other local jurisdictions that are surveying for western burrowing owls in the region (Habitat Plan Appendix M, *Western Burrowing Owl Conservation Strategy*). This group was first assembled in 2014 and is collectively referred to as the South Bay Burrowing Owl Survey Network. Currently this group consists of members from the City of Mountain View/Shoreline Golf Course, SJ-SCRWF, Don Edwards National Wildlife Refuge, ICF, NASA Ames: Moffett Airfield, San Francisco Bay Bird Observatory, San José State University, City of San José, City of Palo Alto, DeAnza College, County Parks, The Nature Conservancy, San José International Airport/U.S. Department of Agriculture, and the Santa Clara Valley Audubon Society. This group meets at least twice annually, once before the breeding season begins and once after the breeding season concludes. The South Bay Burrowing Owl Survey Network allows the Habitat Agency to gain maximum knowledge of breeding western burrowing owls in the region by coordinating with resource agencies, cities, and other local jurisdictions that are surveying for western burrowing owls.

2017 Burrowing Owl Survey Efforts

Breeding season surveys occur within the Habitat Plan study area and the expanded burrowing owl conservation area (**Figure 11**). The exact survey area varies annually depending on the outcome of surveys conducted during previous years. In 2017, the primary focus of surveys was in the North San José/Baylands region, with a secondary focus in the Morgan Hill and Gilroy regions (**Figure 11**). Just as in previous years, the North San José/Baylands region was selected because it contains the largest remaining burrowing owl nesting colonies in the South Bay Area (ICF 2017). Surveyors are provided standardized data sheets, the focus of which is the assessment of habitat with potential to be managed for burrowing owls and to determine the number of nesting adult burrowing owls in the South Bay population. While many of the sites were visited multiple times in the season, the goal was to collect a minimum of two rounds of data at each site surveyed focusing on capturing information on nest establishment and fledging success. The general windows identified for the surveys were March 15–April 15 for the first round, and June 1–July 15 for the second round. Staff and volunteers from the South Bay Burrowing Owl Survey Network conducted surveys in known nesting locations that were determined based on current western burrowing owl populations and other ongoing survey work. **Table 15** shows 2017 survey results.

The 2017 survey efforts were prioritized in the following order:

1. Parcels where burrowing owl nesting had been documented in the previous 3 years;
2. Parcels within 0.5 mile of locations where burrowing owls have nested in the previous 3 years;
3. Parcels where burrowing owls have been documented during the winter season;
4. All other parcels with suitable habitat in the North San José/Baylands, Morgan Hill, or Gilroy region that had complementary land uses during the 2016 survey effort.

Burrowing Owl Survey Results

The 2017 surveys resulted in the documentation of 74 adult burrowing owls present during the breeding season (33 breeding pairs).These numbers are a little higher than the number of adult owls observed in 2016 (62), but still well below those reported from the early 1990's and 2009 (Santa Clara Valley Habitat Agency 2017). No new breeding season locations were identified in 2017, though some single owls were observed very early in the breeding season (March) but did not initiate nests. Table 15 shows the number of adult burrowing owls present during the breeding season since monitoring began in 2014. During Habitat Plan development a count-based population viability analysis was completed (Habitat Plan, Appendix N). Based on that analysis it was determined that in order for burrowing owls to reach recovery levels by the end of the permit term, an average of three owls would need to be recruited into the South Bay population each year. Figure 4-3 in the Habitat Plan shows was population growth under those assumptions would look like. Although the Habitat Plan does not set population-based goals, Figure 4-3 is offered to provide relative population targets that can be used to determine if the population is general tracking with expectations. Further, if recruitment at a rate of at least three owls per years can be realized, the risk of local extinction is low. According to the modeled adult owl numbers extrapolated from the population viability analysis, in 2017, the fourth year of Habitat Plan implementation, there should be 82 adult owls present during the breeding season. The 74 adult owls observed was below the modeled estimate of 82 owls. In 2014 the population exceed expectations and in 2015 the population met expectations, but in both 2016 and 2017 the population failed to meet expectations. This does not mean that the Habitat Agency is out of compliance, but it does mean that the Habitat Agency should start planning for Tier 3 active recovery actions. If the population fails to meet modeled expectations, it is assumed that a portion of burrowing owl conservation fee monies will be directed toward active recovery efforts.

Additional Research Studies

County-Wide Habitat Assessment

The Habitat Agency conducted a geographic information system (GIS)-based Santa Clara County-wide burrowing owl habitat assessment of public lands in 2017 (Menzel et al. 2017). This first phase determined the distribution of high quality burrowing owl habitat. For the second phase, which will begin in 2018, surveys of 20 to 30 sample sites will occur on the lands identified from phase one. The sample sites will be surveyed for owls once in the winter, and once during the breeding season. The lands identified from this effort may be targeted for future management and/or enhancement actions.

Western Burrowing Owl Supplemental Feeding Study: Breeding Season

Lynne Trulio, Phil Higgins, and Debra Chromczak began implementation of a supplemental feeding study to investigate whether supplemental feeding of western burrowing owls with dead laboratory mice during breeding seasons (March/April to September) increases reproductive success as measured by the percent of pairs producing chicks and the number of chicks fledged per pair (Higgens et al. 2017). Increased nest success and chicks fledged are positive attributes for bird populations; ideally, this will lead to greater numbers of nesting pairs and local dispersal of young to increase the burrowing owl population in the Permit Area and the Expanded Burrowing Owl Conservation Area. In 2017, owls were fed at two breeding locations: Shoreline Regional Wildlife

Area and NASA Ames Research Center at Moffett Field. Results of the statistical analysis based on 2017 observations did not show a difference for any of the measured factors between fed and unfed nests. 2017 was a poor reproductive year for all populations in the region and additional years of data are needed to assess the benefits of supplemental feeding.

The study will continue into 2018 with feeding of the populations at Shoreline Regional Wildlife Area and NASA Ames Research Center at Moffett Field, as well as nests at SJ-SCRWF. All supplemental feedings will occur at locations within the Permit Area, including the Expanded Burrowing Owl Conservation Area.

Banding Studies

Winter Burrowing Owl Banding Project

The effectiveness of monitoring, particularly for understanding dispersal distances, is significantly enhanced when it is possible to track the movements of individual owls, enabling the testing of existing assumptions and fine-tuning or replacement of existing strategies. The Santa Clara Valley Audubon Society, in partnership with Philip Higgins and Lynne Trulio, received a FY2013–2014 LAG grant to survey and band burrowing owls. This study, implemented in 2016 and 2017, investigated whether burrowing owls banded during the wintering, non-breeding season (September–January) were remaining within Santa Clara County at their original banding locations, moving to other locations in north Santa Clara County where most owls breed, or moving outside of the area at the start of the breeding season. All areas where owls were observed overwintering in 2014, 2015, and 2016 were surveyed during the following breeding seasons.

Burrowing owl surveys and banding over the winters and following summers have shown that numerous owls spend the winter at sites in the Santa Clara Valley hills at elevations much higher (over 2,000 feet) than are seen for breeding birds. Owls winter at sites from the north end of the Plan Area, east and west of San José, all the way to the south end of the County near the San Benito County border. The high elevation sites in Santa Clara County where many birds winter provide critical habitat for burrowing owls from around the range. Winter birds also come to the traditional nesting locations to spend the winter, sharing those areas with year-round resident birds. As a result, the winter populations are often higher than the seen during the breeding season. Some of the migrant birds may be coming from as far as Oregon, Washington, and Canada (British Colombia) (Lynn Trulio 2018 pers. comm.). In the upcoming years, a genetics team from University of California Los Angeles and University of California Santa Cruz plans to provide additional analysis that may pinpoint from where the migrant birds surveyed in the Plan Area are migrating.

Breeding Season Banding

Breeding season banding, designed to collect data on the population dynamics, began in the spring of 2015. This study will facilitate management practices by allowing for a better understanding of owl nest location preference, mate selection, nesting success, and seasonal movement. During the 2016 and 2017 breeding seasons nest monitoring, trapping and banding occurred at two locations: the SJ-SCRWF and Warm Springs. During the course of the breeding season the two areas were monitored closely to understand in what phase of nesting the owls were being observed. Trapping and banding were timed to minimize disturbance during sensitive nesting phases such as incubation.

Results from the 2017 efforts at Warm Springs identified a total of 18–19 owls (11–12 adults and 7 chicks). Of these owls, nine owls were trapped: six were new captures (one female, one male, and four chicks), and three birds had been banded previously. The three previously banded birds were located an average of 0.50 miles from their previous year nest location. To date, birds from the Warm Spring population have not been confirmed moving into in any of the neighboring populations (Chromczak 2017).

Results from the 2017 efforts at the SJ-SCRWF include observations of 17 active burrows which included 35-37 adults and 29 chicks. Trapping efforts captured a total of 46 individual birds: 22 new captures (1 female, 3 males, and 18 chicks) and 24 previously banded owls. The average distance moved based on these observations was 0.63 miles. Two movements between populations have been observed at this location. One bird which nested at the SJ-SCRWF in 2017 was originally banded as a chick at Shoreline Regional Wildlife Preserve in Mountain View 6.45 miles away. The other observation was a female owl previously banded at the SJ-SCRWF in 2016 (4.94 miles away) which nested at NASA Ames Research Center at Moffett in 2017 and produced four young.

Banding will continue in future monitoring years, providing important information about movement between populations and habitat conditions that are most favorable to the owls, and will inform site-specific management decisions.

Burrowing Owl Workshop

In the spring of 2017 the Habitat Agency invited a panel of expert burrowing owl biologists to participate in a 2-day workshop. The goal of the workshop was to take a fresh look at the status of the south bay burrowing owl population, evaluate the pressures facing the population, and develop management and monitoring recommendations that can or should be considered to help stabilize and recover the local owl population. Each of the experts invited has spent a career researching, managing, and monitoring burrowing owls across the western U.S. and Canada. Their collective experience was shared with the Habitat Agency and the local burrowing owl experts. A brief summary of their background and experience are listed below:

- **Troy Wellicome**, PhD - Senior Species At Risk Biologist at Environment and Climate Change Canada. Chair of the Canadian Burrowing Owl Recovery Team. Professor at University of Alberta.
- **Dan Rosenberg**, PhD – Professor at Oregon State University, Co-Director of the Oregon Wildlife Institute.
- **Jeff Kidd**, MS - Since 1993 Jeff has been conducting raptor research and biological consulting services throughout California, the southwestern U.S. and more recently Scandinavia. Jeff has been directly involved in many soft release efforts for burrowing owls in southern California.
- **Shawn Smallwood**, PhD – Shawn Smallwood performs independent research and consulting to understand and resolve wildlife conservation problems. He prioritized research of wind turbine impacts on wildlife over the past 16 years.
- **Courtney Conway**, PhD – Dr. Conway was involved in early steps of the workshop development, but was ultimately unable to attend. He may still be used as an additional advisor to the Habitat Agency in the future.

During the course of the 2-day workshop, the panel of experts were taken into the field to observe the various areas known to be used by burrowing owls for nesting, foraging, and overwintering. The

sites included areas actively managed for owls as well as areas that could potentially serve as owl habitat with additional management actions. Upon reviewing the field sites and the population data that has been collected to date, the panel concluded that the population here in the south bay is at high risk of local extirpation and that the Habitat Agency should anticipate local extinctions at the remaining nesting locations. The small number of nesting locations makes this population extremely vulnerable to stochastic events (i.e., change in management, extreme weather) having a disproportionate effect on the overall population. The species experts reiterated that efforts to manage the current population are paramount, but that the Habitat Agency should begin more active recovery efforts (as described under Tier 3 actions in the Habitat Plan) immediately.

The recommendations that came out of the workshop are listed below and organized as Tier 1-3 to be consistent with the Habitat Plan burrowing owl conservation strategy.

Tier 1 – Stabilize the Existing Population

- Continue annual surveys, including an expansion of surveys in areas previously unoccupied by burrowing owls to confirm absence. It was stressed that protection and management of existing populations should be continued. In addition to the known breeding locations additional efforts should be made at the known wintering locations. These same locations may become increasingly important over time, and could even become future breeding locations.
- Continue vegetation management, manage for increased ground squirrel activity, increase prey abundance, and work to reduce predator pressure at all occupied nesting locations.
    - Potentially expand these activities to nearby locations with high quality habitat in order to attract owls to new locations.
    - Consider adding additional artificial cover for owls, such as large half-pipes or half-culverts. These have attracted owls to locations in the East Bay Area. This may increase nesting opportunities in locations where owls are already nesting.

Tier 2 – Allow for Passive, Natural Expansion of the Current Population to New Locations

- Expand, where possible, surveys in areas previously unoccupied by burrowing owls to confirm absence. Species experts wanted to make sure that no owls were being missed in the South Bay Area. Species experts stressed that management of areas with high habitat value is important, even if they are not currently occupied. These areas could become new nesting areas in the future, either naturally, or through intervention.
- Consider receiving relocated burrowing owls from other parts of the species range (e.g., southern California).
- Increase productivity of nesting owls through supplemental feeding of local nesting populations.

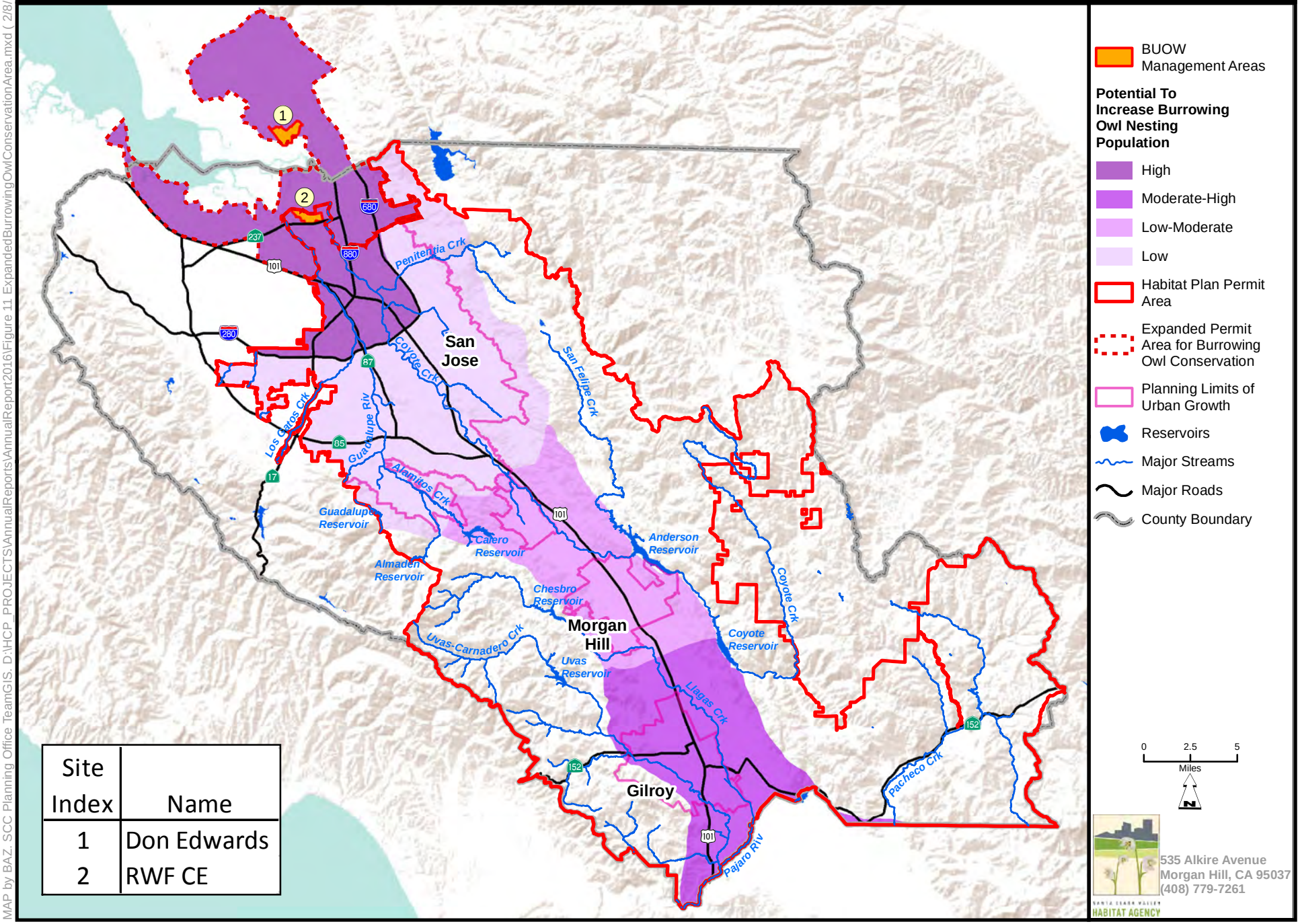
Tier 3 – experimental recovery activities to increase the number of owls on current nesting sites and in new locations.

- Institute an owl captive rearing and relocation program in tandem with the ongoing burrowing owl management activities already in process. Experts acknowledged that it can take time to establish relocation sites and captive rearing facilities, so starting as soon as possible will give the Habitat Agency the most options.

Conclusion

The species expert workshop reaffirmed the efficacy of the conservation actions that the Habitat Agency has been utilizing to stabilize the burrowing owl population in the South Bay Area. Though some new management techniques were discussed, the species experts generally thought the Habitat Agency should stay the course with protection and management of the remaining populations, coupled with continued annual surveys to monitor population status. The species experts were alarmed at the low numbers of breeding owls and the low number of breeding locations. They were similarly concerned at the lack of options available for additional management or habitat expansion at the established nesting sites. There was a general consensus that extirpation of the local population was likely to occur if active recovery measures were not utilized. In summary, the experts stated that the Habitat Agency should continue to do all of the things it is currently doing for burrowing owls, while also initiating an active recovery program which consists of some combination of captive rearing and relocation of burrowing owls in order to reduce the risk of local extinction.

