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April 2024

Santa Clara Valley Habitat Plan

ANNUAL REPORT FY2022–2023

Contents

Santa Clara Valley Habitat Agency. 2024. *Santa Clara Valley Habitat Plan: FY2022–2023 Annual Report.* April. Prepared with assistance from ICF and Dudek.

Tables & Figures

Tables & Figures (continued)

Abbreviations

CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
Co-Permittees	Cities of San José, Gilroy, and Morgan Hill; County of Santa Clara; Santa Clara Valley Water District; Santa Clara Valley Transportation Authority
County	County of Santa Clara
ESA	federal Endangered Species Act
FY	fiscal year
Habitat Agency	Santa Clara Valley Habitat Agency
Habitat Plan	Santa Clara Valley Habitat Conservation Plan / Natural Community Conservation Plan
HCP	habitat conservation plan
NCCP	natural community conservation plan
NCVCA	North Coyote Valley Conservation Area
O&M	operations and maintenance
OSA	Open Space Authority
PSE	Participating Special Entity
RWF	Regional Wastewater Facility
USFWS	U.S. Fish and Wildlife Service
Valley Water	Santa Clara Valley Water District
VTA	Santa Clara Valley Transportation Authority

Introduction

This document is the ninth Annual Report for the Habitat Plan. It summarizes implementation activities undertaken during the FY2022–2023 reporting period (July 1, 2022–June 30, 2023) and since plan inception, and it charts progress toward achieving the Habitat Plan's biological goals and objectives.

Prepared by the Santa Clara Valley Habitat Agency (Habitat Agency), this annual report summarizes implementation activities undertaken during the reporting period (Fiscal Year [FY] 2022–2023, or July 1, 2022, through June 30, 2023) and cumulatively through permit term Year 10 of 50 per the conditions of the Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP, or Habitat Plan).

The Habitat Plan offers a streamlined federal Endangered Species Act (ESA) and California Endangered Species Act (CESA) permitting process for development activities in the Plan Area while protecting, enhancing, and restoring valuable natural resources in Santa Clara County and contributing to the recovery of threatened and endangered species. 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 to comply with the ESA and California's Natural Community Conservation Planning Act. The Habitat Plan's Co-Permittees are the City of Gilroy, City of Morgan Hill, City of San José, County of Santa Clara (County), Santa Clara Valley Water District (Valley Water), and the Santa Clara Valley Transportation Authority (VTA).

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 (**Table 1**) as well as the natural communities that they—and hundreds of other species—depend on for habitat.

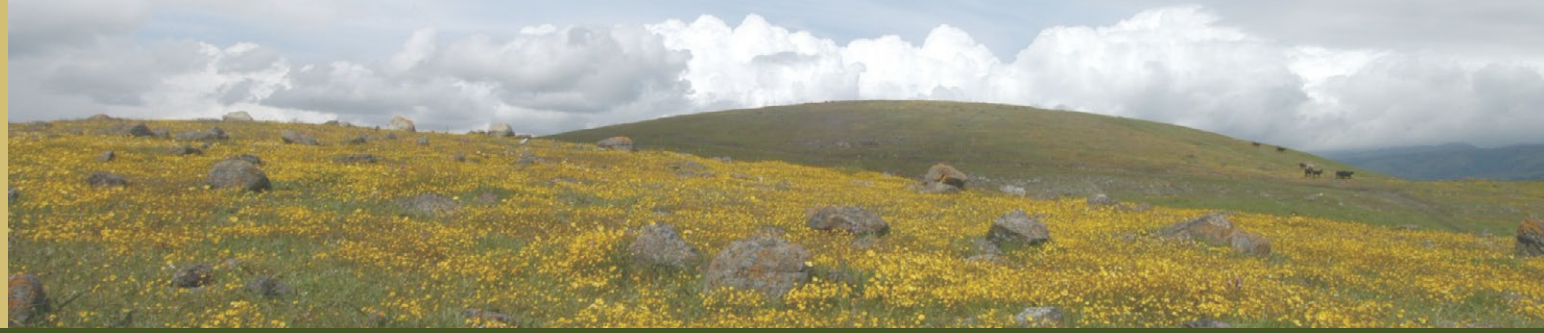


Table 1. Covered Species of the Habitat Plan

Common Name	Scientific Name	Status—State/CNPS[a,b]	Status—Federal[c]
Invertebrates			
Bay checkerspot butterfly	*Euphydryas editha bayensis*	—	FT
Amphibians and Reptiles			
California tiger salamander	*Ambystoma californiense*	ST	FT
California red-legged frog	*Rana draytonii*	CSC	FT
Foothill yellow-legged frog	*Rana boylii*	SE	FT
Western pond turtle	*Clemmys marmorata*	CSC	FPT
Birds			
Western burrowing owl	*Athene cunicularia hypugea*	CSC	MBTA
Least Bell's vireo	*Vireo bellii pusillus*	SE	FE, MBTA
Tricolored blackbird	*Agelaius tricolor*	ST	MBTA
Mammals			
San Joaquin kit fox	*Vulpes macrotis mutica*	ST	FE
Plants			
Tiburon paintbrush	*Castilleja affinis* ssp. *neglecta*	ST/1B	FE
Coyote ceanothus	*Ceanothus ferrisiae*	1B	FE
Mount Hamilton thistle	*Cirsium fontinale* var. *campylon*	1B	—
Santa Clara valley dudleya	*Dudleya abramsii* ssp. *setchellii*	1B	FE
Fragrant fritillary	*Fritillaria liliacea*	1B	—
Loma Prieta hoita	*Hoita strobilina*	1B	—
Smooth lessingia	*Lessingia micradenia* var. *glabrata*	1B	—
Metcalf Canyon jewelflower	*Streptanthus albidus* ssp. *albidus*	1B	FE
Most beautiful jewelflower	*Streptanthus albidus* ssp. *peramoenus*	1B	—

[a] **State Status:**

SE State Listed as Endangered
ST State Listed as Threatened
CSC California Special Concern Species

[b] **California Native Plant Society (CNPS):**

1B Rare, Threatened, or Endangered in California and Elsewhere

[c] **Federal Status:**

FE Federally Listed as Endangered
FT Federally Listed as Threatened
FC Federal Candidate
FPT Federally Proposed as Threatened
MBTA Migratory Bird Treaty Act

This section describes covered activities and their impacts on land cover types, modeled species habitats, and covered plants.

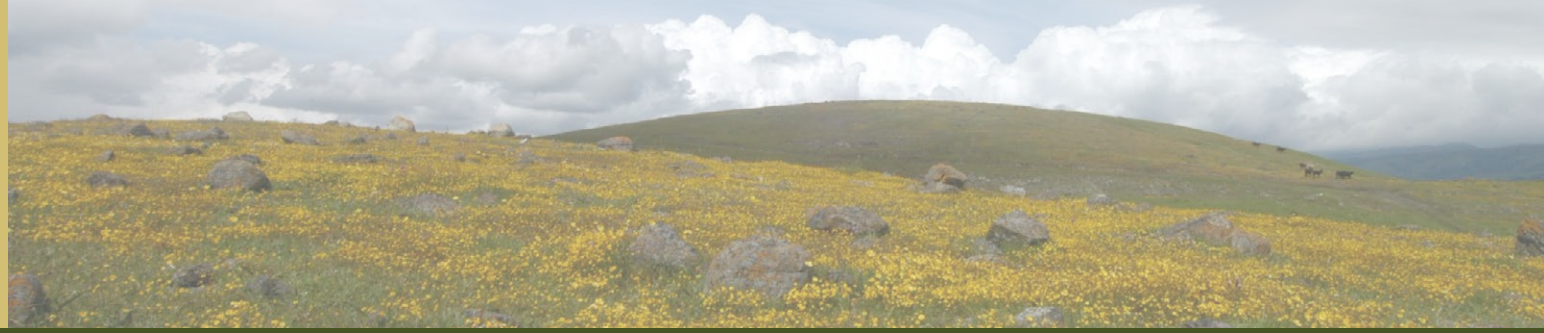
Covered Activities

The Habitat Plan allows incidental take coverage for the following covered activities, as described in Chapter 2 of the Habitat Plan.

- Urban development projects
- In-stream capital projects
- In-stream operations and maintenance (O&M) activities
- Rural capital projects
- Rural O&M activities
- Rural development projects
- Conservation strategy implementation
- Nitrogen deposition–only projects*

Figures 1–3 and **Tables 2 and 3** summarize covered activities undertaken during the reporting period and since Habitat Plan inception. **Figures 4 and 5** and **Tables 3–8** quantify impacts associated with these covered activities.

* *Nitrogen deposition–only projects* are development projects that do not contribute to land cover impacts in the Plan Area but do contribute to cumulative nitrogen deposition impacts.



Covered Activity Highlight: Bolsa Road Fish Passage and Stream Restoration Project

On June 15, 2023, Valley Water began constructing the Bolsa Road Fish Passage Project on Uvas-Carnadero Creek. The project improved habitat value on 1,700 linear feet of the creek, which had become eroded and filled with debris. In addition to providing fish passage benefits, the project improved in-stream habitat complexity, stabilized eroding banks that posed the risk of tree loss, removed debris, and enhanced the riparian understory.

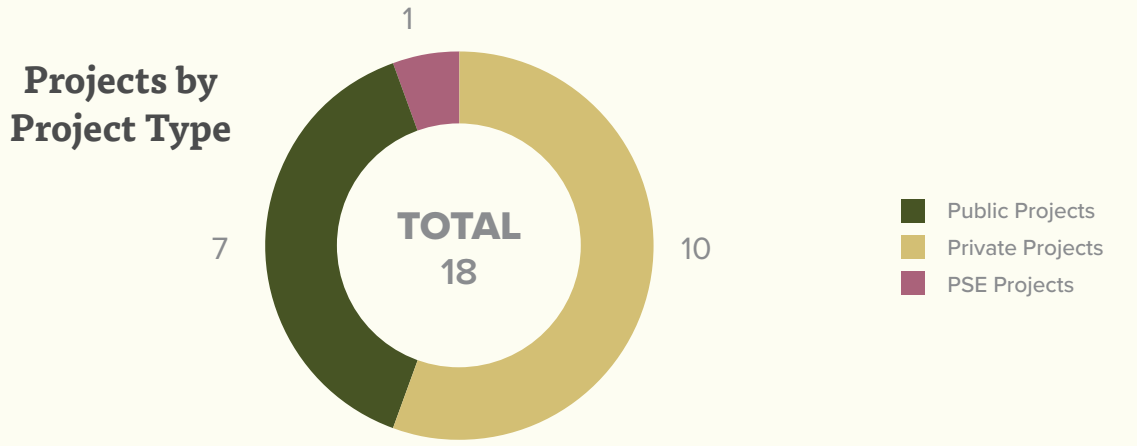
Valley Water collaborated with the Habitat Agency and with USFWS and CDFW, who agreed in August 2021 that the project qualifies as stream restoration contributing to the requirements of the Habitat Plan. The exact length of stream restoration credit claimed for the Habitat Plan will be determined following subsequent monitoring to determine the project's success. For the time being, the Habitat Agency has assumed 850 linear feet of stream restoration credit because this was the quantity originally discussed with all parties.

This project illustrates the promise and potential of the Habitat Plan in providing opportunities for ecological benefits through partnerships among the Co-Permittees.