Figure 11. Expanded Burrowing Owl Conservation Area with Management Areas



Site Index	Name
1	Don Edwards
2	RWF CE

MAP by BAZ. SCC Planning Office TeamGIS. D:\HCP_PROJECTS\AnnualReports\AnnualReport2016\Figure 11 ExpandedBurrowingOwlConservationArea.mxd (2/8/2017)

Site Name/Location	Number of Adults Present During the Breeding Season 2017 (2016, 2015, 2014)	Number of Adults Required to Meet Population Growth Target 2017 (2016, 2015, 2014)	Number of Young Fledged in 2017 (2016, 2015, 2014)	Number of Pairs 2017 (2016, 2015[a])	Number of Successful Pairs 2017 (2016, 2015[a])	Acreage
Within Permit Area						
San José International Airport	8 (12, 18, 35)	-	14 (21, 24, 34)	3 (6, 8)	3 (6, 8)	331
San José-Santa Clara Regional Wastewater Facility	34 (25, 23, 16)	-	29 (58, 46, 17)	17 (13, 10)	9 (12, 9)	492
Permit Area Subtotal	42 (37, 41, 51)	-	43 (79, 70, 51)	20 (19, 18)	12 (18, 17)	823
Within Expanded Burrowing Owl Conservation Area						
Shoreline at Mountain View	5 (4, 6, 8)	-	0 (4, 3, 5)	2 (2, 3)	0 (1, 1)	750
Don Edwards National Wildlife Refuge - Warm Springs Unit	12 (9, 6, 17)	-	7 (13, 13, 5)	4 (4, 3)	2 (2, 3)	719
NASA Ames Moffett Airfield	13 (12, 17, 24)	-	13 (12, 11, 20)	6 (6, 8)	4 (3, 3)	700
Other Locations	2 (0, 5, 4)	-	1 (0, 0, 0)	1 (0, 0)	1 (0, 0)	70
Expanded Area Subtotal	32 (25, 34, 53)	-	21 (29, 27, 30)	13 (12, 14)	7 (6, 7)	2,169
Total Breeding Season Adults						
	74 (62, 75, 103)	**82 (79, 76, 73)**	**64 (108, 97, 81)**	**33 (31, 32)**	**19 (24, 24)**	**2,992**

Chapter 6
Reserve System Management

Reporting Requirements

- A summary of all land and water management activities undertaken on and off the reserves and a discussion of the management issues facing the Habitat Agency.

The Habitat Agency completed a draft of the *Coyote Ridge Reserve Management and Monitoring Plan* for the Coyote Ridge Reserve. The Management and Monitoring Plan includes draft conceptual ecological models for natural communities and covered species that occur on the Coyote Ridge Reserve. In addition, the Santa Clara Valley Open Space Authority performed several management actions on the Coyote Ridge Reserve including invasive species control, grazing, restoration planning, and fencing and road repairs. Species that benefit from these actions include all of the covered species that occur on the Coyote Open Reserve, including Bay checkerspot butterfly, California red-legged frog, California tiger salamander, Mount Hamilton thistle, fragrant fritillary, Santa Clara Valley dudleya, smooth lessingia, Loma Prieta hoita, most beautiful jewelflower, and Metcalf Canyon jewelflower.

Reserve System lands are managed to meet the Habitat Plan's biological goals and objectives. The Santa Clara Valley Open Space Authority manages the Coyote Ridge Reserve on the behalf of the Habitat Agency consistent with its interim management plan. A long-term management and monitoring plan is under development along with conceptual ecological models to guide management and monitoring decisions.

Management Planning Activities

The Habitat Agency completed a draft of the *Coyote Ridge Reserve Management and Monitoring Plan* (Management and Monitoring Plan), which provides a detailed prescription for the long-term management and monitoring of the Coyote Ridge Reserve. The Habitat Plan requires the development of reserve management and monitoring plans. Each plan will identify, on the basis of site-specific conditions and objectives, the management, monitoring, and maintenance actions necessary to ensure that desired ecosystem characteristics and functions are established, maintained, and enhanced.

The Management and Monitoring plan is based on the *Management and Monitoring Plan for the Coyote Ridge Open Space Preserve*, prepared by Jodi McGraw for the Santa Clara Valley Open Space Authority. However, the plan goes beyond the Santa Clara Valley Open Space Authority document to address issues specifically required by the Habitat Plan as well as more robust monitoring requirement that are tied to the Habitat Plan's biological goals and objectives.

The monitoring portion of the Management and Monitoring Plan assesses the status of Habitat Plan covered species and natural communities and tracks the progress and effectiveness of management activities over time. Management actions will be informed by monitoring and will allow adaptive management actions to be implemented more effectively. The management and monitoring plan is focused solely on the Coyote Ridge Reserve, although the Habitat Agency may expand it if adjacent lands are acquired in the future. The current draft of the Management and Monitoring Plan is under

review and the draft is expected to be finalized in 2018, which will then undergo Wildlife Agency review.

Conceptual Ecological Models

Draft conceptual ecological models for natural communities and covered species occurring on, or with modeled habitat on, the Coyote Ridge Reserve were developed as part of the Management and Monitoring Plan. Conceptual ecological models identify cause-and-effect relationships between ecological processes and management actions. These "living" models serve as a framework for management decisions, and they function as reference points for the Habitat Agency's understanding of how management actions affect the natural communities and covered species in the Reserve System. A critical task in the development of these models is the identification of uncertainties related to ecosystem management and threats or stressors to natural communities and covered species.

The draft conceptual ecological models contain management actions or objectives that are specific to the Coyote Ridge Reserve but are still expected to apply to natural communities or species throughout the Reserve System. Accordingly, many of the reserve-specific management actions and objectives developed for the Coyote Ridge Reserve will also likely be applied—with adjustments based on site-specific conditions and adaptive management—to other reserves with the same natural communities and species habitat.

Management Implementation

Coyote Ridge Open Space Preserve

Management Activities

The following management activities were conducted on the Coyote Ridge Reserve by the Santa Clara Valley Open Space Authority.

- Treated approximately 101 acres of invasive plant species (barb goatgrass (*Aegilops triuncialis*), purple starthistle (*Centaurea calcitrapa*), yellow starthistle (*Centaurea solstitialis*) artichoke thistle (*Cynara cardunculus*) black mustard (*Brassica nigra*), and milk thistle (*Silybum marianum*)).
- Increased the area of artichoke thistle treatment and began treating barb goat grass in the reporting period.
- Conservation grazing achieved RDM targets and to support Bay checkerspot butterfly host plants.
- Began planning two pond restoration projects to provide habitat for covered species. The restoration is at 65% design.
- Began planning the cyclone (i.e., chain link) fence removal.
- Added rock to several sections of road to harden the surface.
- Patrolled the property each month, both on weekdays and weekends. Repaired several sections of fence to keep cattle contained.

Management Issues

The Santa Clara Valley Open Space Authority identified the following management needs on the Coyote Ridge Reserve.

- Improvements to grazing infrastructure (e.g., developing spring and installing new troughs).
- Fencing and protection of sensitive wetland, riparian, and pond habitats.
- Removal of the cyclone fencing and replacing dilapidated fencing with wildlife-friendly fencing.
- Roads and trail inventory and repair.

Chapter 7
Monitoring, Research, and Adaptive Management

Reporting Requirements

- A description of the landscape-, natural community–, and species-level monitoring undertaken during the reporting period and a summary of monitoring results, including species status and trends.
- A presentation of the conceptual ecological models developed to date and any changes to them that have taken place during the reporting period.
- A description of the adaptive management process utilized during the reporting period (e.g., consultation with science advisors, convening of the Independent Conservation Assessment Team).
- A summary of the recommendations or advice provided by the Wildlife Agencies, science advisors, and the Independent Conservation Assessment Team (if applicable) regarding adaptive management and monitoring.
- An assessment of the efficacy of habitat restoration and creation methods in achieving performance objectives and recommended changes to improve the efficacy of the methods.
- An assessment of the appropriateness of performance indicators and objectives (see Habitat Plan Table 7-1 for examples) based on the results of effectiveness monitoring, and recommendations for changes to performance indicators and objectives.
- The success of the conservations actions in meeting the biological objectives in Habitat Plan Chapter 5 and in Tables 5-1a through 5-1d.
- The location and extent of annual and cumulative compliance with the species occupancy requirements.
- The location, extent, timing, and success rates of implementation of all other conservation actions described in Habitat Plan Chapter 5 (e.g., preparing reserve unit management plans [including recreation plans], constructing artificial perches, monitoring).
- A summary of the monitoring program objectives, techniques, and protocols including monitoring locations; variables measured; sampling frequency, timing, and duration; analysis methods; and who performed the analyses.
- An assessment of the efficacy of the monitoring and research program and recommended changes to the program based on interpretation of monitoring results and research findings.

The inventory phase of the Habitat Agency's monitoring program occurred on both the Coyote Ridge Reserve and Calero Conservation Easement (Calero CE) during the reporting period. On the Preserve, monitoring included surveys for Bay checkerspot butterfly larvae, serpentine land cover, serpentine grassland composition, covered plant species, invasive plant species, and residual dry matter. The surveys documented approximately 70,000 Bay checkerspot butterfly larvae, healthy

serpentine grassland, seven covered plant species, restricted locations of invasive plant species (expected for barb goatgrass), and RDM. On the Calero CE, monitoring included land cover mapping, covered plant surveys, stream habitat assessments, and pond habitat assessments. The surveys documented 116 acres of serpentine rock outcrops and 9.15 acre of aquatic features, which includes 10 ponds and 9.2 linear miles of stream. Species documented within the Calero CE included California tiger salamander, western pond turtle, foothill-yellow legged frog, and five covered plant species.

The Habitat Plan provides a framework, guidelines, and specific suggestions to help the Habitat Agency develop and implement a detailed monitoring program during the initial years of Habitat Plan implementation. The Habitat Plan describes two types of monitoring: compliance monitoring and effectiveness monitoring.

Compliance monitoring is monitoring to determine if the requirements of the Habitat Plan are being implemented as described in the Habitat Plan. This Annual Report is the primary mechanism for tracking and reporting on Habitat Plan compliance issues.

Effectiveness monitoring is monitoring designed to evaluate the effectiveness of the management and monitoring actions described in the Reserve Management and Monitoring Plans at achieving their intended outcomes. In addition, each Reserve Management and Monitoring Plan divides the process for conducting effectiveness monitoring into three main phases: inventory, long-term monitoring and adaptive management, and targeted studies (i.e., research). These three phases will be ongoing throughout the Habitat Plan permit term. Collectively, the purpose of the monitoring and adaptive management program is to track Habitat Plan compliance, as well as inform and improve conservation actions—management activities in particular—in the Reserve System to ensure that the Habitat Plan achieves its biological goals and objectives. This chapter of the Annual Report is focused on reporting on the effectiveness monitoring requirements of the Habitat Plan.

Monitoring

Inventory Phase

The inventory phase provides baseline information to lay the foundation of the overarching monitoring and adaptive management program. The Habitat Agency inventories and assesses landscapes, natural communities, and species, as appropriate, within the Reserve System. This information builds largely on the data collected during pre-acquisition. In addition to the establishment of baseline information, the inventory phase focuses on the identification of key relationships between species, habitats, and processes; the prioritization of project implementation; the refinement of species groups; and the selection of biotic and abiotic indicators for evaluating ecosystem condition.

Coyote Ridge Open Space Preserve

Creekside Center for Earth Observation (Creekside Science) conduct baseline surveys for multiple covered taxa on the Coyote Ridge Reserve for the Habitat Agency in 2016 and 2017. Taxa included in the survey effort included Bay checkerspot butterfly (*Euphydryas editha bayensis*) and related vegetation composition, as well as all plant taxa covered by the Habitat Plan (Tiburon paintbrush (*Castilleja affinis var. neglecta*), Coyote ceanothus (*Ceanothus ferrisiae*), Mount Hamilton thistle

(*Cirsium fontinale var. campylon*), Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*), fragrant fritillary (*Fritillaria liliacea*), Loma Prieta hoita (*Hoita strobilina*), smooth lessingia (*Lessingia micradenia* var. *glabrata*), Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*), and most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*). Creekside Science also mapped areal extent of serpentine grassland, and key invasive plant species. Except where otherwise stated, the following subsections summarize the Draft Coyote Ridge Open Space Preserve Baseline Surveys Report (Creekside Center for Earth Observations 2017).

Bay Checkerspot Butterfly Surveys

In 2017, surveys for Bay checkerspot butterfly were conducted on the Coyote Ridge Reserve to estimate population and distribution and to establish a baseline. The Coyote Ridge Reserve contains 1,665.8 acres of the occupied Kirby/East Hills habitat unit (31%) and the 1,665.8 Kirby Recovery Unit (31%).

Larval sample sites were distributed across the landscape and grouped into "population zones" in which average densities and absolute numbers are estimated. The basic method of population estimation is timed counts of larvae in a stratified sampling design (Murphy and Weiss 1988, Weiss 1996). A total of 69 plots were sampled across the Coyote Ridge Reserve. In 2017, larvae were absent from six plots along the ridgeline and eight plots in the mid and low elevations.

The "Coyote Ridge" ridgetop population complex extending from north of Metcalf Canyon to Anderson Dam is the core of the Bay checkerspot butterfly distribution, and the habitat on the Coyote Ridge Reserve supports a high fraction of the overall population. The 2016 survey results indicated approximately 200,000 larvae on the Coyote Ridge Reserve, constituting 25–50% of the entire Bay checkerspot butterfly population on the Coyote Ridge. In 2017, the total number of larvae on the Coyote Ridge Reserve decreased to approximately 70,000 larvae. While similar population declines were seen across the majority of Coyote Ridge, the population in the area north of Metcalf Road doubled in 2017. The total number of larvae on Coyote Ridge was similar in 2016 and 2017, but the proportion of larvae on the Coyote Ridge Reserve dropped to less than 20% in 2017. The northern third of the Coyote Ridge Reserve consistently supports the highest local densities. In 2016, this population zone supported 151,000 +/- 81,000 larvae, and in 2017 it supported 59,000 +/- 36,000 larvae. This zone has historically had some of the highest densities of larvae on Coyote Ridge, with a peak estimate of 740,000 +/- 280,000 larvae in 2015 and has dipped to as low as approximately 5,000 larvae in 1993 and 2010.

The baseline surveys illustrate some of the variability inherent in Bay checkerspot populations. The recent declines over the past 2 years do not indicate patterns outside the norm of historical variability. The Coyote Ridge Reserve encompasses key Bay checkerspot butterfly habitat, and the current grazing management is a critical part of this taxon's long-term success here. The following are recommendations based on the Habitat Plan biological goals and objectives and the survey results.

1. Maintain the current grazing regime in the different pastures on the Coyote Ridge Reserve. Both the rancher and his livestock have shown they have the experience and skills necessary to balance their goals (removing mostly nonnative grass to feed livestock) with conservation goals, while responding to the extreme interannual climatic variations of the region. The current regime supports a rich variety of native species, both common and covered. Managers should be cautious about making major changes. More intensive techniques such as mowing and seeding are not recommended at this time.

2. Continue annual monitoring to track population changes. Large population fluctuations are natural, but require ongoing data collection to detect problematic declines.

Serpentine Land Cover

The covered species within the Coyote Ridge Reserve occur on serpentine soils, and the Habitat Plan therefore considers serpentine grassland a key land cover type. Objective 4.1 aims to "Protect 4,130 acres of serpentine grassland containing the full range of serpentine grassland associations and species including serpentine seeps and serpentine rock outcrops as part of the Reserve System within the study area." In GIS, Creekside Science created a fixed grid of points every 100 meters, then navigated to each of those 727 points using a Global Positioning System (GPS). At each point, the observer recorded whether they were on serpentine grassland, based on vegetative associates and exposed rocks. This mapping was done in May and June 2016. The points were converted to a polygon in the office using ArcGIS, where transitions between the soil types could be noted from the aerial imagery. Some areas were ground-truthed in August 2016. Serpentine grasslands comprise 1,232.1 acres on the Coyote Ridge Reserve. The land cover map will be updated in 2018.

Serpentine Grassland Composition Surveys

Serpentine grassland composition is monitored to provide a reliable system for detecting major changes in grassland composition in response to climate, topography, and management and to characterize Bay checkerspot butterfly habitat. Three plant species composition/cover monitoring clusters, consisting of four sampling transects each, were established on serpentine soils of the Coyote Ridge Reserve. The cluster in the southern end, called CROSP South, was installed in 2007 and originally had six transects, two of which were dropped this year to conform with other clusters. The CROSP North and CROSP Mid clusters, which are both on the north side of the Coyote Ridge Reserve at different elevations, were installed in spring 2016. These clusters were spread throughout the site to target different elevations and pastures/grazing regimes. The different elevations encompass different rates of nitrogen deposition. Each of the four clusters has a 50 meter transect set up in a warm (south-facing >10° slope), moderate (flat), cool (north-facing >10° slope, and very cool (north-facing >20° slope) topoclimate. Data is collected using a quadrat placed at uniform distances along the tape and the percent relative cover of each plant species is recorded with the quadrat. Monitoring is conducted during the peak spring flowering season (this year late March to late April). Data collected included cover of Bay checkerspot butterfly host and nectar sources, nonnative annual grass, native perennial grass, perennial forbs, annual forbs, native cover, nonnative cover, native richness, thatch, and bare ground. The system is designed to monitor large changes in composition from year to year (interannual) and across topographic and edaphic (soil) gradients, while at the same time being efficient for data collection and interpretation. Key findings appear below, followed by survey details (Creekside Center for Earth Observation 2017).

The CROSP North cluster contains consistently highest quality habitat, with the highest cover of purple owl's clover (*Castilleja exserta)*, goldfields (*Lasthenia* spp.), perennial grass, annual forbs, native cover, and native richness. It was also high in perennial forbs and native richness, and had moderate cover of dwarf plantain. The CROSP Mid cluster tended to have mid-range values, but stood out as having the highest dwarf plantain and annual forbs. It also had the second highest native cover and richness. The CROSP South cluster was consistently lowest quality relative to the other clusters. It had the lowest owl's clover, goldfields, perennial grass, annual forbs, perennial forbs, and native cover. Annual grass and nonnative cover were high, but they were also high at the other sites this year. Dwarf plantain and native richness remained high and the site is still

considered high quality habitat that supports Bay checkerspot butterfly. While the Coyote Ridge Reserve continues to have high quality serpentine grassland habitat, the high rains in 2017 apparently favored nonnative annual grass, which had evenly high cover across all three clusters. The dramatic increase in nonnative annual grass cover is the main issue of the season throughout the property and others throughout Coyote Ridge.

Native cover was lowest at South (28.2%) and highest at North (46.1%). Native richness followed the same pattern, being lowest at South (11.7 species) and highest at North (13.6 species). Bay checkerspot butterfly host plant (i.e., dwarf plantain (*Plantago erecta*)) nearly doubled across all the cluster this year, with CROSP Mid have the highest increase from 4.6% to 10.7%. Cover of purple owl's clover, another nectar source, was highest in CROSP North at 1.4% and lowest in the CROSP South at 0.2%. The CROSP South cluster had a moderate year, since some years had barely Bay checkerspot butterfly nectar sources (goldfields, tidy tips (*Layia platyglossa*), jeweled onion (*Allium serra)* and muilla (*Muilla* spp.) were generally at low levels across the Coyote Ridge Reserve. Goldfields was high in CROSP North (8.1%) and low at CROSP South (0.4%) while tidy tips, jeweled onion and muilla were low (between 0.2 and 0.6 % cover) across the three clusters.

Annual forbs are almost entirely native on CROSP's serpentine soils. The forbs (non-woody, non-graminoid plants) mostly include what are commonly called wildflowers. Nonnative forbs include thistles and other broadleaf weeds, but these are mostly not present in the serpentine soil areas of the property. Annual forbs were highest at CROSP Mid (30.2%) and lowest at CROSP South (20%). Cover at CROSP South was still moderate. The perennial forbs, which are all native, were highest at CROSP North (2.6%) and lowest at CROSP South (2.2%). Historically, this is low for CROSP South.

The nonnative cover in the region's serpentine grasslands is almost entirely nonnative annual grass, which are undesirable because they and their associated thatch compete with forbs, especially the annual forbs that are important Bay checkerspot resources. The native perennial bunchgrasses do not tend to outcompete these plants and are considered desirable. All perennial grasses measured were native. CROSP North hit an all-site historical high at 3.9% cover, and CROSP South had the lowest with 1% cover. This is a moderate to low value for CROSP South. Nonnative annual grasses increased significantly this year from 5.6% to 16.3% at CROSP North and from 8% to 15.6% at CROSP Mid. CROSP South did not increase from last year but was still high at 15.7%. Overall, these are high cover values for nonnative annual grass. Thatch cover remained relatively low at all sites (<3.6%).

Bare ground was highest at CROSP South (48.7%) and lowest at CROSP Mid and CROSP North (33.4% and 33.6% respectively). Historic values at CROSP South show this was a moderate year.

This survey was meant to serve as a baseline, and at this point no changes to management are recommended, even though some sites were slightly higher quality than others. Results will be used to determine if different pastures or parts of the property are responding similarly to weather, or whether management changes (likely changes in grazing pressure) are recommended, in the context of managing for Bay checkerspot butterfly and overall native cover and richness.

Covered Plant Surveys

Santa Clara Valley Dudleya

Santa Clara Valley dudleya was searched for during grid mapping over the entire property; staff navigated to each of 727 points on a 100-meter grid in the previous reporting year (May and June of

2016). The plant was marked present if found within a 10-meter radius. Because an individual with multiple rosettes can have the same appearance as multiple individuals, and because the plants can grow in dense clusters with multiple rosettes touching, it is impossible to distinguish an individual without guessing or damaging plants. To create a precise and repeatable count, rosettes were counted. Creekside Science also uses rosettes as counting units on neighboring Santa Clara Valley Transportation Agency and Silicon Valley Land Conservancy properties on Coyote Ridge.

In 2017, the Habitat Agency asked that plants be mapped to rock outcrops. Using the distribution grid, staff navigated to occupied points and more thoroughly mapped occupied rock outcrops as points. Countless additional areas throughout the Coyote Ridge Reserve were visited based on professional judgment of habitat potential. When dudleya were located, the mapper immediately began collecting GPS points while walking through an area with a radius up to 20 meters. For each point, the radius searched was reported, as well as a log max of rosettes (classes 1–3, 4–10, 11–30, 31–100, 101–300, 301–1000, 1001–3000). The first two classes were later collapsed on the map legend to 1–10 rosettes to better fit the large scale of the project (raw data were preserved). The midpoint of the log estimate of each point was added to create a log estimate of the occurrence (i.e., log classes 1–3, 4–10, 11–30, and 31–100 were assigned midpoints of 2, 6.5, 20, and 65). The midpoints were added to create a log scale estimate for each occurrence.

A distinct occurrence is defined ecologically as a group of individuals on a rock outcrop or on clusters of rock outcrops which are separated by less than 0.25 mile (Santa Clara Valley Habitat Agency 2017). Each point where the plant was recorded was given a 1/8-mile buffer in GIS to delineate separate occurrences. The point data were also converted to polygons (using point to raster, then raster to polygon conversion tools). Thus, only two occurrences were found, but one comprised almost the entire property. The occurrence extends beyond Coyote Ridge Reserve borders onto neighboring properties. Santa Clara Valley dudleya were not found off serpentine soil and are not common along the flatter areas along the ridgetop, even in serpentine soil. Creekside Science collected 463 GPS points total; adding up midpoints, the log scale estimate is 66,905 Santa Clara Valley dudleya individuals on the Coyote Ridge Reserve.

Santa Clara Valley dudleya is nearly ubiquitous on rock outcrops throughout the serpentine grasslands of the Coyote Ridge Reserve. Santa Clara Valley dudleya are well distributed and abundant on the Coyote Ridge Reserve. As expected, dudleya were not found off serpentine soil. They were also not common along the flatter areas along the ridgetop, even in serpentine soil. While some trampling and herbivory was observed, it seemed to be within the normal range of variation for this species. Plants overall seemed healthy, with no obvious pests or disease noted.

Mount Hamilton Thistle

All drainages and seeps on the Coyote Ridge Reserve were surveyed between May and October 2016, including those without previously mapped occurrences. In 2016, five occurrences of Mount Hamilton thistle with an estimated total of 22,000 individuals were identified. In 2017, Creekside Science installed 20 index plots[8] distributed throughout the Coyote Ridge Reserve to capture a range of elevations, watershed position, and grazing regimes. Plants were only counted if the largest leaf was at least 10 inches long. Using 2016 distribution data collected by Creekside Science, general

[8] Index plots are used to collect demographic information and to collect trend data throughout the Coyote Ridge Reserve. They can also be used to create a rough population estimate.

sites were selected in the office by looking at total available plots in each stratum and drainage. This provided geographical dispersion throughout the Coyote Ridge Reserve.

There are two types of colonies: linear and floodplain/wide seep. The linear colonies are most common on the Coyote Ridge Reserve and are found where plants are restricted to a relatively narrow stream channel. The floodplain/wide seep shapes occur when the stream channel widens and even combines with other channels as it enters the floodplain, or in low gradient seeps. The two shapes of colonies are monitored differently. Linear plots extend meters downstream, with four pieces of rebar delineating the upper and lower extents of the plot on each side of the drainage while floodplain/ wide seep plots contain a single 1-meter-wide transect set up perpendicular to flow, marked on each end with rebar. Mount Hamilton thistle is much more numerous and dense in the floodplain/wide seep plots.

Surveys during the reporting period identified 13 occurrences of Mount Hamilton thistle on the Coyote Ridge Reserve. All six CNDDB occurrences were identified, although some colonies within occurrences were not located. Occurrence #8 from CNDDB was split into four occurrences based on the discrete drainage definition, and four new occurrences were located. Many of the occurrences continue downhill onto adjacent properties. The 2017 population estimate was 79,073, which is an approximate 70% increase from the previous reporting year. Although many occurrences remain below the desired 2,000-plant minimum, in general this taxon is in excellent condition at this site. Mount Hamilton thistle occurrences on the Coyote Ridge Reserve are numerous and robust.

Loma Prieta Hoita

No additional baseline surveys for Loma Prieta hoita were conducted within the reporting period. As documented in the previous reporting period, there are two occurrences in the Coyote Ridge Reserve. There are an estimated 110–220 plants across the two occurrences with one occurrence of 10–20 and the other of 100–200.

Smooth Lessingia

Smooth lessingia is ubiquitous on the serpentine soils of the Coyote Ridge Reserve. No additional baseline surveys for smooth lessingia were conducted within the reporting period. As documented in the previous reporting period, there is one large occurrence of smooth lessingia with an estimated 27.5 million plants.

Most Beautiful Jewelflower and Metcalf Canyon Jewelflower

Jewelflowers were searched for during grid mapping over the entire property for multiple species in May and June 2016 when jewelflowers were in bloom and fruit. Staff navigated to each of 727 points on a 100-meter grid. The plant was marked present if found within a 10-meter radius. Log-scale density values were also recorded at each point, as well as dominant color.

In May and June 2017, the distribution data were used to create a series of permanent index macroplots used to track population trends over time. Creekside Science installed eight permanent macroplots (1-8) and conducted a census on six additional areas without placing permanent plots (Map 29). (Layout details are shown in Appendix F.) In future years, Creekside Science will decide whether to shift to ten permanent macroplots to account for extremely low number in mapped areas or to repeat this protocol. During the peak flowering period, density is counted along 0.5- by 50-meter transects with a restricted random distribution within permanent 50- by 50-meter macroplots dispersed throughout the property. Such long skinny transects produce good results in

areas with clumped plant distributions. A single, long transect tends to encounter both dense and sparse patches, minimizing variability between sampling units. These densities give an estimate of the jewelflower in each macroplot, to the 80% confidence level. These numbers will be tracked over time to detect changes.

In 2016, there were eight occurrences of Metcalf Canyon jewelflower and two occurrences of most beautiful jewelflower on the Reserve. There was an estimated 3.1 million plants across the most beautiful jewelflower occurrences and 980,000 plants across the Metcalf Canyon jewelflower occurrences. In 2017, there were approximately 800,000 plants across the most beautiful jewelflower occurrences and 23,000 plants across the Metcalf Canyon jewelflower occurrences. Three of the eight Metcalf Canyon jewelflower occurrences had no individuals observed.

Fragrant Fritillary

All three of the previously mapped CNDDB occurrences of fragrant fritillary were identified in 2017. Targeted searches took place in a 200-meter radius of the mapped occurrences. The northern occurrence is estimated at 14,000 to 23,000 plants. The southern occurrence is estimated at 41 plants. The number of plants in the third occurrence have not yet been determined.

Invasive Plants

Creekside Science mapped the following invasive plants on Reserve: barbed goatgrass, purple starthistle (*Centaurea calcitrapa*), yellow starthistle, artichoke thistle (*Cynara cardunculus*), mustards (*Brassica*, *Sisymbrium*, and *Hirschfeldia* spp.), and milk thistle (*Silybum marinum*). In GIS, Creekside Science created a fixed grid of points every 100 meters, then navigated to each of those 727 points using GPS. At each point various taxa were noted as present if seen within 10 meters. Density was also recorded on a log scale. This mapping was done in May and June 2016, when the bolting or blooming weeds were visible. Weeds were further ground-truthed in June to create polygons for all but barbed goatgrass. Barb goatgrass points were converted to raster, then converted to polygon in GIS. Barb goatgrass was found to be widespread throughout the Reserve grasslands, both on and off serpentine soils. Most of the other invasive plant species are largely restricted to non-serpentine grasslands on the Reserve.

Species Occupancy and Occurrence Requirements

The Reserve System is required to support occupied habitat for five covered wildlife species (**Table 16**) and protect occurrence of all nine covered plant species (**Table 17**). Baseline surveys at the Reserve in the reporting year detected habitat occupied by Bay checkerspot butterfly, Santa Clara Valley dudleya, Mount Hamilton thistle, smooth lessingia, most beautiful jewelflower, Metcalf Canyon jewelflower, Loma Prieta hoita, and fragrant fritillary. Surveys in the previous reporting year have also documented habitat occupied by California tiger salamander and California red legged frog within the Reserve System.

Calero Conservation Easement

The Calero CE is the first site targeted for existing open space enrollment by the County. It was anticipated to be enrolled in 2017, but the timeline was extended to allow for updates to the conservation easement agreeable to the County, Habitat Agency, and Wildlife Agencies. Baseline surveys were contracted ahead of enrollment due to the seasonal species survey requirements. The following subsections summarize the 2017 Covered Plant Species Inventory (Nomad Ecology

2017a), 2017 Stream Habitat and Restoration Assessment (Nomad Ecology 2017b), and the 2017 Baseline Wildlife Survey Report (Nomad Ecology 2017c).

Land Cover Mapping

A total of approximately 116 acres of serpentine rock outcrops were mapped in the Calero CE. Due to the difficulty of mapping landscape-scale features such as rock outcrops, and abundant and contiguous covered plant populations such as smooth lessingia, more sophisticated remote sensing methodologies were employed. Nomad Ecology utilized multispectral high-resolution aerial photography, image analysis software, and data collected in the field to map and estimate population size and extent.

In addition, aquatic features including wetlands and ponds were also a target of these studies. The initial land cover type mapping completed during the development of the Habitat Plan identified four ponds as the only aquatic features within the study area. Three of these ponds are located in the southern block and the fourth lies within the 13-acre parcel north of the Alamitos-Calero Canal. During the 2017 survey, more ponds and additional aquatic land cover types were also recorded including serpentine seep, seasonal wetlands, non-serpentine seeps, and additional ponds. Although non-serpentine seeps, mapped simply as "seeps" were not specific targets for these surveys but were included as incidental observations. A total of 9.15 acres of aquatic features were mapped within the Calero CE boundary.

Covered Plant Surveys

During plant surveys conducted in March, April, June, and September 2017, covered plant species observed included Mount Hamilton thistle (*Cirsium fontinale* var. *campylon*), Santa Clara Valley dudleya (*Dudleya abramsii* subsp. *setchellii*), Loma Prieta hoita (*Hoita strobilina*), smooth lessingia (*Lessingia micradenia* var. *glabrata*), and most beautiful jewelflower (*Streptanthus albidus* subsp. *peramoenus*). Overall, a total of 16 occurrences of covered plant species were recorded with an estimated number of over 17,296,913 individuals represented. It should be noted that the physical condition, population size and abundance may have been affected by weather patterns during the 2016/2017 rainy season, which had above average precipitation. The results for each individual plant species are provided below.

Mount Hamilton Thistle

Two occurrences of Mount Hamilton thistle was observed consisting of approximately 599 individuals in total. One occurrence is located at the Calero Restoration Project pond mitigation site and consists of approximately 111 individuals (H. T. Harvey and Associates 2017). The other occurrence, located near the Lisa Killough Trail, consists of approximately 488 individuals. This occurrences was confirmed as CNDDB occurrence #57 (Nomad Ecology 2017a). The habitat observed at both locations is characterized as the Habitat Plan land cover type serpentine seep.. During the Calero Restoration Project, a single individual was also identified at the wetland mitigation site (H. T. Harvey and Associates 2017).

Santa Clara Valley Dudleya

A total of six occurrences of Santa Clara Valley dudleya were observed consisting of a total of 8,381 individuals. Two of the six occurrences are new occurrences that were not previously identified in

CNDDB. These new occurrences total approximately 650 plants with one occurrence containing approximately 100 plants and one occurrence containing approximately 550 plants.

Loma Prieta Hoita

A total of two occurrences of Loma Prieta hoita were observed that total approximately 130 individuals; one occurrence contains approximately 110 individual and one occurrence contains approximately 20 individuals. Both occurrences were previously recorded in CNDDB.

Smooth Lessingia

A total of three occurrences of smooth lessingia were observed that total approximately 17,880,161 individuals. All three occurrences were previously recorded in CNDDB.

Most Beautiful Jewelflower

A total of four occurrences of most beautiful jewelflower were observed that total approximately 500 individuals. One of these occurrences makes up the bulk of the individuals at approximately 400 plants. In addition, one of the four occurrences is a new occurrence that was not previously identified in CNDDB; this new occurrence totals approximately 30 individual plants.

Stream Habitat Assessment and Survey Data

The Calero CE contains 9.2 linear miles of stream. A stream habitat assessments and visual encounter surveys were conducted in late July and early August to maximize the potential for observing foothill yellow-legged frogs. All stream habitat within the Calero CE was assessed for its potential to support foothill yellow-legged frog, California red-legged frog, and tricolored blackbird, as well as potential for restoration and enhancement opportunities. A daytime visual encounter survey for covered wildlife was also performed during the assessment. Photos of all stream reaches were taken and data was recorded (e.g., numbers of individuals, life stages, water temperature, canopy coverage, substrate) when special status species were observed. In unoccupied reaches, data was collected to try and determine if habitat was suitable and/or why the reaches were unoccupied. The stream restoration assessment focused on stream reaches that had discontinuous canopy or were accessible from roads for future planting and maintenance of restoration projects.

The survey found that overall streams on site are in good condition and characterized by deep shaded canyons, and an almost continuous canopy characterized by Mixed Oak Woodland and Forest with smaller amounts of Mixed Riparian Woodland and Forest. There were two stream reaches—Llagas Creek and an unnamed tributary to Llagas Creek—occupied by foothill yellow-legged frog. These two reaches occupied by foothill yellow-legged frogs are the only two stream reaches that are mapped as Category 1 streams within the Calero CE per the Habitat Plan. These two stream reaches also have potential to support breeding California red-legged frog, however no California red-legged frogs were observed during the stream surveys. No suitable habitat for tricolored blackbird was observed within the stream reaches.

Riparian and stream restoration and enhancement opportunities along streams in Calero CE were limited based on the continuous canopy along streams. Many creek channels were incised in deep canyons with steep slopes which precludes restoration activities to connect the streams to their floodplains. Restoration opportunities along Llagas Creek, which provide foothill yellow-legged frog habitat, are limited due to space constraints as the southern bank is private land and Casa Loma Road is immediately to the north.

Pond Habitat Assessment and Survey Data

There are a total of 10 ponds on the Calero CE. Surveys conducted for California red-legged frog and California tiger salamander on the Calero CE during the reporting period included daytime habitat assessments, daytime and nighttime visual encounter surveys, and larval dipnet surveys. All surveys were conducted during the months of March, May, and September 2017. Data collected during the daytime habitat assessments included size of aquatic features, maximum depth recorded, emergent, submerged, and overhanging vegetation information, weather data, species observed, and any other notable information (such as threats observed). The nighttime visual encounter survey techniques adhered closely to the October 2003 *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander and the USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog.*

For the larval survey effort for California tiger salamander and California red-legged frog, ponds were sampled using D-shaped or similar, long-handled dipnets with 1/8th inch (3.2 millimeters) or finer mesh. Seine use was not practical for the ponds due to emergent and submerged vegetation and also due to small size of some ponds that allowed for complete coverage of the pond utilizing dipnet survey techniques. Instead of using a seine, additional dipnet sweeps were conducted at the ponds (50 total) covering representative portions of each aquatic feature.

Pond Habitat Assessment Data

The ponds were visited throughout different times of the year to note changing conditions of the ponds. Five of the ten ponds were still holding water at the end of September 2017 and are therefore assumed to be perennial ponds (Ponds 2, 4, 12, 16, 18). Ponds 2, 4, and 18 are large, deep ponds, while ponds 12 and 16 are very small and shallow and only remain wet because they are seep fed. The other five ponds are seasonal and dried at various times of the year, with all but one being wet in late May and dry in late September (Ponds 1, 11, 13, 17). Pond 1 is a large, deep pond more similar to the perennial ponds, while Ponds 11, 13, and 17 are smaller ponds that contain a sufficient depth to support breeding amphibians. Pond 5 was the only pond already dry during the late May visit. Ponds 12, 16, and 5 are not likely to be able to support breeding California tiger salamander or California red-legged frog.

Of all the features assessed, Ponds 2 and 4 were the only features that have suitable emergent vegetation to potentially support breeding tricolored blackbird populations, however none were observed at any of the ponds during the assessment.

Six of the ten surveyed ponds had bullfrogs present, and Ponds 2, 4, and 18 (all large, permanent ponds) contained large populations of breeding bullfrogs.