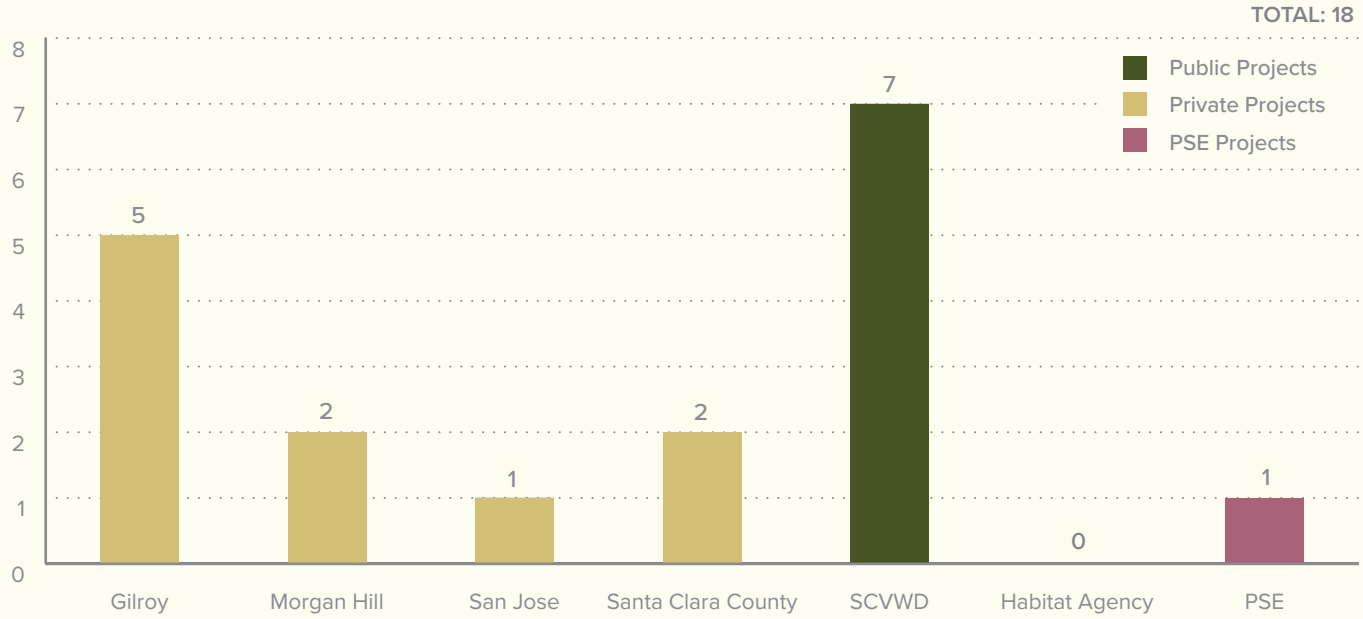
Creating a riffle-pool complex and stabilizing banks. These in-progress project photos show installation of rock to create riffles and dirt to create pools (left). Improvements were also made to the banks adjoining the riffles and pools to create a stable channel configuration (right).

During the reporting period, 18 projects received coverage under the Habitat Plan: 10 private projects, 7 public projects, and 1 Participating Special Entity (PSE) project. The PSE project was carried out by the Santa Clara Valley Open Space Authority (OSA).

Figure 1. Covered Projects—Reporting Period

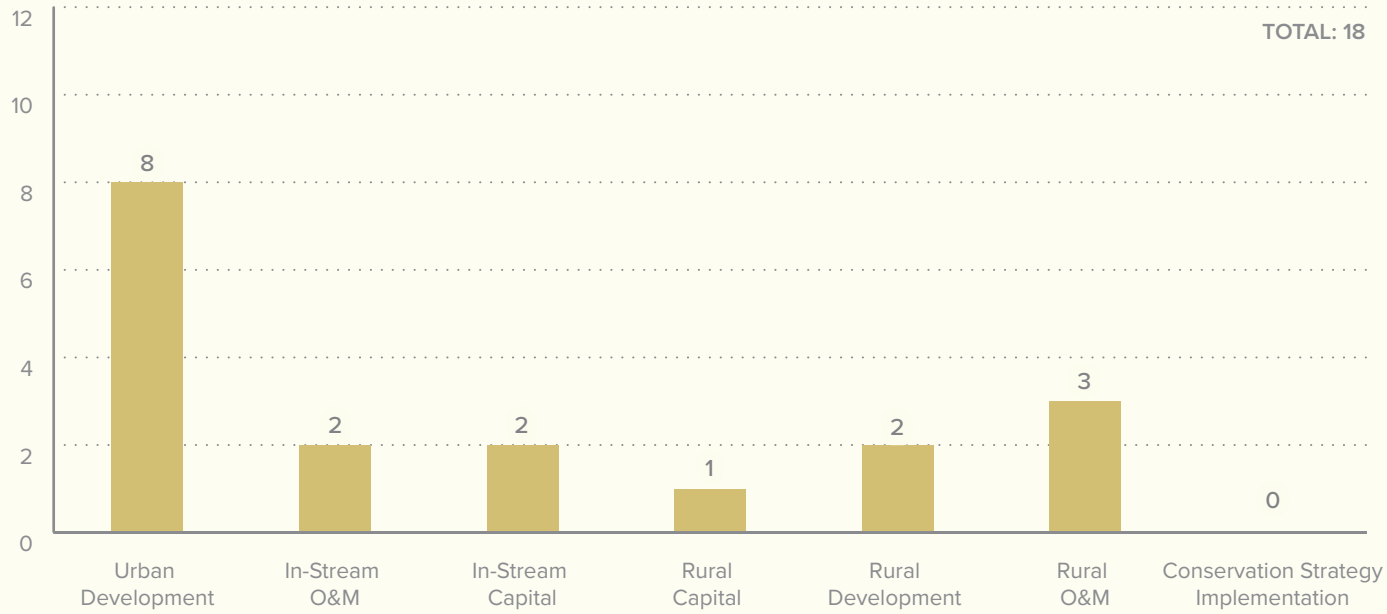


Projects by Project Type and Co-Permittee



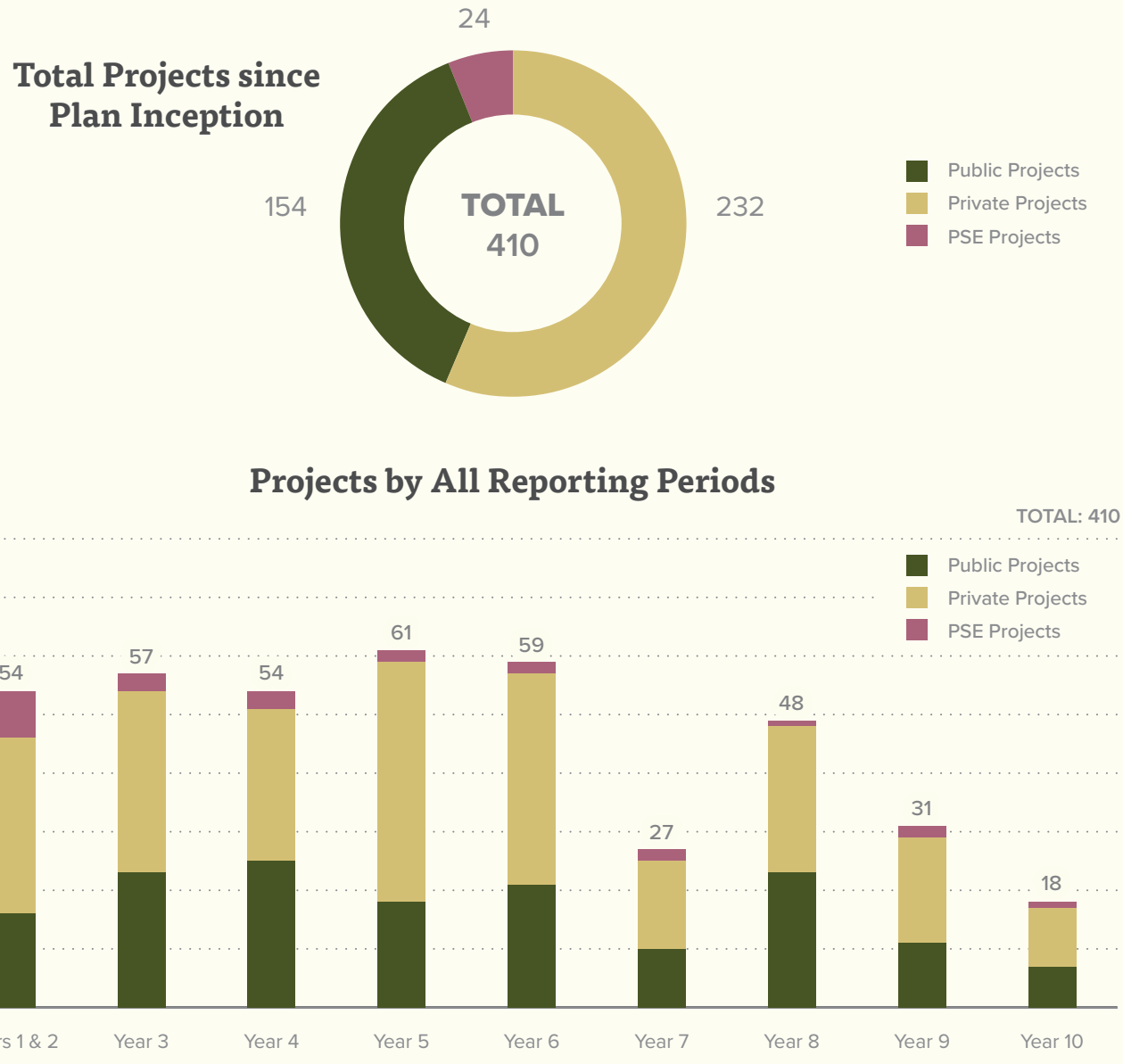
During the reporting period, covered projects consisted of 8 urban development projects, 2 in-stream O&M activities, 2 in-stream capital projects, 1 rural capital project, 2 rural development projects, and 3 rural O&M projects. There were no conservation strategy implementation projects during the reporting period. One conservation strategy action, the Bolsa Road Fish Passage Project, was reported in the previous annual report but did not begin construction until FY2022–2023. Table 2 lists these projects.

Figure 2. Covered Projects by Activity Type—Reporting Period



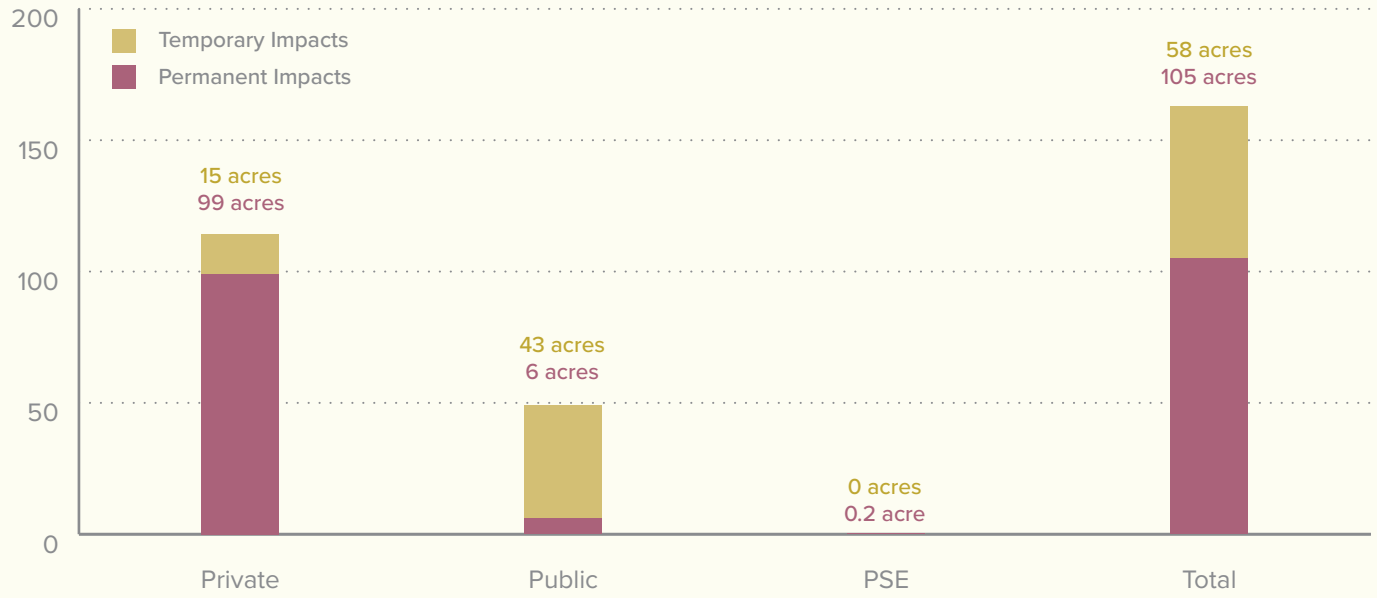
A total of 410 projects have received take coverage under the Habitat Plan since permit issuance. Note that this number excludes the 113 nitrogen deposition–only projects that have been reported since FY2018–2019; the Habitat Agency omits these projects from the cumulative total because they have no land cover impacts.