Pond Survey Data

California tiger salamander larvae were observed at one pond (Pond 17). Seven larvae, all close to metamorphosis, were captured during the larval dipnet survey at Pond 17. The pond was small and shallow at the time of the survey, and likely can only support a small population. It is probable that Pond 17 would hold more water and be able to support a larger breeding population when the berm is functioning properly.

Western pond turtles were observed in two of the ponds (Ponds 2 and 11). The populations observed were small, 5 individuals at Pond 4, and 3 individuals at Pond 11. It is possible that Pond 2 supports a larger population of turtles. It is difficult to know the actual population because the pond

is very large and there is limited basking habitat to help count individuals. Bullfrog presence at this pond likely reduces the recruitment of the population, by feeding on hatchling and juvenile turtles. Pond 11 is seasonal, which limits its ability to support a larger population of turtles.

No California red-legged frogs were observed during the surveys.

Research

Research provides new information or direction regarding management actions. The purpose of research is to inform management in cases where species and natural community response to management is uncertain. The following research activities were funded by CDFW's NCCP Local Assistance Grant (LAG) Program, which provides state funds for urgent tasks associated with the implementation of approved NCCPs.

Current Grant-Funded Research Activities

Coyote Valley Bobcat and Gray Fox Connectivity Study

The Santa Clara Valley Open Space Authority was awarded a LAG for the *Coyote Valley Bobcat and Gray Fox Connectivity Study.* This study is jointly funded and implemented by the Santa Clara Valley Open Space Authority, Gordan and Betty Moore Foundation, Peninsula Open Space Trust, Pathways for Wildlife, and UC Santa Cruz. Its objective is to identify how bobcat and gray fox (both highly mobile carnivores but different in their ecology) movement patterns and habitat needs affect how these species utilize habitat within Coyote Valley. With the use of advanced GPS-enabled collars, fine-scale movement data will help identify frequency and location of road-crossings, movement corridors across the landscape, and preferred habitat. This study represents a timely and necessary research opportunity to help prioritize land acquisition and understand the land uses that are compatible with wildlife movement, as well as identify key areas where wildlife crossings are needed. The results of this study will not only directly inform land conservation, transportation planning and land use in the region, but will also inform wildlife corridor design statewide.

The first field season where animals were collared was from May–July 2017. Eight bobcats were collared and a camera array was set up throughout Coyote Valley to look for bobcats and gray foxes. During the first trapping season no gray fox were collared, and they were not detected in the cameras, nor was evidence of them found through prints or scat. Extensive camera monitoring (August–October) yielded one gray fox detection at the Highway 101 Coyote Creek underpass.

The second field season began in November 2017. To date, an additional 15 bobcats have been collared for a total of 23 cats. There have been two mortalities of collared bobcats so far. Analysis has begun on the data and will continue once the field season is over. Due to the low detections of gray foxes, the project team will not attempt to trap foxes in the future for this project, therefore at the conclusion of the second field season trapping will end and focus on data downloads and data analysis. Road kill surveys have been conducted weekly throughout the project (Galli Basson 2017 pers. comm.).

Tricolored Blackbird Nesting and Foraging Monitoring Project

The Habitat Agency was awarded a grant from CDFW to monitor breeding and winter tricolored blackbirds in the Habitat Plan area. In March 2017, Talon Ecological began monitoring tricolored blackbird in Santa Clara County to better understand this species nesting and foraging patterns. The objectives were to determine where tricolored blackbirds are nesting and foraging, when the nesting season occurs, if nesting attempts are successful, what habitat tricolored blackbirds use during the non-breeding season, and to identify any potential threats and conservation strategies. Throughout the nesting season (March–July), historic breeding sites and suitable breeding habitat were surveyed weekly. Two historic breeding colonies were active in the Permit Area and both successfully fledged young; the colonies collectively contain approximately 700 tricolored blackbird individuals. In addition, a probable new breeding colony was identified through observation of individuals carrying food in flight lines to a pond on private property and out of view. A single singing male, which was mimicking a red-winged blackbird, was seen throughout the nesting season at Calero. However, no females or nesting behavior were observed. Non-breeding surveys identified many sites with foraging and wintering tricolored blackbirds. The area with the greatest concentration of tricolored blackbirds is Coyote Valley, where approximately 500 individuals were observed. Other wintering sites include Ulistac Natural Area, Guadalupe River, scattered sites along the edge of the San Francisco Bay, such as Don Edwards National Wildlife Refuge, and San Antonio Valley. Tricolored blackbirds were associated with short-vegetation grassland or agriculture, as well as recently tilled areas that are in close proximity to standing water during the non-breeding season.

These preliminary results suggest that tricolored blackbirds are successful breeders at low numbers within Santa Clara County. If these breeding colonies are disturbed or the habitat is altered, nesting tricolored blackbirds in Santa Clara County could be extirpated. The Santa Clara Valley and San Antonio Valley prove to be important wintering habitat for tricolored blackbirds and conservation efforts must focus on protecting breeding colonies and suitable breeding habitat, as well as important wintering habitat (Phillips 2017).

Alternative Grassland Grazing Monitoring Methods Assessment

The Habitat Agency was awarded a grant from CDFW to conduct a study entitled, *Alternative Grassland Grazing Monitoring Methods Assessment*. The Habitat Agency contracted with ICF International (supervised by Troy Rahmig; Kasey Allen, Geospatial Analyst) to conduct the project in partnership with The Nature Conservancy (TNC; principally Scott Butterfield, Regional Ecologist) and LD Ford Rangeland Conservation Science (Larry Ford and Pete Van Hoorn) (LD Ford Rangeland Conservation Science et al. 2017). The primary purpose of the project was to test whether a new monitoring tool ("RDMapper," developed by TNC) using remote sensing of spring herbaceous vegetation, past field-based measures of fall RDM (Bartolome et al. 2006), and other information to predict RDM is more effective than conventional field measurement in terms of costs and relevance to management decisions for monitoring. In spring 2016 the team measured herbaceous biomass and height at the end of the growing season in grazed grasslands at a subset of the properties covered by the study, both with TNC conservation easements. A methodology for RDM estimation and mapping consistent with that described in Guenther and Hayes (2008) was applied to spring conditions. To allow for direct comparison with the RDMapper approach, the team will use the same RDM objectives (minimums) that TNC has set for each property.

The results indicated that the predictive capability of TNC's RDMapper can enable agencies to improve grasslands management by focusing their limited monitoring resources on those properties

at risk of being below the minimum standard for RDM compliance. RDMapper could in fact be game-changing for state and federal lands-management agencies that currently struggle to manage tens or hundreds of thousands of acres of grasslands. Based on our experience applying RDMapper, the study offers the following conclusions:

- Potential advantages of using RDMapper includes proactive grazing management, collaborative management, cost savings, and prioritized on-the-ground monitoring.
- Potential issues with RDMapper include the requirement for RDM data categorized by management unit (collected and store consistently and available for at least 5 years), consistent grazing regimes, clearly defined grazing objectives, including quantitative RDM standards.
- TNC should continue to test with a diverse set of large landholders to identify potential issue with the tool's application to grazing management and monitoring.
- To encourage broad usage, TNC should consider developing user guides, training videos, and/or a set-up service that provides potential users direct initial assistance with mapping and results interpretation.

Monitoring Nitrogen Deposition in the Santa Clara Valley

In 2017, the LAG grant *Monitoring Nitrogen Deposition in the Santa Clara Valley* was awarded to the Habitat Agency and is being implemented by Creekside Science. The following summarizes the Annual Progress report on Nitrogen LAG grant: Monitoring Nitrogen Deposition in the Santa Clara Valley (Weiss, S, Ph.D. 2017). began (and has almost completed) a review of nitrogen (N)-deposition studies relevant to the Habitat Plan. In addition, Creekside Science compiled 12-kilometer Community Multiscale Air Quality grids from the Environmental Protection Agency website and has begun conducting spatial and trend analysis. The model indicates substantial decreases in oxidized N-species (confirmed by Bay Area Quality Management District measurements) and increases in reduced N-species over the last decade. Passive sampler data from 2002–3 and 2010–11 confirms the trends.

A review of published literature on N-cycling in serpentine grassland has identified that the early rainy season is the key period for nitrate leaching. High levels of soil nitrate and ammonium are present because of dry season mineralization and nitrification, surface accumulation of nitric acid vapor and ammonia dry deposition, and a burst of microbial activity following soil wetting. Uptake by germinating annuals, newly active perennials, and microbes is minimal, and much of the accumulated nitrate can leach below the rooting zone into the fractured bedrock once sufficient rainfall has saturates the soils.

In addition to the literature review and modeling, several dozen springs, seeps, and streams were visited and sampled in 2017. A map of the springs, and ancillary data (such as development as water sources for ranching) are being compiled. Further GIS work will identify catchments. A field visit with Dr. Barbara Bekins of the U.S. Geological Survey (a hydrogeologist who works on serpentine) provided important background on the structure of the soils, rocks, and springs.

Numerous sites were sampled for nitrate during 2017, and a subset has been analyzed for N-isotopes. Sites include Coyote Ridge, Tulare Hill, Harvey Bear Ranch, Santa Teresa County Park,

Edgewood Preserve, the Cedars, Pepperwood Preserve, and Serpentine Prairie. Key results and recommendations include the following.

- Spring waters have highly elevated nitrate, up to 5.4 parts per million NO_3-N (>50% of the drinking water standard) at low elevations close to the urban fringe. These were the highest nitrate levels detected from non-agricultural landscapes. Summer and fall baseflow from Coyote Ridge and Tulare Hill all had elevated nitrate (> 2 parts per million), up to 5.4 parts per million NO_3-N (>50% of the drinking water standard).
- Sampling should be restricted to sites that provide flowing water during summer and fall. Winter sampling proved to be too variable because of shallow flowpaths dominating the discharge. A preliminary set of 20 springs has been selected.
- Cattle troughs fed by spring boxes are favorable sites, because the water is captured below ground and fed into a pipe, reducing opportunities for modifications of groundwater nitrate concentrations.
- The isotope data ($\Delta^{17}O$) indicate that 50-60% of the nitrate in baseflow in summer 2016 was unprocessed atmospheric nitrate that flushed directly through the soils. The low biomass ecosystem, seasonality of deposition and biotic activity, and fractured rock all contribute to this high level of flushing. Additional samples are going to be analyzed so that robust time-series in key sites can be compiled.

Evaluating Threats Posed by Exotic *Phytophthora* Species to Endangered Coyote Ceanothus and Selected Natural Communities in the Habitat Plan Area

Phytophthora species are currently impacting populations of Coyote ceanothus in the Habitat Plan area and have potential to seriously degrade populations of other covered plants and natural communities in Habitat Plan area. The Habitat Agency was awarded a grant from CDFW to study *Phytophthora* in the Habitat Plan area and utilize this information to develop a management strategy to minimize introductions of pathogens and limit/contain impacts in affected areas. Phytosphere Research developed a sampling strategy that uses GIS data to determine where various priority habitat types might be exposed to contamination from roads, trails, past restoration plantings, or other known risk factors. The candidate areas to sample identified through this process were prioritized in a plan that was submitted to the Habitat Agency.

Phytophthora samples have been collected from all the Santa Clara County Parks and Santa Clara Valley Open Space Authority preserves and other Reserve System areas with high priority vegetation types. Based on sampling to date, the greatest threat to Coyote ceanothus populations is associated with the extensive infestation involving multiple *Phytophthora* species in Coyote ceanothus habitat on the Anderson Dam abutment. Preventing spread of contamination from this site to nearby stands should be a high priority. At two other Coyote ceanothus habitat sites, *Phytophthora* has been recovered from water and pond edges near the stands. Of 169 samples processed to date, 45 samples have resulted in *Phytophthora* detections. Approximately 14 *Phytophthora* species or taxon have been found in sampled locations to date, about a quarter of the approximately 60 species or taxa found in sampled transplanted nursery stock in restoration plantings in Santa Clara County. Most detections are associated with identifiable risk factors. Ten *Phytophthora* species were recovered from water, and several were from transplanted nursery stock (Swiecki, Ph.D.2017).

Modeling Climate Change Effects on Pond Hydroperiods in the Coyote Valley

The Guadalupe-Coyote Resource Conservation District was awarded a FY2015–2016 LAG to: 1) collect hydrologic and bathymetric data from a representative sample of ponds within the future Reserve System, 2) develop predictive models to identify which ponds would likely be most susceptible to future climate change effects (e.g., drought), and 3) develop a rapid hydrologic assessment tool that could be used by land managers and the Habitat Agency to prioritize ponds for enhancement and/or restoration in the early stages of implementation.

The team has compiled background information and selected ponds for sampling. In late 2016, the subcontractor, Balance Hydrologics (Balance), collected baseline topographic data from 26 ponds. Other data collected included water level, depth, temperature, and salinity data at eight ponds for one dry-down period. In 2017, Balance built, calibrated, and validated hydro-period models for all 26 ponds. Balance is in the final phases of evaluating the hydroperiod and potential impacts of climate change on the ponds. Balance anticipates additional funding will be necessary to evaluate habitat connectivity, which will help prioritize restoration and management efforts (Eric Donaldson 2018 pers. comm.).

Species	Requirement	Status in the Reserve System	Calero Conservation Easement
Bay checkerspot butterfly	4 core habitat units (Kirby, Metcalf, San Felipe, and Silver Creek Hills) occupied at least 4 out of every 10 consecutive years of the permit term	1 of 4 core habitat units occupied (Kirby).	NA
	50% of satellite habitat units W. Hills of Santa Clara Valley, Tulare Hill, Santa Teresa Hills, Calero, Communication Hill, or North of Llagas Avenue occupied once by Year 45	NA	1 of 6 satellite habitat units occupied (Calero).
California red-legged frog	40% of ponds and wetlands occupied (suport full life-cycle) in each of the federal Recovery Units 4 and 6 in the Reserve System (which correspond to the two major watersheds in the study area) by year 45	2 of 9 ponds and wetlands occupied (22%); only 6 of 9 considered functional	0 of 12 ponds and wetlands occupied (0%). Only 9 of 12 considered functional. 2 of 12 pond and wetland restored/created.
California tiger salamander	30% of ponds and wetlands occupied (support the full life cycle) in the entire Reserve System by year 45	3 of 9 ponds and wetlands occupied (33%); only 6 of 9 considered functional	3 of 12 ponds and wetlands occupied (25%). Only 9 of 12 considered functional. 2 of 12 occupied pond and wetland restored/created
Western pond turtle	25% of ponds and wetlands occupied (provide basking for adults and juveniles) in the entire Reserve System by year 45	0 of 9 ponds and wetlands occupied (0%); only 6 of 9 considered functional	4 of 12 ponds and wetland occupied (33%); only 9 of 12 considered functional. 2 of 12 pond and wetland restored/created, one of which is occupied.
Foothill yellow-legged frog	occupied habitat (perennial streams with an observation of egg masses) in the Reserve System in 4 watersheds as defined in Figure 3-6	Pacheco Creek is secondary habitat for foothill yellow-legged frog but occupany surveys have not been conducted	Foothill yellow-legged frog observed in Llagas Creek and an unnamed tributary to Llagas Creek in the Llagas watershed.

* For California red-legged frog, California tiger salamander, and western pond turtle occupancy requirements must also be met for the Reserve System at Year 30, minus 5% for each one (i.e., 35% for California red-legged frog, 25% for California tiger salamander, and 20% for western pond turtle). The measurement will be made based on the total Reserve System at Year 30.

Table 17. Summary Protection or Creation of Occupied Habiat for Selected Covered Plant Species

Number of Covered Plant Occurrences														
	Coyote Ridge					Calero CE					Total in Reserve System			
	Pre-Baseline Occurrence		Baseline Surveys	Compliance		Pre-Baseline Occurrence		Baseline Surveys	Compliance		Baseline Surveys	Compliance		
Species	Habitat Plan	CNDDB	Results	Extant	New	Habitat Plan	CNDDB	Results	Extant	New	Results	Extant	New	Total
Mt. Hamilton Thistle	13	6	13	13	-	2	2	2	2	-	13	13	-	13
Santa Clara Valley Dudleya	99[a]	2	2	99	-	5	4	6[b]	5	1	2	99	-	99
Fragrant Fritillary	3	3	3	3	-	1	1	0	0	-	3	3	-	3
Loma Prieta Hoita	0	0	2	-	2	4	2	2	2	-	2	-	2	2
Smooth lessingia	0	1	1	-	1	1	4	3[c]	1	2	1	-	1	1
Metcalf Canyon jewelflower	1 (45)	0	8	1	-	0	0	0	-	-	8	1	-	1
Most beautiful jewelflower	1 (45)	1	2	1	-	3	4	4[c]	3	1	2	1	-	1
Total	117	13	31	117	3	17	17	17	13	4	31	117	3	120

[a] The Habitat Agency recieves credit for the number of covered plant populations the overlap with a plant occurrence in the Habitat Plan data. During baseline surveys , only 2 large occurrences were mapped on Coyote Ridge, but they could be aligned with the 99 occurrences identified in the Habitat Plan (i.e., the 99 occurences were lumped into 2 occurrences). For the prupose of Habitat Plan compliance tracking, the Habitat Agency will receive credit for the original 99 occurrences.

[b] The number of new populations observed within the Calero CE is consistent with the occurrence definition developed in the interpretation and clarification memorandum 2017-022b (Definition of a Covered Plant Occurrence and Occurrence Tracking), and is not consistent with CNDDB.

[c] Due to the contiguity of occupied habitat observed during the 2017 surveys, two previously discrete occurrences of smooth lessignia and most beautiful jewelflower have now been combined into one.

Chapter 8
Stay-Ahead Provision

The Habitat Plan's Stay-Ahead provision requires that conservation is ahead or proportional to impacts for natural communities, plants, and burrowing owl nesting habitat. This is achieved by acquiring land for the Reserve System in advance of impacts.

Stay-Ahead is tracked by natural community rather than land cover type to allow for flexibility in Reserve System assembly. Compliance is tracked as a proportion of conservation achieved/expected compared to impacts incurred/expected, while allowing for a 10% deviation. For example, if 25% of the expected impacts on the oak woodland natural community have occurred, then at least 25% of the required land acquisition for the oak woodland natural community must also have occurred. Conservation includes restoration, creation, and acquisition.

Reporting Requirements

- Cumulative summary of all impacts and conservation for all land cover types.
- Status of Habitat Plan natural community preservation.
- An assessment of compliance with the Stay-Ahead provision (Habitat Plan Section 8.6.1, *Stay-Ahead Provision*) and a forecast of expected take and land acquisition needs for the next 2 years.

Stay-Ahead requirements for covered plants is tracked by covered plant occurrence and does not allow for 10% deviation or aggregation. Plant occurrences must be protected in advance of impacts. Only Coyote ceanothus creation or acquisition is allowed to deviation—a 5-year grace period is allowed from the first impact.