Figure 3. Covered Projects—Cumulative



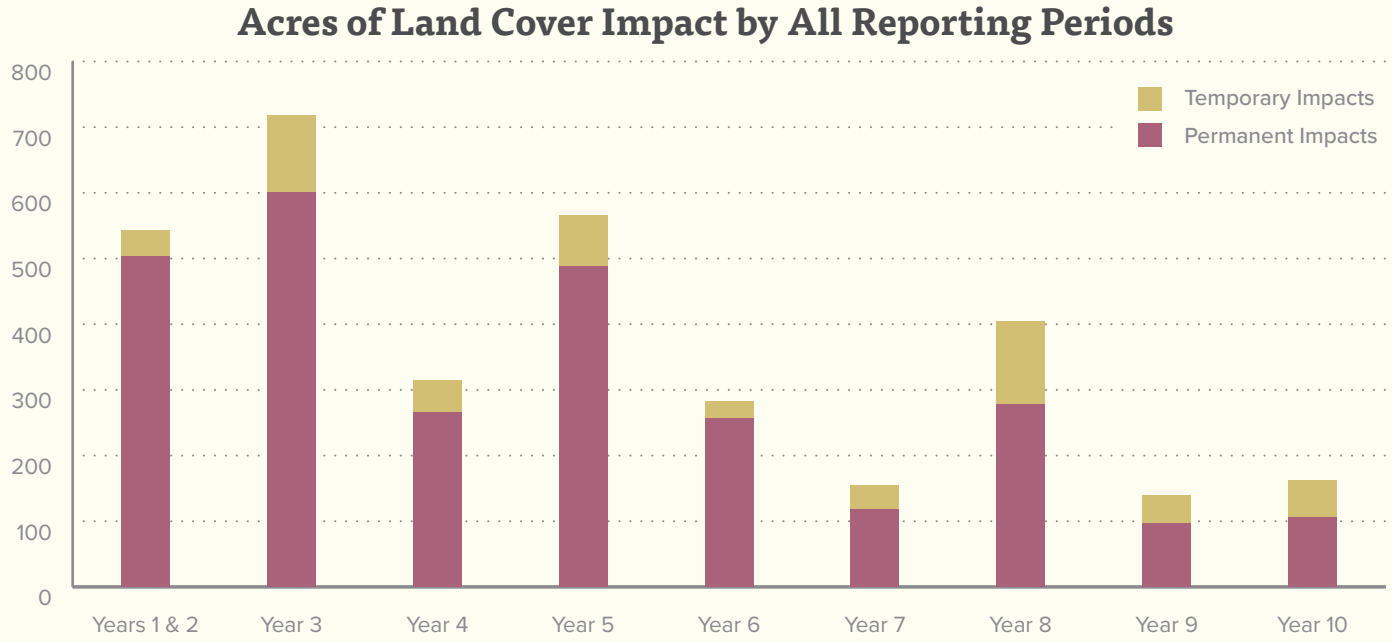
The 18 projects undertaken during the reporting period resulted in 105.5 acres of permanent impacts and 57.8 acres of temporary impacts on land cover. Impacts on aquatic land cover types during the reporting period spanned five different watersheds—Coyote, Uvas, Llagas, Guadalupe and Pajaro (Table 5). During the reporting period, no covered plants were impacted as part of covered projects.

Figure 4. Acres of Land Cover Impact by Project Type—Reporting Period



Cumulative land cover impacts total 2,712 acres of permanent and 579 acres of temporary impacts, as well as 3,027 feet of permanent and 4,777 feet of temporary impacts on streams.

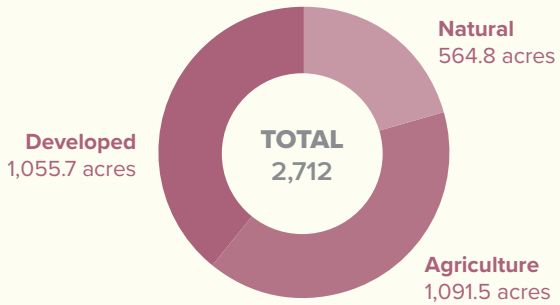
Figure 5. Covered Projects—Cumulative



Permanent Impacts

TOTAL ACRES = 2,712 | TOTAL FEET (STREAMS) = 3,027

See breakdown below



Temporary Impacts

TOTAL ACRES = 579 | TOTAL FEET (STREAMS) = 4,777

See breakdown below

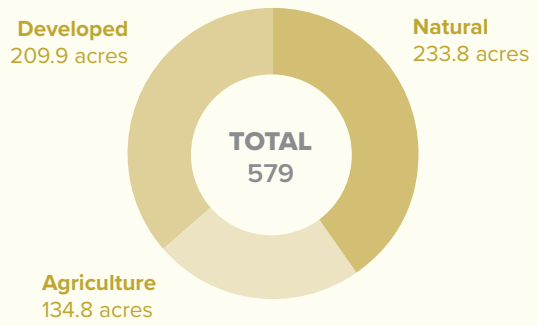


Table 2. Applied Conditions by Covered Activity—Reporting Period

Project Number	Project Name	Condition[a]																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SCC-2022-448	Lands of Menekshe	•		•				•													
MH-2022-392	Morgan Hill Senior Housing	•		•																	
GIL-2022-642	6482 Greenfield SFR	•		•																	
GIL-2022-090	Eagle Canyon Estates a Neighborhood in Eagle Ridge	•		•										•							
GIL-2022-082	Product Exchange Center-850 Holloway	•		•																	
GIL-2023-1408	Glen Loma Ranch—McCutchin Creek, Palomino I & II, & Future City Park	•		•								•					•	•			
GIL-2022-146	Creekside Gilroy	•		•																	
MH-2022-142	Redwood Tech @ 101	•	•	•	•																
SJ-2023-936	Nguyen's Estate	•		•										•							
SCC-2022-310	Belska Residence	•		•				•													
PSE-2022-003	OSA del Oro Llagas Creek Bridge	•		•	•			•			•	•					•	•			
SVWD-2021-006	Coyote Creek Flood Management Measures	•		•	•	•						•	•								
SVWD-2021-013	Anderson Dam Retrofit	•		•	•	•								•				•		•	•
SVWD-2022-005	SC Conduit Inspection and Rehab	•		•	•	•							•		•	•	•	•	•		
SVWD-2022-006	Dam Maintenance	•		•	•	•			•				•	•			•	•		•	•
SVWD-2022-007	Calero Pipeline Acoustic Fiber Optic Monitoring System Repair Project	•		•		•			•				•	•				•			•
SVWD-2022-009	Almaden Valley Pipeline Inspection	•		•	•	•							•		•		•	•			
SVWD-2023-002	Alamitos Percolation Pond O&M	•		•	•	•							•					•			
Number of Times Condition Applied		**18**	**1**	**18**	**8**	**7**	**0**	**3**	**2**	**0**	**1**	**3**	**6**	**5**	**2**	**1**	**5**	**8**	**1**	**2**	**3**

[a] **Habitat Plan Conditions:**

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

Table 3. Species Conditions for Covered Activities—Reporting Period

Project Number	Project Name	Western Burrowing Owl				Least Bell's Vireo				Tricolored Blackbird				San Joaquin Kit Fox				Bay Checkerspot Butterfly				Smooth Lessingia		Fragrant Fritillary		Metcalf Canyon Jewel-flower		Most Beautiful Jewel-flower		Tiburon Paintbrush		Coyote Ceanothus		Santa Clara Valley Dudleya		Mount Hamilton Thistle		Loma Prieta Hoita	
		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
SCC-2022-448	Lands of Menekshe																																						
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SVWD-2023-002	Alamitos Percolation Pond O&M									•																													
Total	**18 projects**	**1**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**6**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Table 4. Summary of Impacts on Land Cover Types—Reporting Period and Cumulative

Land Cover Type	Reporting Period		Cumulative					
	Permanent (acres or as shown)	Temporary (acres or as shown)	Permanent (acres or as shown)	Temporary (acres or as shown)	Total Allowable Permanent Impact (acres or as shown)	Percentage Used of Total Allowable Permanent Impacts	Total Allowable Temporary Impact (acres or as shown)	Percentage Used of Total Allowable Temporary Impacts
Terrestrial								
California annual grassland	11.0	19.8	409.16	139.14	2006.00	20%	574.00	24%
Serpentine bunchgrass	0.58	0.00	45.71	19.49	550.00	8%	91.00	21%
Serpentine rock outcrop/barrens	0.06	0.00	3.76	0.19	22.00	17%	2.00	10%
Serpentine seep	–	–	0.09	0.00	0.50	18%	0.40	0%
Rock outcrop (non-serpentine)	–	–	0.00	0.00	0.50	0%	0.20	0%
Northern mixed chaparral/chamise chaparral	1.08	0.00	11.37	0.40	86.00	13%	31.00	1%
Mixed serpentine chaparral	0.10	0.04	0.88	1.29	131.00	1%	30.00	4%
Northern coastal scrub/Diablan coastal scrub	0.02	0.01	8.5	0.9	178	5%	66	1%
Coyote brush scrub	–	–	3.6	0.3	10	36%	10	3%
Valley oak woodland	0.00	0.30	3.4	7.0	201	2%	45	16%
Mixed oak woodland and forest	6.49	0.58	26.7	19.0	1,441	2%	302	6%
Coast live oak woodland and forest	0.03	0.00	20.5	11.1	840	2%	181	6%
Blue oak woodland	–	–	3.8	1.7	131	3%	39	4%
Foothill pine-oak woodland	0.00	0.02	6.6	3.6	46	14%	26	14%
Mixed evergreen forest	–	–	0.0	0.1	50	0%	25	1%
Redwood forest	–	–	0.0	0.0	109	0%	56	0%
Ponderosa pine woodland	–	–	0.0	0.0	0	--	1	0%
Knobcone pine woodland	–	–	0.0	0.0	8	0%	2	0%
Non-serpentine native grassland	–	–	0.2	0.0	–	–	–	–
Subtotal terrestrial	*19.4*	*20.7*	*544.1*	*204.3*	*5,810*	*9%*	*1,482*	*14%*
Aquatic								
Willow riparian forest and scrub	0.20	0.05	3.0	3.6	180	2%	103	3.5%
Central California sycamore alluvial woodland	–	–	0.0	0.0	7	0%	6	0%
Mixed riparian woodland and forest	2.16	5.20	13.8	15.0	109	13%	101	15%
Coastal and valley freshwater marsh	0.03	0.65	2.8	5.4	25	11%	7	77%
Seasonal wetland	0.00	0.10	0.9	0.3	15	6%	2	16%
Pond	0.21	0.0	0.3	5.1	52	1%	9	57%
Reservoir	0.18	0.03	69.5	0.6	–	–	–	–
Subtotal Aquatic	*2.78*	*6.03*	*90.20*	*30.00*	*388*	*23%*	*228*	*13%*
Stream (length in linear feet)								
Total stream length	*48*	*118*	*3,035*	*4,895*	*49,632*	*6%*	*253,440*	*2%*
Agricultural								
Orchard	–	–	79.6	5.2	625	13%	24	22%
Vineyard	–	–	0.2	0.3	37	1%	3	11%
Agriculture developed	–	–	44.8	1.2	–	–	–	–
Grain, row-crop, hay and pasture, disked/short-term fallowed	73.9	10.2	966.8	128.0	7,356	13%	284	45%
Subtotal Agricultural	*73.9*	*10.2*	*1,091.5*	*134.8*	*8,018*	*13%*	*311*	*43%*

Table continues on following page

Table 4. Summary of Impacts on Land Cover Types—Reporting Period and Cumulative (continued)

	Reporting Period		Cumulative					
Land Cover Type	**Permanent (acres or as shown)**	**Temporary (acres or as shown)**	**Permanent (acres or as shown)**	**Temporary (acres or as shown)**	**Total Allowable Permanent Impact (acres or as shown)**	**Percentage Used of Total Allowable Permanent Impacts**	**Total Allowable Temporary Impact (acres or as shown)**	**Percentage Used of Total Allowable Temporary Impacts**
Developed								
Rural residential	1.29	2.66	31.6	18.9	1,603	2%	139	14%
Golf courses/ urban parks	0.32	0.87	188.6	17.3	2,095	9%	40	43%
Ornamental woodland	0.02	0.00	6.2	1.0	30	21%	8	12%
Barren	–	–	71.9	1.1	32	225%	15	7%
Urban suburban	7.77	17.38	687.9	171.2	–	–	–	–
Subtotal Developed	*9.4*	*20.9*	*986.2*	*209.4*	*3,760*	*26%*	*202*	*107%*
Total								
Acres	**105.5**	**57.8**	**2,712**	**578.5**	**17,976**	**15%**	**2,223**	**26%**
Linear Feet	**48**	**118**	**3,035**	**4,895**	**49,632**	**6%**	**253,440**	**2%**