The Stay-Ahead requirement for protection of burrowing owl habitat applies to occupied and potential nesting habitat (not overwintering habitat) because these two habitat types are the most critical in meeting the conservation strategy goal of increasing the adult burrowing owl population by three birds per year. The Stay-Ahead requirement is based on acres of modeled occupied and potential nesting habitat either preserved or managed. Managed or permanently protected occupied nesting habitat must remain within 10% deviation of permanent impacts on occupied nesting habitat based on a 3:1 ratio (management or protection to impacts). For example, if 50 acres of permanent impacts on occupied nesting habitat have occurred, then 150 acres of occupied nesting habitat must be under a management agreement or permanently protected. In addition, to account for the conservation actions that will be applied and to provide an incentive to implement them quickly, the Habitat Agency may credit another 5% of the Stay-Ahead requirement against implementation of conservation actions on managed lands. Together with the allowable 10% deviation, this provides up to a 15% allowance in meeting Stay-Ahead for western burrowing owl.

Compliance with the Stay-Ahead Provision

Stay-Ahead requirements are being met for all natural communities and burrowing owl (**Table 18, Table 19,** and **Figure 12a and Figure 12b**).

- **Grassland** Stay-Ahead compliance is 107% (i.e., 7% over where it should be at the end of the reporting period), with a total of 1,507.4 acres conserved. This is 101.6 acres more than required by the Stay-Ahead provision for this natural community.
- **Chaparral/Northern Coastal Scrub** Stay-Ahead compliance is 113%, with a total of 43.2 acres conserved. This is 5.1 acres more than required by the Stay-Ahead provision for this natural community.
- **Oak Woodland** Stay-Ahead compliance is 104%, with a total of 119.2 acres conserved. This is 4.2 acres more than required by the Stay-Ahead provision for this natural community.
- **Conifer Woodland** has not been impacted or conserved.
- **Riparian Forest and Scrub** Stay-Ahead Compliance is 793%, with a total of 62.2 acres conserved. This is 54.4 acres more than required by the Stay-Ahead provision for this natural community.
- **Wetland** Stay-Ahead compliance is 151%, with a total of 2.28 acres conserved or restored. This is 0.8 acres more than required by the Stay-Ahead provision for this natural community.
- **Pond** Stay-Ahead compliance is 401%, with a total of 0.56 acres conserved, restored, or created. This is 0.4 acres more than required by the Stay-Ahead provision for this natural community.
- **Stream** Stay-Ahead compliance is 3,354%, with a total of 13.58 miles acres conserved. This is 13.2 miles more than required by the Stay-Ahead provision for this natural community.
- **Western Burrowing Owl Nesting Habitat** Stay-Ahead compliance is 427%, with a total of 920 acres conserved. This is 704.7 acres more than required by the Stay Ahead provision for this habitat type.

Stay-Ahead compliance is being met for all plants except smooth lessingia and most beautiful jewelflower. The occurrences protected for both smooth lessingia and most beautiful jewelflower are of high quality, distribution, and abundance. There may be flexibility in compliance tracking per the adaptive management program that would allow for stay-ahead compliance to be met for these two species (**Table 18 and 20** and **Figure 12b**).

- **Coyote Ceanothus** Stay-Ahead compliance is not required until 5 years after the first impact on this species. Occurrence creation will offset the removal of 515 plants.
- **Mount Hamilton thistle** Stay-Ahead compliance is 1,300% with a total of 13 occurrences protected. This is 13 occurrences more than required by the Stay-Ahead provision.
- **Santa Clara Valley Dudleya** Stay-Ahead compliance is 1,980% with a total of 99 occurrences protected. This is 94 occurrences more than required by the Stay-Ahead provision.
- **Fragrant fritillary** Stay-Ahead compliance is 300% with a total of three occurrences protected. This is three occurrences more than required by the Stay-Ahead provision.
- **Loma Prieta hoita** Stay-Ahead compliance is 200% with a total of two occurrences protected. This is two occurrences more than required by the Stay-Ahead provision.

- **Smooth Lessingia** Stay-Ahead compliance is 25% with one occurrence of 27.5 million plants protected. Because impacted occurrences are much lower in the number of individuals impacted (as low as six plants for a single occurrence take), the Habitat Agency has initiated discussions with the wildlife agencies to determine commensurate accounting of the impacts versus the protections.
- **Metcalf Canyon Jewelflower** Stay-Ahead compliance is 100% with one occurrence protected. This is one occurrence more than required by the Stay-Ahead provision.
- **Most beautiful Jewelflower** Stay-Ahead compliance is 35% with one occurrence of 3.1 million plants. Because impacted occurrences are much lower in the number of individuals impacted (as low as 110 plants for a single occurrence take), the Habitat Agency has initiated discussions with the wildlife agencies to determine commensurate accounting of the impacts versus the protections.

Stay-Ahead Compliance Calculations

The Stay-Ahead Compliance calculated as follows:

Terrestrial and Aquatic Land Cover Types (Table 18 and Table 19)

Conservation Required = (% of Allowable Impacts Accrued) * (Total Conservation Required)

Compliance = (Conservation Achieved) / (Conservation Required)

≥ 90 % = in Compliance

Acres Ahead = (Conservation Achieved) – (Conservation Required)

Western Burrowing Owl Nesting Habitat (Table 18 and Table 19)

Conservation Required = (Impacts Accrued) *(Required Preservation Ratio)

Compliance = (Conservation Achieved) / (Conservation Required)

≥ 90 % = in Compliance

Acres Ahead = (Conservation Achieved) – (Conservation Required)

Plants (Table 18 and Table 20)

Conservation Required = (% of Allowable Impacts Accrued) * (Total Conservation Required)

Compliance = (Conservation Achieved) / (Conservation Required)

≥ 100% = in Compliance

Occurrences Ahead = (Conservation Achieved) – (Conservation Required)

Figure 12a. Stay-Ahead Compliance for Natural Communities and Western Burrowing Owl

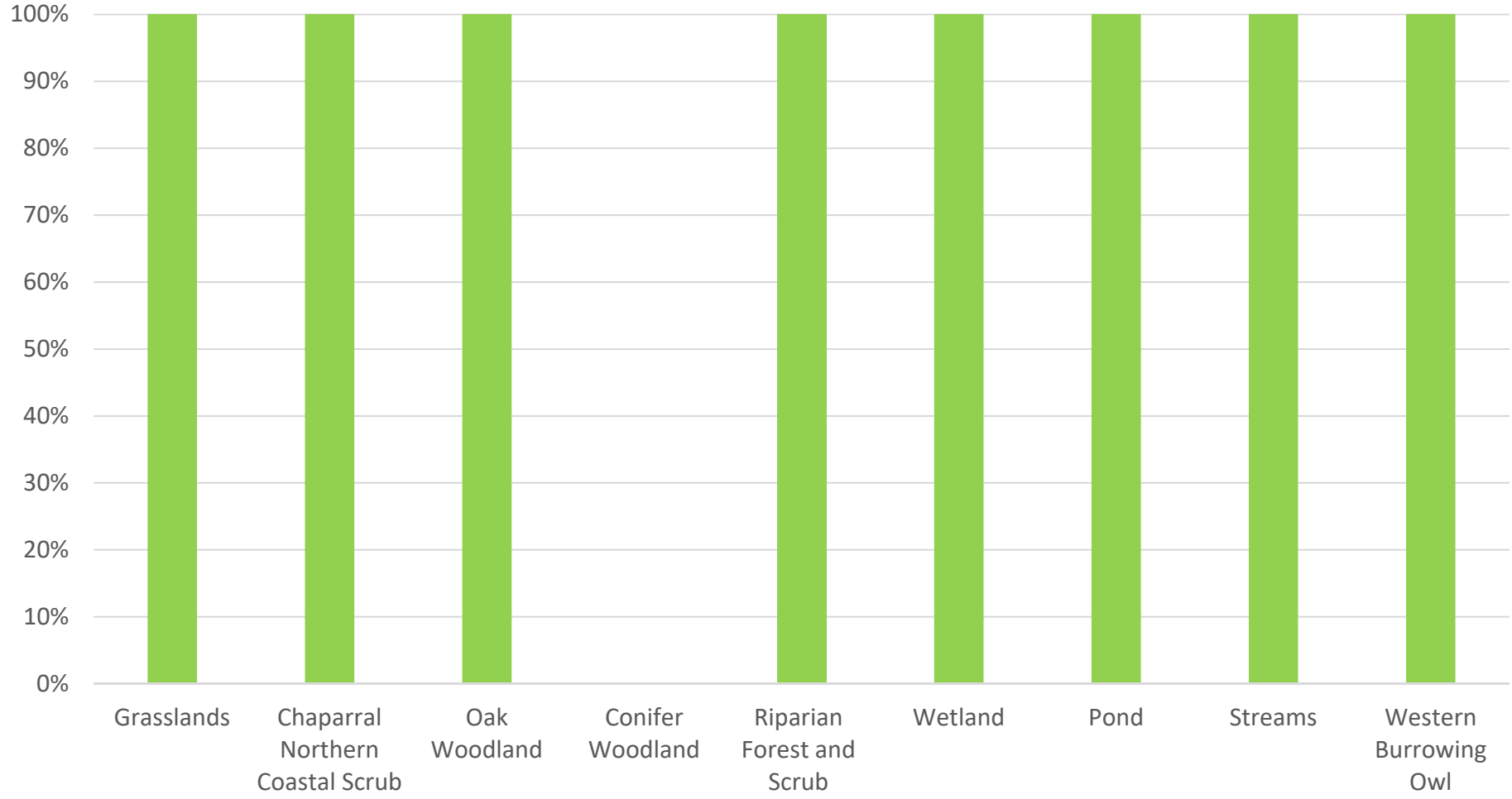


Figure 12b. Stay-Ahead Compliance for Plants

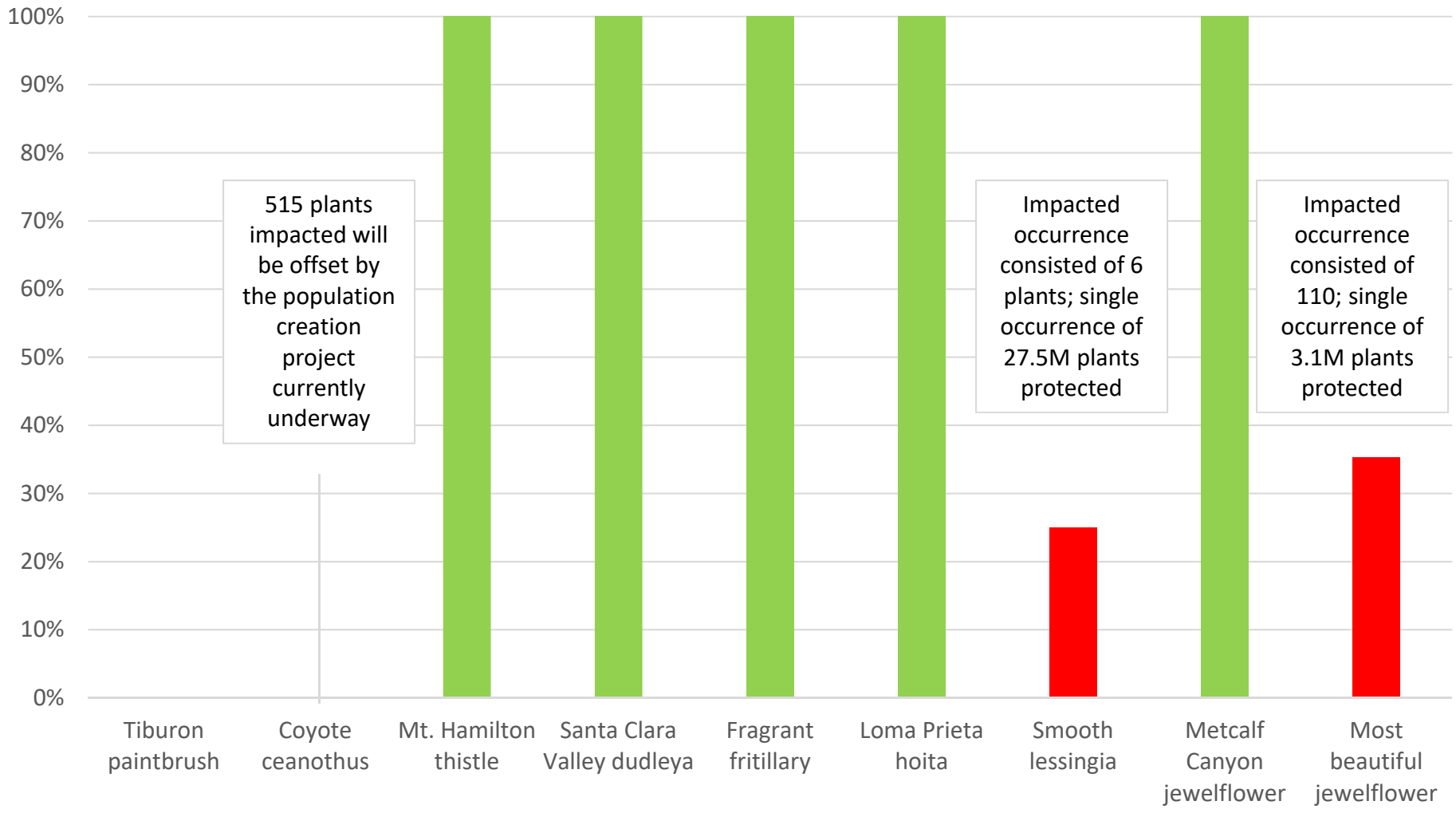


Table 18. Summary Status of the Stay-Ahead Provision for Natural Communities, Burrowing Owl Nesting Habitat, and Plants

	Impacts			Conservation			Stay-Ahead		
Land Cover Type	**Total Allowable Impacts (acres)**	**Impacts Accrued (acres)**	**% of Allowable Impacts Accrued**	**Total Conservation Requirements (acres)**	**Conservation Achieved (acres)**	**% of Required Conservation Achieved**	**Conservation Required (acres)[1]**	**Compliance**	**Acres Ahead[2]**
Grasslands	2,529	218.6	9%	17,440	1,609.0	9%	1,507.4	107%	101.6
Chaparral Northern Coastal Scrub	405	6.2	2%	2,500	43.2	2%	38.1	113%	5.1
Oak Woodland	2,709	24	1%	12,900	119.2	1%	115.0	104%	4.2
Riparian Forest and Scrub	296	2.4	1%	971	62.2	6%	7.8	793%	54.4
Conifer Woodland	117	0.0	0%	10	0.0	0%	0.0	-	0.0
Wetland	40	0.39	1%	155	2.28	1%	1.51	151%	0.8
Pond	52	0.04	0%	177	0.56	0%	0.14	401%	0.4
Streams (miles)	9.4	0.03	0%	110.4	13.58	12%	0.40	3354%	13.2
Western Burrowing Owl Nesting Habitat[4]	198	71.8	36%	215	920.0	427%	215.3	427%	704.7
Plants (occurrences)									
Tiburon paintbrush	0	N/A	-	1	0	0%	-	-	-
Coyote ceanothus	3,650 individuals	515	14%	5	03	0%	1	occurrence creation in process	N/A
Mt. Hamilton thistle	6	0	0%	22	13	59%	0	1300%	13
Santa Clara Valley dudleya	11	1	9%	55	99	180%	5	1980%	94
Fragrant fritillary	1	0	0%	4	3	75%	0	300%	3
Loma Prieta hoita	2	0	0%	8	2	25%	0	200%	2
Smooth lessingia	6	1	17%	24	1	4%	4	25%	-3
Metcalf Canyon jewelflower	2	0	0%	10	1	10%	0	100%	1
Most beautiful jewelflower	6	1	17%	17	1	6%	3	35%	-2

[1] Conservation Required = "% of Allowable Impacts Accrued" * "Total Conservation Requirements"

[2] Compliance = "Conservation Achieved"/"Conservation Required"

[3] Acres Ahead = "Conservation Achieved" - "Conservation Required"

Table 19. Detailed Stay-Ahead Provision for Aquatic Natural Community Conservation and Burrowing Owl Nesting Habitat

	Impacts			Conservation			Conservation Achieved				Stay-Ahead			Planning			
Land Cover Type	Total Allowable Impacts (acres)	Impacts Accrued (acres)	% of Allowable Impacts Accrued	Required Protection (acres)	Required Restoration/ Creation (acres)	Total								Conservation Required (acres)		Conservation Difference (Achieved - Required)	
							Preservation (acres)	Restoration (acres)	Total	% of Conservation Achieved	Conservation Required1	Compliance[2]	Acres Ahead[3]	Preserve	Restore	Preserve	Restore
Willow riparian forest and scrub or mixed riparian forest and woodland	289	2.39	1%	578	339	917	62.20	0.00	62.20	7%	7.58			4.78	2.80	57.42	-2.80
Central California sycamore alluvial woodland	7	-	0%	40	14	54	-	0.00	-	0%	-			-	-	0.00	0.00
Riparian Total	**296**	**2.39**	**1%**	**618**	**353**	**971**	**62.20**	**0**	**62.20**	**6%**	**7.84**	**793%**	**54.36**				
Coastal and valley freshwater marsh (perennial wetland)	25	0.16	1%	50	45	95	-	0.16	0.16	0%	0.61			0.32	0.29	0.00	-0.13
Seasonal wetland	15	0.23	2%	30	30	60	1.89	0.23	2.12	4%	0.92			0.46	0.46	1.43	-0.23
Wetland Total	**40**	**0.39**	**1%**	**80**	**75**	**155**	**1.89**	**0.39**	**2.28**	**1%**	**1.51**	**151%**	**0.77**				
Pond	52	0.04	0%	104	72	177	0.34	0.22	0.56	0%	0.14	401%	0.42	0.08	0.06	0.26	0.16
Stream (miles)	9.4	0.03	0%	100.0	10.4	110.4	13.58	0.00	13.58	12%	0.40	3354%	13.18	0.37	0.04	13.21	-0.04
Western Burrowing Owl Nesting Habitat[4]	198	71.77	36%	215	-	215	920		920	427%	215	427%	705	215		705	

[1] Conservation Required = % of Allowable Impacts accrued * Conservation Total

[2] Compliance = "Conservation Achieved"/"Conservation Required"

[3] Acres Ahead = "Conservation Achieved" - "Conservation Required"

[4] The Stay-Ahead requirement for protection of burrowing owl habitat applies to occupied and potential nesting habitat. The Stay-Ahead reporting is only tracking occupied nesting habitat Managed or permanently protected occupied nesting habitat must remain within 10% deviation of permanent impacts on occupied nesting habitat based on a 3:1 ratio (management or protection to impacts). Stay-Ahead compliance is tracked based on this 3:1 ratio rather than the total impact vs. conservation requirements.

Table 20. Summary Status of the Stay-Ahead Provision for Plant Occurences

	Impacts To Date (occurrences)			Conservation Requirements						Stay-Ahead		
Covered Species	Allowable Impact	Impacts to date	% of Allowable Impacts Accrued	Mitigation Ratio	Protected per Mitigation Ratio	Protectd to Contribute to Recovery	Total Conservation Requirements	Conservation Achieved	% of Conservation Achieved	Conservation Required (occurrences)[1]	Conservation Achieved/ Conservation Required	Occurences Ahead[2]
Tiburon paintbrush	0	N/A	-	N/A	0	1	1	0	0%	-	-	-
Coyote ceanothus	3,650 individuals	515	14%	N/A	0	5	5	0[3]	0%	1	occurrence creation in process	N/A
Mt. Hamilton thistle	6	0	0%	3	18	4	22	13	59%	0	1300%	13
Santa Clara Valley dudleya	11	1	9%	4	44	11	55	99	180%	5	1980%	94
Fragrant fritillary	1	0	0%	3	3	1	4	3	75%	0	300%	3
Loma Prieta hoita	2	0	0%	2	4	4	8	2	25%	0	200%	2
Smooth lessingia	6	1	17%	2	12	12	24	1	4%	4	25%	-3
Metcalf Canyon jewelflower	2	0	0%	N/A	0	10	10	1	10%	0	100%	1
Most beautiful jewelflower	6	1	17%	2	12	5	17	1	6%	3	35%	-2

[1] Conservation Required = “% of Allowable Impacts Accrured" * “Total Conservation Requirements"

[2] Occurrences Ahead = "Conservation Required" - "Conservation Achieved"

[3] Occurrence creation is underway. See text for status.

Chapter 9
Changed and Unforeseen Circumstances

The No Surprises policy 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 NCCP Act has a similar provision for NCCPs. The changed circumstances identified by the Habitat Plan are the following.

- Covered species becoming listed.
- Non-covered species becoming listed.
- Global climate change.
- Fire.
- Nonnative species or disease.
- Flooding.
- Drought.
- Earthquakes.

Reporting Requirements

- A description of any unforeseen circumstances that arose and responses taken.
- An assessment of changes in temperature in the study area (see Habitat Plan Chapter 10, Section 10.2.1, *Changed and Unforeseen Circumstances*).
- A description of any actions taken or expected regarding changed circumstances, including remedial actions.

A changed circumstance requires the Habitat Agency to notify the Wildlife Agencies to determine the necessity for additional conservation or mitigation measures, called "remedial measures." Specific remedial actions are described in the Habitat Plan as responses to each of the changed circumstances. However, the Habitat Agency will determine an appropriate response to a changed circumstance in collaboration with the Wildlife Agency and dependent on the context of the circumstance. If an environmental conditions changes that is not described in the Plan (i.e., an unforeseen circumstance), the Wildlife Agencies cannot require additional mitigation or conservation measures, but the Habitat Agency may choose to voluntarily implement remedial actions in response.

Changed Circumstances

No changed circumstances occurred during the reporting period. Climate change is tracked on an annual basis, as discussed below.

Climate Change

Global climate change is occurring as a result of high concentrations of greenhouse gases in the Earth's atmosphere (National Research Council 2010; Intergovernmental Panel on Climate Change 2007). Current global and regional trends suggest that climate change is likely to have an effect on the Plan Area. However, current or near-term forecasting technology for modeling changes in climate at the regional or county scale is not effective and there is much uncertainty in climate

change predictions. Although uncertain, key climate change predictions project the average annual mean temperature in California will rise from 1.1°C (2°F) to more than 2.8°C (5°F). More frequent drought years are also predicted which in combination with more intense rainfall events would pose higher risks of soil erosion and drops in ground water levels (Dukes and Shaw 2007).

The conservation strategy, reserve design, and monitoring and adaptive management program anticipate possible effects of climate change using a multi-scale approach that views conservation through landscape, natural-community, and species level. This approach focuses on protecting and enhancing a range of natural communities, habitat types, and environmental gradients (e.g., altitude, aspect, slope), as well as other features that are important as global warming changes the availability of resources and habitat types in the Plan Area.

The Habitat Agency will use a method consistent with the California Climate Action Team for measuring temperature change within the study area. The baseline index, as measured from the Gilroy, Morgan Hill, and San José weather stations, will be historic temperatures from 1961 to 1990. For the purposes of the Plan, three baseline measurement periods will be set using 1961 to 1990 historic temperatures: average annual temperature, average summer temperature (June, July, and August), and average winter temperature (December, January, and February). If modeled California climate-change trends are applied to the study area, one may anticipate that the temperature could increase up to 2.8° C during the permit term.

Under the Plan, the following is considered changed circumstances for which remedial measures will be funded.

- An increase in temperature of up to 2.8°C for any of the three baseline periods measured as a 10-year running average.

The Habitat Agency is tracking these three average annual temperatures, as shown in **Table 21**. Over the next year, the Habitat Agency will revisit the climate change assumptions for the Plan Area to inform conservation strategy implementation.

Remedial Measures

In the event that a changed circumstance occurs that is described in the Habitat Plan, the Habitat Agency must assess the changed circumstance and determine if an appropriate remedial measure must be undertaken. Remedial measures are corrective actions that are funded and implemented by the Habitat Agency.

Annual Average Temperature °F

	Average Annual Summer Temperature			Average Annual Winter Temperature		
Year	Gilroy	Morgan Hill	San Jose	Gilroy	Morgan Hill	San Jose
2014	87.4	87.6	80.0	66.6	63.9	63.2
2015	85.6	85.5	80.1	65.0	63.4	62.8
2016	87.2	85.1	81.0	63.5	61.5	62.9
2017	86.6	86.0	83.0	61.3	59.6	61.6

http://usclimatedata.com

Chapter 10
Finances

This chapter provides an evaluation of the economic assumptions on which the Habitat Plan was based, an accounting of all revenues received, and an assessment of the post-permit term funding strategy. The *Budget* section provides an overview of the Habitat Plan cost categories, the annual budget, and expenditures. The budget and expenditures are compared to the Habitat Plan cost model assumptions. The *Revenue Sources* section provides an accounting of all revenue received by type. The *Funding in Perpetuity* section provides the status of the endowment required for post-permit term funding.

Reporting Requirements

- An evaluation of the economic assumptions on which the Habitat Plan was based (e.g., Habitat Plan costs, revenue rates, and grant funding projections).
- An accounting of all revenues received, by type (e.g., development fees, wetland fees, grants) and an assessment of progress towards total revenue goals. Funding from local, state, and federal sources must be tracked separately. Any fee adjustments must also be reported.
- An assessment of progress toward a complete funding strategy for implementation after the permit term.

Budget

The Habitat Agency prepares and approves an annual budget based on anticipated revenues and program implementation costs. The Habitat Plan assumes the following cost categories for implementation.

- Land acquisition.
- Reserve management and maintenance, including adaptive management.
- Habitat and covered plant occurrence restoration/creation.
- Monitoring, research, and scientific review.
- Program administration.
- Costs in perpetuity.

Meetings with each of the Co-Permittees during the budget planning process were used to determine covered activities that will be permitted in the upcoming fiscal year. These revenues plus non-fee funding (e.g., grants) were used to develop the budget. The annual budget uses cost centers based on the Habitat Plan cost categories.

The Habitat Agency's available revenue, allocated budget, and expenditures varied from what was anticipated by the Habitat Plan (**Table 22**). For Years 1–5, the Habitat Plan assumed $9.7 million for its average annual budget. The FY1617 budget was $3.7 million, 38% of the anticipated budget. The drivers of this difference was due to no land acquisition during the reporting period. The Habitat Agency's budget focused on program administration, burrowing owl management and monitoring, and restoration.

Implementation expenditures were lower than what was estimated in the Habitat Plan. The expenditures were $3 million in FY1617. This was 31%, of what was estimated in the Habitat Plan.

Revenue Sources

The Habitat Plan anticipates 55% of funding from fees and 45% from non-fee sources. Private and public development-based fees fund mitigation to offset losses of land cover types, covered species habitat, and other biological values. These fees pay for the full cost of mitigating project effects on the covered species and natural communities addressed by the Habitat Plan. These fees are charged for permanent and temporary impacts and include an endowment fee and plan preparation cost recovery fee component. The endowment fee component is included in all development fees to build an endowment for post-permit term funding. Development fees paid by private entities include a cost recovery fee component to partially reimburse the Co-Permittees over time for the costs incurred related to development of the Habitat Plan between 2005 and 2011. Fee-based funding includes the following.

- Land cover fee.
- Nitrogen deposition fee.
- Serpentine fee.
- Burrowing owl fee.
- Wetland fee.
- PSE charges.

Non-fee based funding comes from local, state, and federal sources other than Habitat Plan fees. This includes land acquisitions and other conservation actions conducted by local organizations (e.g., Santa Clara Valley Open Space Authority, County Parks) and grants from federal, state, local, and private entities. These local funding sources typically require that their funds be used to contribute to the recovery of the covered species (i.e., the NCCP portion of the Habitat Plan) or used to mitigate the impacts of their own agency. For example, County Parks will be enrolling its land to mitigate impacts of County public projects.

The Habitat Agency received $4.6 million in funds during the reporting period from fee and non-fee funding sources (**Table 23** and **Table 24**). Fee funding totaled $3.1 million (68% of total revenues) across private, public, and PSE projects. Private projects paid $2.7 million across 26 covered projects. Twenty-five public projects paid $394,000. Three PSEs contributed $45,000.

Fee funding revenue was received across all fee types. Of this revenue source, land cover fees were $2.5 million (67%), serpentine fees were $56,000 (2%), nitrogen deposition fees were $147,000 (4%), burrowing owl fees were $321,000 (9%), wetland fees were $55,000 (1%), PSE charges were $14,000.

Non-fee funding totaled $1.5 million (32%). This includes funds from four mitigation-only or voluntary contribution projects ($540,000, **Table 25**) and three grants ($946,000, **Table 26**).

Fees are adjusted on an annual basis using an automatic inflation adjustment (Habitat Plan page 9-41). From FY1516 to FY1617, land cover, serpentine, and nitrogen deposition fees increased by 6.4%. Burrowing owl and wetland fees increased by 2.6%.

Land Acquisition

Pacheco Creek Reserve was donated to the Habitat Agency from Caltrans (**Table 27**).

Funding in Perpetuity

A set percentage of collected development fees is set aside for an endowment fund. For land cover, serpentine, nitrogen deposition, and burrowing owl fees, 10.35% of the fees is allocated to the endowment. For wetland mitigation fees, 10.74% is allocated to the endowment. Currently, the Local Agency Investment Fund through the State of California holds the endowment portion of the fees. The Habitat Agency selected the Silicon Valley Community Foundation as the long-term endowment holder. During the next reporting period, all endowment funds will be moved to the Silicon Valley Community Foundation.

Table 22. FY1617 Budget: Expenditures and Comparison to Budget Projections

	Cost Estimate from Habitat Plan			FY 1617 Budget		FY 1617 Expenditures			
Cost Category	Years 1-5	Average Cost Per Year (Years 1-5)	% of Total		% of Total Budget	Total	% of Total Expenditures	Difference from FY 1516 Budget	Difference from Habitat Plan Cost Estimate
Land Acquisition	$ 27,380,000	$ 5,476,000	56%		0%		0%	$ -	$ (5,476,000)
Reserve Management and Maintenance	$ 3,750,000	$ 750,000	8%	$ 610,612	17%	$ 214,382	7%	$ (396,230)	$ (535,618)
Monitoring, Research, and Scientific Review	$ 2,140,000	$ 428,000	4%	$ 404,889	11%	$ 382,976	13%	$ (21,913)	$ (45,024)
Western Burrowing Owl Conservation Strategy	$ 320,000	$ 64,000	1%	$ 328,682	9%	$ 306,074	10%	$ (22,608)	$ 242,074
Habitat Restoration & Creation	$ 10,420,000	$ 2,084,000	21%	$ 800,000	22%	$ 772,351	25%	$ (27,649)	$ (1,311,649)
Program Administration[1]	$ 3,740,000	$ 748,000	8%	$ 1,523,194	42%	$ 1,379,995	45%	$ (143,199)	$ 631,995
Contingency Fund	$ 1,010,000	$ 202,000	2%		0%		0%	$ -	$ (202,000)
Total	$ 48,760,000	$ 9,752,000	100%	$ 3,667,377	100%	$ 3,055,778	100%	$ (611,599)	$ (6,696,222)

[1] Program Administration includes $85,699 of Waters Permitting

	Reporting Period		Cumulative		Habitat Plan Assumption
Funding Source	**Revenue Received**	**% of Total**	**Revenue Received**	**% of Total**	**% of Total**
Fee Funding					
Land Cover Fee	$ 2,496,044.83	55%	$ 10,667,734.52	35%	
Serpentine Fee	$ 56,055.25	1%	$ 1,861,914.16	6%	
Nitrogen Deposition Fee	$ 147,122.90	3%	$ 619,938.19	2%	
Burrowing Owl Fee	$ 320,843.75	7%	$ 1,596,710.27	5%	
Wetland Fee	$ 54,896.26	1%	$ 1,106,979.37	4%	
Participating Special Entity Charges	$ 14,286.04	0%	$ 137,922.45	0%	
Total Fee Funding	***$ 3,089,249.03***	***68%***	***$ 15,991,198.96***	***52%***	***55%***
Non-Fee Funding					
Mitigation Only and Voluntary Contributions	$ 540,441.71	12%	$ 2,342,174.51	8%	
Grants[a]	$ 945,925.00	21%	$ 3,695,765.00	12%	
Land Acquisition by Local Land Agencies, Non-Profits, and Foundations	$ -	0%	$ 8,607,500.00	28%	
Total Non-fee Funding	***$ 1,486,366.71***	***32%***	***$ 14,645,439.51***	***48%***	***45%***
Total	**$ 4,575,615.74**		**$ 30,636,638.47**		

[a] Excludes grant funding used for "Land Acquisition by Local Land Agencies, Non-Profits, and Foundations"

Source	Project #	Project Name	Amount	Date	Type
Land Cover Fee					
City of Gilroy	Gil-2017-001	SCRWA Solar PV System	$ 132,867.19	9/30/2016	Private
City of Gilroy	Gil-2017-002	Hoey Triangle	$ 25,370.53	10/7/2016	Private
City of Gilroy	Gil-2017-003	Harvest Park II	$ 179,586.16	10/24/2016	Private
City of Gilroy	Gil-2017-004	Harvest Park I	$ 26,831.66	11/29/2016	Private
City of Gilroy	Gil-2017-005	Harvest Park II - 66 Unit	$ 42,638.43	11/29/2016	Private
City of Gilroy	Gil-2017-006	International Paper	$ 21.25	4/20/2017	Private
City of Gilroy	Gil-2017-007	Glen Loma Ranch Olive Grove	$ 216,114.41	11/15/2016	Private
City of Gilroy	Gil-2017-009	Hecker Pass Heartland Gardens	$ 314,254.53	3/8/2017	Private
City of Morgan Hill	MH-2016-003	Butterfield Self Storage	$ 61,101.80	9/2/2016	Private
City of Morgan Hill	MH-2016-004	Valencia	$ 121,140.96	11/1/2016	Private
City of Morgan Hill	MH-2016-005	San Sebastian Phase 1A 1B	$ 427,056.42	12/6/2016	Private
City of Morgan Hill	MH-2016-006	Downtown - City Parks	$ 40,665.80	10/21/2016	Private
City of Morgan Hill	MH-2017-001	Madison Gate	$ 92,051.19	10/13/2016	Private
City of Morgan Hill	MH-2017-002	Young Property	$ 58,265.88	5/30/2017	Private
County of Santa Clara	SCPN-2016-004	Piercy Road - Pal	$ 3,142.78	7/1/2016	Private
County of Santa Clara	SCPN-2016-003M	Lands of Mussalem	$ 664.15	7/1/2016	Private
County of Santa Clara	SCPN-2016-005	Chagrin Residence	$ 23,945.32	7/1/2016	Private
County of Santa Clara	SCPN-2016-009	MTB Olive Branch	$ 74,280.40	11/16/2016	Private
County of Santa Clara	SCPN-2016-007	Lago Vista Nguyen	$ 127.41	8/9/2016	Private
County of Santa Clara	SCPN-2017-001	Gurinder Grewal	$ 35,190.90	11/16/2016	Private
County of Santa Clara	SCPN-2016-008	Bricarello Water Storage & Forbearance Project	$ -	12/5/2016	Private
County of Santa Clara	SCPN-2017-002	Kazi Residence	$ 12,177.19	3/16/2017	Private
County of Santa Clara	SCPN_2017-003	Lands of Lomeli	$ 24,017.39	4/20/2017	Private
County of Santa Clara	SCPN-2017-004	Lands of Toombs	$ 12,943.58	6/15/2017	Private
County of Santa Clara	SCPN-2017-005	Burchell Road	$ 141.77	6/16/2017	Private
SVWD	SVWD-2017-001	Nieman Parcel Facility Maintenance	$ 25,580.10	8/11/2016	Public
SVWD	SVWD-2017-003	Coyote Dam	$ 4,162.62	7/20/2016	Public
SVWD	SVWD-2017-004	Penitencia Water Treatment Plant Solar Project	$ 18,627.56	7/14/2016	Public
SVWD	SVWD-2017-005	Coyote Alamitos Canal Facility Maintenance	$ 234,902.78	8/12/2016	Public
SVWD	SVWD-2017-006	Santa Teresa Water Treatment Plant	$ 13,396.10	7/5/2016	Public
SVWD	SVWD-2017-007	Almaden Valley Pipeline Maintenance	$ 20,561.97	8/22/2016	Public
SVWD	SVWD-2017-008	Maple & Murphy Parcels Facility Maintenance	$ 9,938.20	9/16/2016	Public
SVWD	SVWD-2017-009	Hill Road Parcel Maintenance	$ 21,775.88	9/26/2016	Public
SVWD	SVWD-2017-010	San Pedro Ponds Facility Maintenance	$ 40,964.89	9/13/2016	Public
City of San Jose	SJ-2016-024	Great Oaks Costco	$ 118,178.06	7/5/2016	Private