Table 5. Impacts on Aquatic Land Cover Types by Watershed—Reporting Period and Cumulative

Watershed	Reporting Period		Cumulative	
	Permanent (acres or as shown)	Temporary (acres or as shown)	Permanent (acres or as shown)	Temporary (acres or as shown)
Coyote				
Willow riparian forests, woodlands, and scrub	0.00	0.00	1.80	2.77
Central California sycamore alluvial woodland	0.00	0.00	0.00	0.00
Mixed riparian woodland and forest	1.53	5.19	7.20	10.62
Coastal and valley freshwater marsh	0.00	0.00	0.31	4.64
Seasonal wetland	0.00	0.00	0.03	0.11
Pond	0.00	0.00	0.02	0.00
Reservoir	0.00	0.00	0.00	0.03
Subtotal aquatic	*1.53*	*5.19*	*9.36*	*18.17*
Stream (linear feet)	*0*	*0*	*2,437*	*1,050*
Guadalupe				
Willow riparian forests, woodlands, and scrub	0.20	0.03	0.76	0.76
Central California sycamore alluvial woodland	0.00	0.00	0.00	0.00
Mixed riparian woodland and forest	0.00	0.00	0.53	0.20
Coastal and valley freshwater marsh	0.00	0.64	0.00	0.64
Seasonal wetland	0.00	0.10	0.20	0.12
Pond	0.09	0.00	0.09	0.00
Reservoir	0.00	0.00	32.80	0.30
Subtotal aquatic	*0.29*	*0.77*	*34.38*	*1.32*
Stream (linear feet)	*0*	*118*	*137*	*833*
Pajaro				
Willow riparian forests, woodlands, and scrub	0.00	0.02	0.19	0.03
Central California sycamore alluvial woodland	0.00	0.00	0.00	0.00
Mixed riparian woodland and forest	0.00	0.00	1.59	1.17
Coastal and valley freshwater marsh	0.00	0.00	0.04	0.00
Seasonal wetland	0.00	0.00	0.00	0.00
Pond	0.00	0.00	0.00	0.09
Reservoir	0.00	0.00	0.00	0.00
Subtotal aquatic	*0.00*	*0.02*	*1.82*	*1.29*
Stream (linear feet)	*0*	*0*	*0*	*806*

Table continues on following page

Table 5. Impacts on Aquatic Land Cover Types by Watershed—Reporting Period and Cumulative (continued)

Watershed	Reporting Period		Cumulative	
	Permanent (acres or as shown)	Temporary (acres or as shown)	Permanent (acres or as shown)	Temporary (acres or as shown)
Uvas				
Willow riparian forests, woodlands, and scrub	0.00	0.00	0.01	0.01
Central California sycamore alluvial woodland	0.00	0.00	0.00	0.00
Mixed riparian woodland and forest	0.56	0.00	5.54	3.44
Coastal and valley freshwater marsh	0.00	0.00	0.13	0.10
Seasonal wetland	0.00	0.00	0.44	0.07
Pond	0.00	0.00	0.04	0.00
Reservoir	0.00	0.00	0.00	0.00
Subtotal aquatic	*0.56*	*0.00*	*6.16*	*3.62*
Stream (linear feet)	*0*	*0*	*358*	*1,191*
Llagas				
Willow riparian forests, woodlands, and scrub	0.00	0.00	0.04	0.00
Central California sycamore alluvial woodland	0.00	0.00	0.00	0.00
Mixed riparian woodland and forest	0.07	0.01	0.11	0.10
Coastal and valley freshwater marsh	0.03	0.00	2.29	0.00
Seasonal wetland	0.00	0.00	0.21	0.02
Pond	0.12	0.00	0.12	5.06
Reservoir	0.00	0.00	0.00	0.00
Subtotal aquatic	*0.22*	*0.01*	*2.78*	*5.18*
Stream (linear feet)	*48*	*0*	*78*	*838*
San Tomas				
Willow riparian forests, woodlands, and scrub	0.00	0.00	0.00	0.00
Central California sycamore alluvial woodland	0.00	0.00	0.00	0.00
Mixed riparian woodland and forest	0.00	0.00	0.00	0.00
Coastal and valley freshwater marsh	0.00	0.00	0.00	0.00
Seasonal wetland	0.00	0.00	0.00	0.00
Pond	0.00	0.00	0.00	0.00
Reservoir	0.00	0.00	0.00	0.00
Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
Stream (linear feet)	*0*	*0*	*0*	*0*

Table continues on following page

Table 5. Impacts on Aquatic Land Cover Types by Watershed—Reporting Period and Cumulative (continued)

Watershed	Reporting Period		Cumulative	
	Permanent (acres or as shown)	Temporary (acres or as shown)	Permanent (acres or as shown)	Temporary (acres or as shown)
Alamitos Creek				
Willow riparian forests, woodlands, and scrub	0.00	0.00	0.00	0.00
Central California sycamore alluvial woodland	0.00	0.00	0.00	0.00
Mixed riparian woodland and forest	0.00	0.00	0.00	0.00
Coastal and valley freshwater marsh	0.00	0.00	0.00	0.00
Seasonal wetland	0.00	0.00	0.00	0.00
Pond	0.00	0.00	0.00	0.00
Reservoir	0.00	0.00	0.00	0.00
Subtotal aquatic	*0.00*	*0.00*	*0.00*	*0.00*
Stream (linear feet)	*0.00*	*0.00*	*0.00*	*0.00*
Total				
Willow riparian forests, woodlands, and scrub	**0.20**	**0.05**	**2.80**	**3.57**
Central California sycamore alluvial woodland	**0.00**	**0.00**	**0.00**	**0.00**
Mixed riparian woodland and forest	**2.16**	**5.20**	**14.97**	**15.53**
Coastal and valley freshwater marsh	**0.03**	**0.64**	**2.77**	**5.38**
Seasonal wetland	**0.00**	**0.10**	**0.88**	**0.32**
Pond	**0.21**	**0.00**	**0.27**	**5.15**
Reservoir	**0.00**	**0.00**	**32.80**	**0.33**
Total aquatic	**2.60**	**5.99**	**54.50**	**30.28**
Total stream length (linear feet)	**48**	**118**	**3,010**	**4,718**