Source	Project #	Project Name	Amount	Date	Type
City of San Jose	SJ-2016-020	Cataldi Park Renovation	$ 520.21	8/17/2016	Public
City of San Jose	SJ-2016-021	Three Creeks Trail-Lonus St to Minnesota Ave	$ 299.75	9/28/2016	Public
City of San Jose	SJ-2017-003	641 N Capitol Ave Mixed Use	$ 44,162.30	3/29/2016	Private
SCVHA	PSE-2015-01	PG&E Gas Line 300A Repair	$ 383.18	12/1/2016	PSE
SCVHA	PSE-2016-02	PG&E Deep Well Anode	$ 153.27	12/1/2016	PSE
SCVHA	PSE-2016-03	Caltrans 152 Widening	$ 17,840.86	12/23/2016	PSE
Land Cover Fee subtotal			***$ 2,496,044.83***		
Serpentine Fee					
County of Santa Clara	SCPN-2016-007	Lago Vista Nguyen	$ 414.60	8/9/2016	Private
SVWD	SVWD-2017-005	Coyote Alamitos Canal Facility Maintenance	$ 3,078.65	8/12/2016	Public
SCVHA		Valley Christian School	$ 40,092.80	1/12/2017	Private
SCVHA	PSE-2016-02	PG&E Deep Well Anode	$ 12,469.20	12/1/2016	PSE
Serpentine Fee Subtotal			***$ 56,055.25***		
Nitrogen Deposition Fee					
City of Gilroy	Gil-2017-002	Hoey Triangle	$ 402.21	10/7/2016	Private
City of Gilroy	Gil-2017-003	Harvest Park II	$ 2,457.95	10/24/2016	Private
City of Gilroy	Gil-2017-004	Harvest Park I	$ 1,430.08	11/29/2016	Private
City of Gilroy	Gil-2017-005	Harvest Park II - 66 unit	$ 2,949.54	11/29/2016	Private
City of Gilroy	Gil-2017-006	International Paper	$ 2,475.44	4/20/2017	Private
City of Gilroy	Gil-2017-007	Glen Loma Ranch Olive Grove	$ 11,038.43	11/15/2016	Private
City of Gilroy	Gil-2017-008	Cal Atlantic Wren 70	$ 3,128.30	10/10/2016	Private
City of Gilroy	GIL-2017-009	Hecker Pass Heartland Gardens	$ 3,262.37	3/8/2017	Private
City of Gilroy	GIL-2017-010	The Cannery	$ 4,647.76	4/12/2017	Private
City of Morgan Hill	MH-2016-003	Butterfield Self Storage	$ 505.11	9/2/2016	Private
City of Morgan Hill	MH-2016-004	Valencia	$ 183.27	11/1/2016	Private
City of Morgan Hill	MH-2016-006	Downtown - City Parks	$ 317.52	10/21/2016	Private
City of Morgan Hill	MH-2016-005	San Sebastian Phase 1A 1B	$ 2,413.26	12/6/2016	Private
City of Morgan Hill	MH-2017-001	Madison Gate	$ 2,904.85	10/13/2016	Private
City of Morgan Hill	MH-2017-002	Young Property	$ 1,653.53	5/30/2017	Private
County of Santa Clara	SCPN-2016-004	Piercy Road - Pal	$ 42.00	7/1/2016	Private
County of Santa Clara	SCPN-2017-004	Lands of Toombs	$ 44.69	6/15/2017	Private
County of Santa Clara	SCPN_2017-003	Lands of Lomeli	$ 44.69	4/20/2017	Private
County of Santa Clara	SCPN-2017-002	Kazi Residence	$ 44.96	3/16/2017	Private
City of San Jose	SJ-2016-024	Great Oaks Costco	$ 45,391.90	7/5/2016	Private
City of San Jose	SJ-2016-023	SAF Keep Storage	$ 1,068.33	8/22/2016	Private
City of San Jose	SJ-2017-001	Onyx 3	$ 2,189.81	1/11/2016	Private

Source	Project #	Project Name	Amount	Date	Type
City of San Jose	SJ-2017-002	Onyx 4	$ 4,513.69	1/16/2016	Private
City of San Jose	SJ-2016-022	Silver Oak Plaza	$ 19,479.60	9/29/2016	Private
City of San Jose	SJ-2017-005	The Reserve	$ 20,097.39	3/2/2017	Private
City of San Jose	SJ-2017-003	641 N Capitol Ave Mixed Use	$ 5,359.53	3/29/2017	Private
City of San Jose	SJ-2017-003	641 N Capitol Ave Mixed Use	$ 8,401.72	3/29/2017	Private
City of San Jose	SJ-2017-004	Our Lady of La Vang	$ 674.97	5/9/2017	Private
Nitrogen Fee Subtotal			***$ 147,122.90***		
Burrowing Owl Fee					
City of San Jose	SJ-2016-023	SAF Keep Storage	$ 95,866.75	8/22/2016	Private
City of Morgan Hill		Burrowing Owl Fees	$ 224,977.00	5/1/2017	Private
Burrowing Owl Fee Subtotal			***$ 320,843.75***		
Wetland Fee					
City of Morgan Hill	MH-2017-002	Young Property	$ 53,257.48	5/30/2017	Private
County of Santa Clara	SCPN-2017-005	Burchell Road	$ 1,638.78	6/16/2017	Private
Wetland Fee Subtotal			***$ 54,896.26***		
Participating Special Entity Charge and Admin Charge					
SCVHA	PSE-2016-02	PG&E Deep Well Anode	$ 7,041.04	12/1/2016	PSE
SCVHA	PSE-2016-03	Caltrans 152 Widening	$ 7,195.00	12/23/2016	PSE
SCVHA	PSE-2015-01	PG&E Gas Line 300A Repair	$ 50.00		PSE
Participating Special Entity Charge Subtotal			***$ 14,286.04***		
Mitigation Only and Voluntary Contributions					
	Mitigation Only-5	Uvas Creek Mitigation	$ 440,886.91	7/28/2016	Public
	Mitigation Only-6	San Jose Water Company/Calero Park Wetland Mitigation	$ 58,580.00	7/29/2016	Public
	Mitigation Only-7	Lower Silver Creek Trestle Removal	$ 882.00	10/17/2016	Public
	Voluntary Contribution-9	Valley Christian Schools	$ 40,092.80	1/12/2017	Private
Mitigation Only and Voluntary Contributions Subtotal			***$ 540,441.71***		
Grants					
NCCP LAG (2017)	CDFW	Research: Corridor	$ 30,450		Public
NCCP LAG (2017)	CDFW	Research: Sycamore	$ 76,093		Public
CVPCP/HRP (2017)	USBR & USFWS	Restoration: Coyote Ridge	$ 839,382		Public
Grants subtotal			***$ 945,925.00***		
Land Acquisition by Local Land Agencies, Non-Profits, and Foundations					
None			$ -		
Land Acquisition by Local Land Agencies, Non-Profits, and Foundations Subtotal			***$ -***		
Total			**$ 4,575,615.74**		

Year	Code	Project Name/Source	Type	Date	Revenue	Mitigation (Acres)			Notes
						Obligation	Fulfilled	Location	
FY1415	Voluntary Contribution-1	Valley Christian Serp Mitigation	private	7/1/2014	$ 40,092.80				
FY1415	Voluntary Contribution-4	Intuit	private	9/1/2014	$ 16,952.00				
FY1415	Voluntary Contribution-5	Apple	private	9/1/2014	$ 126,381.60				
FY1415	Voluntary Contribution-2	WBO Fee CMH	public	11/1/2014	$ 219,977.00				
FY1415	Voluntary Contribution-3	WBO Fee CMH	public	11/1/2014	$ 171,182.17				
FY1415	Voluntary Contribution-6	Moffet Place, LLV	private	11/1/2014	$ 16,635.60				
FY1415	Voluntary Contribution-7	UNFI West	private	11/1/2014	$ 5,309.32				
FY1415	Mitigation Only-1	Caltrans - 152/Ferg Rd Inter	public	4/1/2015	$ 127,528.41	8.43			CTS and CRLF
FY1516	Mitigation Only-2	PG&E - Compensatory Mitigation	public	8/21/2015	$ 190,364.77	14.55			1.37 acres for CTS and CRLF, 0.3 acres for SJKF, 12.88 acres of serpentine for BCB
FY1516	Mitigation Only-3	Caltrans - Truck Climbing Lane Segment D	public	4/7/2016	$ 40,092.80	13.44			CTS, CRLF, SJKF. Fees collected must be applied to Reserve System lands for these species. 14.64 acres Required (remaining 1.2 acres to be covered by Hecker Pass Project)
FY1516	Mitigation Only-4	Caltrans - Watsonville Rd / Hecker Pass (152)	public	4/7/2016	$ 266,171.13	34.5			CTS and CRLF
FY1617	Mitigation Only-5	Uvas Creek Mitigation	public	7/28/2016	$ 440,886.91	20.92			CFLF, and LBV.Fees collected must be applied to Reserve System lands for these species. 20.92 acres
FY1617	Mitigation Only-6	San Jose Water Company/Calero Park Wetland Mitigation	public	7/20/2016	$ 58,580.00	0.02	0.02	Calero Wetland	Creation/Restoration Fees collected to be applied to Wetland Creation and Maintenance, .02 acres

Year	Code	Project Name/Source	Type	Date	Revenue	Mitigation (Acres)	Notes
FY1617	Mitigation Only-7	Lower Silver Creek Trestle Removal	public	1/12/2017	$ 882.00	140 lin ft stream impact	
FY1617	Voluntary Contribution-9	Valley Christian Schools	private	1/12/2017	$ 40,092.80		
FY1415	Projects	8			$ 724,058.90		
FY1516	Projects	3			$ 496,628.70		
FY1617	Projects	4			$ 540,441.71		
Total		**15**			**$ 1,761,129.31**		

Table 26. Grants Awarded for Implementation of Santa Clara Valley Habitat Plan

Funding Source	Agency	Purpose	Amount	Awarded to	Habitat Agency Match	Amount Expended	Remaining
CVPCP/HRP (2014)	USBR & USFWS	Acquisition: Coyote Ridge	$ 1,000,000	SCVOSA		$1,000,000	$0
CVPCP/HRP (2017)	USBR & USFWS	Acquisition: Richmond Ranch ($1M)	Returned	SCVHA		Returned	$0
CVPCP/HRP (2017)	USBR & USFWS	Restoration: Coyote Ridge	$ 839,382	SCVOSA	$118,000		$839,382
State Parks Recreational Trails Program (2014)	CDPR	Acquisition: Coyote Ridge	$ 400,000	SCVOSA		$400,000	$0
State Coastal Conservancy (2014)	State Coastal Conservancy	Acquisition: Coyote Ridge	$ 1,000,000	SCVOSA		$1,000,000	$0
Resource Legacy Fund (2014)	Resource Legacy Fund	Acquisition: Coyote Ridge	$ 500,000	SCVOSA		$500,000	$0
Section 6 (2014)	USFWS	Acquisition: Coyote Ridge	$ 2,000,000	SCVOSA		$2,000,000	$0
Section 6 (2016)	USFWS	Acquisition	$ 2,000,000	SCVHA		$0	$2,000,000
Wildlife Conservation Board (2015)	Wildlife Conservation Board	Acquisition: Coyote Ridge	$ 2,700,000	SCVOSA		$2,700,000	$0
Gordon and Betty Moore Foundation (2014)	Gordon and Betty Moore Foundation	Acquisition: Coyote Ridge	$ 1,000,000	SCVOSA		$1,000,000	$0
NCCP Local Assistance (2013)	CDFW	Research: Corridor	$ 26,800	SCVOSA		$26,800	$0
NCCP Local Assistance (2013)	CDFW	Research: BUOW	$ 38,401	SCVAS		$38,401	$0
NCCP Local Assistance (2013)	CDFW	Research: Corridor	$ 75,000	UCSC		$75,000	$0
NCCP Local Assistance (2014)	CDFW	Research: Sycamore	$ 93,965	SFEI	$4,698	$93,965	$0
NCCP Local Assistance (2014)	CDFW	Research: Grazing	$ 85,126	SCVHA	$8,513	$85,126	$0
NCCP Local Assistance (2015)	CDFW	Research: BUOW	$ 68,840	SFBBO	$20,000		$68,840
NCCP Local Assistance (2015)	CDFW	Research: Hydroperiod	$ 99,957	GCRCD	$12,500		$99,957
NCCP Local Assistance (2015)	CDFW	Research: Phytophthora	$ 85,755	SCVHA			$85,755
NCCP Local Assistance (2016)	CDFW	Research: Corridor	$ 75,440	SCVOSA			$75,440
NCCP Local Assistance (2016)	CDFW	Research: N-Dep	$ 80,000	SCVHA	$10,000		$80,000
NCCP Local Assistance (2016)	CDFW	Research: TRBL	$ 20,556	Talon	$20,556		$20,556
NCCP Local Assistance (2017)	CDFW	Research: Corridor	$ 30,450	SCVHA	$15,000		$30,450
NCCP Local Assistance (2017)	CDFW	Research: Sycamore	$ 76,093	SCVHA	$13,200		$76,093
TOTAL			**$12,295,765**		**$222,467**	**$8,919,292**	**$3,269,930**

Coyote Ridge Open Space Preserve

Acquired by:	Santa Clara County Open Space Authority
Date Acquired:	10/21/2015 Acquisition
Acres:	1,802.10
Key land cover:	serpentine grassland, California annual grassland, coast live oak forest and woodlands, steams
Appraised value:	$ 15,650,000
Purchase Price:	$ 8,607,500
Difference:	$ 7,042,500
Eligible for the following Section 6 grants:	FY1314

Funding Source	Funding amount	Type	Percent	Source of non-federal match?	
State Parks Recreational Trails Program	$ 400,000	State	5%	Yes	$ 4,100,000
State Coastal Conservancy	$ 1,000,000	State	12%	Yes	$ 1,500,000
Resource Legacy Fund	$ 500,000	Private	6%	Yes	$ 7,500
Wildlife Conservation Board	$ 2,700,000	State	31%	Yes	$ 3,000,000
Gordon and Betty Moore Foundation	$ 1,000,000	Private	12%	Yes	
Santa Clara County Open Space Authority	$ 7,500	Local	0%	Yes	
BOR Central Valley Project	$ 1,000,000	Federal	12%	No	
USFWS Section 6 Grant	$ 2,000,000	Federal	23%	No	
TOTAL	$ 8,607,500		100%		

Non-Federal Match Needed: $ 1,100,000 (amount necessary to achieve 55:45 ratio to match Section 6)

Match available:

Source	
State Parks Recreational Trails Program	$ 400,000
State Coastal Conservancy	$ 1,000,000
Resource Legacy Fund	$ 500,000
Wildlife Conservation Board	$ 2,700,000
Gordon and Betty Moore Foundation	$ 1,000,000
Santa Clara County Open Space Authority	$ 7,500
	$ 5,607,500

Excess match: $ 4,507,500

Pacheco Creek Reserve

Acquired by:	Santa Clara Valley Habitat Agency	
Date Acquired:	6/26/2017	Acquisition
Acres:	55.40	
Key land cover:	willow riparian forest and scrub, mixed riparian forest and woodland, Central CA sycamore alluvial woodland, California annual grassland, stream	
Appraised value:	N/A	
Purchase Price:	donation	
Difference:	N/A	
Eligible for the following Section 6 grants:	N/A	

Funding Source

Property was donated to the Habitat Agency from Caltrans

Chapter 11
Program Administration

The Habitat Plan permits were issued in July 2013, and with the close of FY2016–2017, the Habitat Agency neared 4 years of Habitat Plan implementation. This period focused on continuing to grow the Habitat Agency by hiring staff and continuing to develop governing policies and guidance documents; conducting advocacy and outreach to state and federal governments, and continuing the momentum of a dedicated Co-Permittee staff, regulators, and private citizens by hosting trainings and workshops and serving as stakeholders on a number of regional conservation efforts in the San Francisco Bay Area.

This chapter highlights implementation accomplishments and provides a summary of executive officer directives, interpretation and clarification memorandums, mitigation agreements, and administrative changes and minor modifications to the Habitat Plan and other conservation efforts during the Annual Reporting period.

Major Accomplishments

New Staff and Employee Policies

The Habitat Agency hired two new staff members, Gerry Haas, as the Principal Planner on a full-time basis, and Denise Rosenberger, as the Accounting Assistant, on a part time basis.

The Habitat Agency developed an employee handbook to lay out the employee rules and regulations and to make employees aware of their rights through state and federal law. The Habitat Agency also developed a 401K safe harbor program to be consistent with the Internal Revenue Service rules and regulations.

Endowment

The Habitat Agency selected the Silicon Valley Community Foundation as its endowment holder after careful evaluation. For investment with the Silicon Valley Community Foundation, the Habitat Agency set up a 501(c)(3) organization—Friends of the Santa Clara Valley Habitat Agency (Friends)—to own the mitigation fund, and the 501(c)(3) will invest the fund through a Nonprofit Investment Fund at Silicon Valley Community Foundation. The Articles of Incorporation for the Friends group were filed by the State of California on May 15, 2017. The Board of Directors held its first official meeting on July 26, 2017, at which time the Board-appointed officers and took other necessary start up actions, including adopting Bylaws. The required Statement of Information (SI-100) has been field with California Secretary of State. The officers of the Friends are:

- Edmund Sullivan, Chair
- Julie Hutcheson, Vice-Chair and Secretary
- Christina Turner, Chief Financial Officer

The Board held a second meeting on September 12, 2017, at which time it adopted the minutes of its first meeting, as well as a conflicts of interest policy. The paperwork for filing with the IRS for 501

(c) (3) status has been submitted. Once the process is completed the paperwork for filing with the State Franchise Tax Board for an exemption from state income taxes will be undertaken. Within 30 days of receipt of assets, the Friends will need to register with the California Attorney General's Registry of Charitable Trusts.

New Payroll Company

The Habitat Agency changed their payroll company from Santa Clara County to the JPMorgan Chase Bank, N.A.

Financial Audit

The Habitat Agency commenced the audit of its financial statements of the government activities and major funds in September of 2016. The Habitat Agency hired the certified public accountant Patel & Associates and facilitated and directed the completion of their audit report. Patel & Associates, published their findings on December 17, 2015. Significant audit findings were as follows:

- The financial statement disclosures were neutral, consistent, and clear.
- Patel & Associates encountered no significant difficulties in dealing with the Habitat Agency in performing and completing their audit.
- The Habitat Agency corrected all misstatements. In addition, none of the misstatements detected as a result of audit procedures and corrected by the Habitat Agency were material, either individually or in the aggregate, to each opinion unit's financial statements taken as a whole.
- No disagreements between Patel & Associates, and the Habitat Agency arose during the course of their audit.
- Patel & Associates did not audit the Habitat Agency's required supplementary information and did not express an opinion or provide any assurance on the required supplementary information.

Advocacy and Outreach

The Habitat Agency conducts legislative advocacy to ensure continued funding streams are still available for HCP/NCCP. This is an ongoing effort on the part of the Habitat Agency. For example, the Cooperative Endangered Species Conservation Fund (Section 6 of the Endangered Species Act) provides funding to states and territories for species and habitat conservation actions on non-federal lands. Edmund Sullivan attended and participated in the second National HCP Coalition annual meeting December 2016 in Shepherdstown, West Virginia at the USFWS National Conservation Training Center. The Habitat Agency is a founding member of the National HCP Coalition. The mission of the Coalition is to "Further the use, effectiveness of and support for large-scale HCPs as local solutions to facilitate economic development and the conservation of threatened and endangered species and their habitats." Edmund Sullivan, the Executive Officer, is an active participant in the Coalition's national work to promote HCPs as a practical tool to streamline permits for development and infrastructure projects and for conservation.

Regional General Permit

On January 15, 2016, the U.S. Army Corps of Engineers (Corps), San Francisco District, issued a Regional General Permit (RGP) to the City of San José, City of Morgan Hill, City of Gilroy, County of Santa Clara, SCVWD, Santa Clara Valley Transportation Authority, and the Santa Clara Valley Habitat Agency, for impacts to waters of the U.S. associated with many projects and activities covered by the Habitat Plan.

This 5-year permit provides a framework for integrating and streamlining waters permitting under Section 404 of the Clean Water Act with the endangered species permitting already in place under the Habitat Plan. The RGP covers 17 categories of activities, setting thresholds for impacts that range from less than 0.1 acre to 0.5 acre and providing an expedited process for reviewing and processing project-specific waters permits. The RGP represents a major milestone in the implementation of the Habitat Plan. The RGP will help to ensure consistent and streamlined waters permitting for projects covered by the Habitat Plan that have impacts to waters of the U.S. This RGP is only the second issued in the United States associated with an approved HCP (the first was in East Contra Costa County).

Key RGP Accomplishments in the reporting period are as follows.

- Permitted two private projects: 1) International Paper in Gilroy and, 2) the Watsonville Road Widening Project in Morgan Hill.
- Permitted one public project: San Jose Stormwater Outfall Repair/Replacement (eight outfall projects permitted under a single application).
- The International Paper Project and the San Jose Stormwater Outfall Project resulted in a combined 0.03 acre of temporary impacts to waters of the U.S. Accordingly, 0.03 credits will be deducted from the RGP ledger.
- The Watsonville Road Widening Project resulted in an additional 0.03 acre of permanent impacts to wetlands and other waters. However, these impacts will not be deducted from the Agency's available uniform credits as the applicant opted instead to pay for impacts directly to the Corps through the Pajaro Mitigation Bank.
- The Agency continued to work on establishing an In-Lieu Fee Program to support the Regional General Permit. We received comments on the public draft prospectus. Our consultants are presently preparing the ILP Agreement.
- Submitted the second RGP Annual Report to the Corps.

Cumulative Scenario:

- A total of 0.18 uniform mitigation credits and 0.12 preservation credits have been generated by prior restoration projects undertaken by the Habitat Agency.
- The two projects noted above represent the total cumulative debits to date from the RGP ledger.
- Two additional restoration projects are planned for the summer of 2018 and will result in the accumulation of new credits for the RGP.

Permit Integration

The Habitat Agency continued working with the San Francisco Bay and Central Coast Regional Water Quality Control Boards to develop a permit compliance strategy for state and federal water quality regulations. Work focused on defining the suite of activities that could be covered by a Clean Water Act 401 water quality certification or a program-level waste discharge requirement.

The Habitat Agency also continued a dialog with the National Marine Fisheries Service regarding establishing a programmatic Biological Opinion to support the RGP. In October 2016, the National Marine Fisheries Service tentatively agreed to work with the Habitat Agency in developing a programmatic Biological Assessment which would apply to projects using the RGP but that cannot meet the not likely to adversely affect requirements for listed salmonid currently tied to the RGP.

Trainings and Workshops

The Habitat Agency completed one co-permittee training for Santa Clara County Roads and Airports Division on April 13, 2017. The training serves to streamline onboarding for new staff who may work on covered projects, providing them with an overview of the Habitat Plan, Co-Permittee roles, and application process.

That Habitat Agency hosted the California Habitat Coalition annual meeting in Morgan Hill on April 26, 2017. The event was attended by approximately 50 individuals from various local, state, and federal agencies and private companies, as well as Habitat Agency staff and their consultants. Topics discussed at the workshops included restoration, reserve management plans, serpentine soils and nitrogen deposition, western burrowing owl science and management, and wildlife connectivity.

Interpretation and Clarification Memos

The Co-Permittees approved six new interpretation and clarification memorandums to allow for consistent application of requirements across all covered projects. These memorandums were workshopped by the Implementation Committee and then submitted for review and approval by the Co-Permittee Committee. A summary of the memorandums was provided at the Technical Advisory Committee. A complete record of these memorandums can be found on the Habitat Agency website.[9]

- **2017-001- Habitat Plan Consistency with Oak Woodlands Conservation Act.** Administrative Modification to the Habitat Plan Condition 14 to clarify that covered projects that impact oak woodlands are exempt from the mitigation requirements of the Oak Woodland Conservation Act.
- **2017-002a - Covered Plant Survey Timing.** This memo allows for year-round surveys of Coyote ceanothus (*Ceanothus ferrisiae*) and Mount Hamilton thistle (*Cirsium fontinale* var. *campylon*), expanding the appropriate survey period for these species.
- **2017-002b - Definition of a Covered Plan Occurrence and Tracking Occurrences.** This memo provides guidance on defining and tracking covered plant species occurrences and establishes a survey and tracking protocol.

[9] http://scv-habitatagency.org/297/Interpretations

- **2017-002c - Assessing Impacts to Covered Plant Occurrences.** This memo provides guidance on assessing temporary and permanent impacts on covered plant occurrences, and partial occurrences impacts, and inaccessible plant occurrences.
- **2017-002c - Riparian Habitat Temporary Impact Fee Determination.** This memo reduces fees on multi-year projects that restore previously degraded riparian habitat from a permanent fee to a reduced temporary fee.
- **2017-002 - Coyote Brush Classification.** This memo clarifies the definition of the coyote brush scrub land cover type and provides a process for differentiating this land cover type from other chaparral/scrub communities.

Modifications to the Habitat Plan

The Habitat Plan or' incidental take permits can be modified in accordance with USFWS and CDFW regulations and the terms of the Implementing Agreement. Habitat Plan modifications are not anticipated on a regular basis. Modifications can be requested by a Co-Permittee or by the permitting agencies. The categories of modification are administrative changes, minor modifications, and amendments. There were three modifications to the Habitat Plan in 2017. **Table 28** summarizes Technical Advisory Committee Accomplishments and Wildlife Agencies' Approvals.

- **2017-01 - Definition of Temporary Impacts for In-Stream Projects.** The modification clarifies the definition of temporary impacts for seasonally restricted, multi-year, in-stream projects. Temporary impacts must be a year or less in duration, but for some projects, the 1-year duration of stream channel dewatering cannot occur consecutively (i.e., within the same calendar year). The Habitat Plan was modified to state that, "Certain in-stream projects that require multiple construction seasons to complete, but which result in less than 365 cumulative days of impacts, are also considered temporary." Projects which occur over multiple years, and which return the areas of impact to pre-project conditions in between each construction season, meet the definition of a temporary impact provided the cumulative impact remains 1 year or less.
- **2017-02 - Condition 16: Least Bell's Vireo Survey Requirements.** Condition 16 of the Habitat Plan, which requires pre-construction surveys in least Bell's vireo habitat, is inconsistent with USFWS's 2001 survey protocol and does not provide guidance on how to determine if nesting habitat is present on adjacent parcels that are privately owned. The two main differences between the Habitat Plan condition and 2001 USFWS protocol are as follows.
    - The 2001 USFWS protocol requires up to eight surveys that are spaced 10 days apart. Condition 16 in the Habitat Plan requires only two surveys, one 14 days in advance of the work and a second survey no more than 2 days before the construction begins.
    - The 2001 USFWS protocol defines breeding season as April 10–July 31. Condition 16 in the Habitat Plan defines breeding season as March 15–July 31.

    To provide clarification on how Condition 16 should be implemented, the survey protocol in Condition 16 was updated to specify which components of the 2001 USFWS protocol should be followed. The survey protocol was also updated to provide instruction on how to survey for least Bell's vireo when site access is not granted. The Condition was also updated to provide guidance on when surveys are to be conducted in relation to breeding season.

- **2017-03 - Condition 17: Tricolored Blackbird Survey Requirements.** Condition 17 of the Habitat Plan, which outlines the tricolored blackbird survey requirements, requires survey in areas unlikely to support nesting colonies due to the unsuitability of the surrounding habitat (e.g., urban centers) and in a land cover type (riparian) where the species has not been known to nest in Santa Clara County. Additionally, Condition 17 does not provide guidance on how to determine if nesting habitat is present on adjacent parcels that cannot be accessed.

  The survey protocol was updated to provide guidance on how areas with potential nesting habitat is identified, instruction on how to survey for tricolored blackbird when site access is not granted, and to provide guidance on when surveys are to be conducted in relation to breeding season.

Other Conservation Efforts

The Habitat Agency provides stakeholder input for a number of conservation efforts in the Habitat Plan area and the greater San Francisco Bay Area. Conservation efforts that Habitat Agency participated in during the reporting year include the following.

- Conservations Lands Network updates
- Regional Advance Mitigation Program
- Santa Clara Valley Regional Conservation Investment Strategy
- Coyote Valley Landscape Linkages
- High Speed Rail
- Pajaro Compass
- Wildlife Connectivity Working Group and Coyote Valley subgroup

Table 28. Reporting Period Technical Advisory Committee Accomplishments and Wildlife Agencies' Approvals

	Meeting Date Assigned	Action Item	Date Complete
1.	3/24/2016	Terah - Post the research on the website. Follow-up with Brenda and Dave about getting LAG reports.	6/1/2016
2.	8/27/2015	Terah will create a Section 7 nexus information packet with summary of process (include flow chart) and more detailed instructions on how to fill out the Section 7 memo	7/1/2016
3.	6/23/2016	Habitat Agency will talk to Joe and Don regarding SMP amendment	8/1/2016
4.	6/23/2016	Terah will schedule field visit with Dave, Joseph, and Kim Rook to Lands of Masrani to assess for Land in Lieu	11/10/2016
5.	8/25/2016	Terah will follow up with RCD on LAG	9/22/2016
6.	9/22/2016	All. Provide comments on the SJKF clarification.	10/22/2016
7.	9/22/2016	All. Provide comments on the TRBL clarification. Joseph will provide to Eric for review after comments received.	11/10/2016
8.	9/22/2016	Habitat Agency. Update TRBL with habitat parameters for reservoir.	10/22/2016
9.	9/22/2016	Joseph. Will ask Stephanie what they are doing in ECCC for SJKF	10/22/2016
10.	10/27/2016	Joseph will set up a call to go over the Vireo, TRBL interpretations. Include Steve R. on the call.	12/1/2016
11.	10/27/2016	Terah/Ed/Don A. will review email from Joseph regarding Vireo and see if we can find the documents.	12/1/2016
12.	4/28/2016	Gerry and Ed write process and interpretation - Assessment of Wetland Fees and Impacts for Multi-year projects with impacts that do not meet the Habitat Plan's definition of temporary	2/1/2017
13.	9/24/2015	Ed/Gerry: will update Kit Fox condition to allow additional flexibility	11/1/2016
		· Determine that Kit Fox are not there (monitor)	
		· Reduce size of opening	
		· Unblock	
14.	2/23/2017	Terah - provide Don with Karen S. contact information from HSR to invite to Connectivity meeting	3/1/2017
15.	9/22/2016	Don A. - Establish Connectivity Resource Group. Circle up with Ann, Don A., Galli and proposed approach. Take a look at the original Resource Group (Caltrans, Pathway, City of San Jose, Chris Wilmers? (Someone from Santa Cruz?), TNC?, County Parks, De Anza?, Dave Johnston)	3/22/2017

Table 28. Reporting Period Technical Advisory Committee Accomplishments and Wildlife Agencies' Approvals

	Meeting Date Assigned	Action Item	Date Complete
16.	4/28/2016	Gerry and Ed will develop a temporary impact follow-up/enforcement process for permitted projects.	2/1/2017
17.	3/24/2016	Terah - Santa Clara Valley Water District - D2 has a corridor component and they are looking for partnerships - talk to Don Arnold about it.	4/1/2017
18.	3/22/2017	Terah will send out link to SAW LAG study	4/1/2017
19.	1/22/2015	Terah/Torrey will develop work products related to two items: Phytophthora and pathogen outbreaks	6/1/2017
		· Review changed circumstances to address pathogen outbreaks (under invasive species). Develop general process to address these issues (Look at Ch 7 and 8)	
		· AMMs for work in and around existing covered plant populations	
		· AMMs for restoration.	
		· AMMs for nurseries to ensure pathogen prevention	
		· Address in the ecological models	

Chapter 12
References Cited

Literature Cited

Bartolome, J,W., Allen-Diaz, B.H., Barry, S., Ford, L.D., Hammond, M., Hopkinson, P., Ratcliff, F., Spiegal, S., and White, M.D. 2014. *Grazing for biodiversity in Californian Mediterranean grasslands*. Rangelands 36(5):36-43.

Benabente, J., Davies, K., Cornish, P., Ghosal, S., Green, S., Correia, C., Lao, W., Chang, D., McCluskey, J., Higgins, P. 2016. *San Jose- Santa Clara Regional Waterwater Facility Bufferlands Burrowing Owl Habitat Management Plan.* City of San Jose and Santa Clara Valley Audubon Society

Chromcazk D. 2017. *Santa Clara Valley Habitat Agency Burrowing Owl Banding Study: Warm Springs Unit, Don Edwards San Francisco Bay National Wildlife Refuge*. October 23. Prepared for the Santa Clara Valley Habitat Agency, United States Fish and Wildlife Service, San Francisco Bay Bird Observatory, and California Department of Fish and Wildlife.

Creekside Center for Earth Observation. 2017. *Draft Coyote Ridge Open Space Preserve Baseline Surveys 2016–2017*. October. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Dukes and Shaw. 2007. *Responses to changing atmosphere and climate*. Pp. 218–232 in California Grasslands: Ecology and Management, M.R. Stromberg, J.D. Corbin, and C. D'Antonio, eds. Berkeley: UC Press

Guenther and Hayes. 2008. *Monitoring annual grassland residual dry matter: a mulch manager's guide for monitoring success.*2nd ed. Wildland Solutions,Concord, CA, USA.

H. T. Harvey and Associates. 2016. *Calero County Park Pond and Wetland Restoration Project Mitigation and Monitoring Plan*. Prepared for the Santa Clara Valley Habitat Agency. September 6.

H. T. Harvey and Associates. 2017. *Calero County Park Pond and Wetland Restoration Project – Year 1 Monitoring Report*. Los Gatos, California. December. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Higgens, P., Chromczak, D. Trulio, Lynne, Ph.D. 2017. *Burrowing Owl Supplemental Feeding Study-Progress Report Number 1.* December. Prepared for the Santa Clara Valley Habitat Agency.

ICF 2017. *Santa Clara Valley Habitat Plan 2017 Burrowing Owl Breeding Season Surveys. Annual Report.* 00249.16. October. Prepared for the Santa Clara Valley Habitat Agency.

Intergovernmental Panel on Climate Change. 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor and H. L. Miller (eds.). Cambridge, UK and New York, NY: Cambridge University Press. Available:

Kakourous, A., and Burns, C. 2014. *Burrowing Owl Counts, Surveys, and Nesting Habitat Maintenance at Warm Springs Unit Proposed Scope of Work.* San Francisco Bay Bird Observatory. December 12.

LD Ford Rangeland Conservation Science, the Nature Conservancy, ICF, University of California Santa Cruz, University of California Berkeley. 2017. *Alternative Grazing Monitoring Methodology Assessment*. Prepared for California Department of Fish and Wildlife.

Lordeo, I., no date. *Santa Clara Valley Western Burrowing Owl Management Plan for the Warm Springs Unit.* Don Edwards National Wildlife Refuge Complex. Fremont, CA.

Menzel, S., Trulio, L., Ph.D., Kortman, C. 2017. *Burrowing Owl Habitat Assessment of Public Lands throughout Santa Clara County.* May.

Weiss, S.B., D.D. Murphy, and R.R. White. 1988. *Sun, slope, and butterflies: topographic determinants of habitat quality for Euphydryas editha bayensis*. Ecology 69:1486-1496.

National Research Council. 2010. *America's Climate Choices: Panel on Advancing the Science of Climate Change*.

Nomad Ecology. 2017a. *Draft Baseline Covered Plant Species Inventory; Calero Conservation Easement*. Martinez, CA. December. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Nomad Ecology. 2017b. *Draft Baseline Wildlife Survey Report; Calero Conservation Easement*. Martinez, CA. December. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Nomad Ecology. 2017c. *Draft Stream Habitat and Restoration Assessment Technical Memorandum; Calero Conservation Easement*. Martinez, CA. December. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Phillips, Ryan. 2017. *Tricolored Blackbird Nesting and Foraging Monitoring Project.* Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Santa Clara Valley Habitat Agency. 2017. *Burrowing Owl Breeding Season Survey Report*. October.

Santa Clara Valley Habitat Agency. 2018. Western Burrowing Owl Management and Monitoring Plan for San Jose-Santa Clara Regional Wastewater Facility Bufferlands. January.

Swiecki, T, Ph.D. 2017. An Evaluation of the Threats Posed by Exotic *Phytophthora* species to the endangered Coyote ceanothus and selected natural communities in the Plan Area. Phytosphere Research. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Weiss, S. B. 1996. *Weather, landscape structure, and the population ecology of a threatened butterfly*. Biological Sciences. Stanford, Stanford University. Ph.D.: 119.

Weiss, S.B., Ph.D. 2017. Annual Progress Report on Nitrogen LAG Grant: Monitoring Nitrogen Deposition in the Santa Clara Valley. January 19. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

WRA. 2011. *Grazing Management Plan Evaluation Report Warm Springs Seasonal Wetland Unit*.

Personal Communication

Galli Basson. 2018. Email to Terah Donovan. Santa Clara Valley Habitat Authority. Coyote Valley Bobcat and Gray Fox Connectivity Study. January 18.

Eric Donaldson. 2018. Email to Terah Donovan. Santa Clara Valley Habitat Authority. Modeling Climate Change Effects on Pond Hydroperiods in the Coyote Valley. January 18.

Janell Hillman. 2018. Coyote Ceanothus Population Creation Project. Email to Terah Donovan. Santa Clara Valley Habitat Authority. January 18. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Lynn Trulio. 2018. Burrowing Owl Monitoring Summary 2016–2018. Email to Terah Donovan. , J. 2018. Coyote Ceanothus Population Creation Project. Email to Terah Donovan. Santa Clara Valley Habitat Authority. January 21. Prepared for Santa Clara Valley Habitat Authority. Morgan Hill, CA.

Chapter 13
List of Preparers

Santa Clara Valley Habitat Agency

Edmund Sullivan

Terah Donovan

Gerry Haas

Jill Mross

Denis Rosenberger

County of Santa Clara

Greg Bazhaw

Santa Clara Valley Water District

Janell Hillman

ICF

Torrey Edell

Kathryn Gaffney

David Zippin

Ariana Marquis

Anthony Ha

Kailash Mozumder

Karl Dickman