Table 6. Summary of Impacts on Modeled Covered Species Habitat

Modeled Habitat	Reporting Period		Cumulative					
	Permanent (acres or as shown)	Temporary (acres or as shown)	Permanent (acres or as shown)	Temporary (acres or as shown)	Maximum Allowable Permanent Impacts on Modeled Habitat (acres or as shown)	Percentage Used of Total Allowable Permanent Impacts (%)	Maximum Allowable Temporary Impacts on Modeled Habitat (acres or as shown)	Percentage Used of Total Allowable Temporary Impacts (%)[a]
Bay Checkerspot Butterfly								
Primary habitat	–	–	158.8	25.3	300	53%	54	47%
California Tiger Salamander								
Breeding habitat	–	–	0.9	0.3	77	1%	14	2%
Non-breeding habitat	57.5	32.2	1,001.4	287.5	12,855	8%	1,529	19%
Total	**57.5**	**32.2**	**1,002.3**	**287.8**	**12,932**	**8%**	**1,543**	**19%**
California Red-Legged Frog								
Primary habitat	3.4	3.7	56.8	27.2	299	19%	116	23%
Secondary habitat	80.2	33.2	1,308.3	564.9	12,937	10%	1,489	38%
Total	**83.7**	**36.9**	**1,365.1**	**592.1**	**13,236**	**10%**	**1,605**	**37%**
Foothill Yellow-Legged Frog (length in miles)								
Primary habitat	–	–	0.3	0.2	2	15%	0.7	29%
Secondary habitat	–	–	0.4	0.3	5	8%	1.3	24%
Total	**–**	**–**	**0.7**	**0.5**	**7**	**10%**	**2.0**	**26%**
Western Pond Turtle								
Primary habitat	16.4	15.6	304.8	86.8	1,824	17%	440	20%
Secondary habitat	76.3	25.5	725.4	222.0	7,825	9%	986	23%
Total	**92.7**	**41.2**	**1,030.2**	**308.9**	**9,649**	**11%**	**1,426**	**22%**
Western Burrowing Owl								
Occupied nesting habitat	–	–	161.9	19.0	198	82%	20	95%
Potential nesting habitat	74.7	29.6	579.9	112.1	4,000	14%	604	19%
Overwintering habitat	83.2	35.7	1,204.1	544.8	9,671	12%	762	71%
Total	**157.9**	**65.3**	**1,951.6**	**690.8**	**13,869**	**14%**	**1,385**	**50%**
Least Bell's Vireo								
Primary habitat	2.6	0.4	22.4	6.6	72	31%	43	15%
San Joaquin Kit Fox								
Secondary habitat	–	0.3	7.5	9.7	198	4%	46	21%
Secondary habitat (low use)	–	11.0	4.6	29.0	28	17%	6	–
Total	**–**	**11.3**	**11.7**	**34.4**	**226**	**5%**	**52**	**66%**

Table continues on following page

Table 6. Summary of Impacts on Modeled Covered Species Habitat (continued)

Modeled Habitat	Reporting Period		Cumulative					
	Permanent (acres or as shown)	Temporary (acres or as shown)	Permanent (acres or as shown)	Temporary (acres or as shown)	Maximum Allowable Permanent Impacts on Modeled Habitat (acres or as shown)	Percentage Used of Total Allowable Permanent Impacts (%)	Maximum Allowable Temporary Impacts on Modeled Habitat (acres or as shown)	Percentage Used of Total Allowable Temporary Impacts (%)[a]
Tricolored Blackbird								
Primary habitat	2.6	1.1	135.3	21.1	276	49%	93	23%
Secondary habitat	83.4	36.9	1,262.5	545.2	10,317	12%	768	71%
Total	**86.0**	**37.9**	**1,397.9**	**566.3**	**10,593**	**13%**	**861**	**66%**
Mount Hamilton Thistle								
Primary habitat	–	–	0.1	–	26	0%	4	0%
Fragrant Fritillary								
Primary habitat	0.1	–	20.8	11.0	5503	0%	59	19%
Secondary habitat	4.1	10.0	158.4	82.1	2,729	6%	655	13%
Total	**4.2**	**10.0**	**179.2**	**93.0**	**3,279**	**5%**	**714**	**13%**
Loma Prieta Hoita								
Primary habitat	6.0	0.2	63.0	29.8	2,117	3%	413	7%
Secondary habitat	0.1	0.1	20.7	2.0	266	8%	60	3%
Total	**6.0**	**0.3**	**83.7**	**31.8**	**2,383**	**4%**	**473**	**7%**
Smooth Lessingia								
Primary habitat	0.6	–	179.1	26.3	550	33%	68	39%
Metcalf Canyon Jewelflower								
Primary habitat	0.1	–	20.1	10.9	550	4%	62	18%
Most Beautiful Jewelflower								
Primary habitat	0.6	0.1	194.3	28.4	550	35%	92	31%
Secondary habitat	–	–	–	–	0	0%	0	0%
Total	**0.6**	**0.1**	**194.3**	**28.4**	**550**	**35%**	**92**	**31%**

[a] Temporary impact tracking was updated consistent with the memorandum *Tracking Temporary Impacts for Compliance Monitoring of the Santa Clara Valley Habitat Plan* dated September 20, 2018. Temporary impacts are tracked cumulatively over the permit term against the total allowable impacts for each species (inclusive of all modeled habitat types), while ensuring that impacts on applicable breeding habitat, primary habitat, and/or occupied nesting habitat are not exceeded. In the case of San Joaquin kit fox, this limitation applies to secondary habitat.

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

	Reporting Period		Cumulative					
Species	**Permanent (acres)**	**Temporary (acres)**	**Permanent (acres)**	**Temporary (acres)**	**Maximum Allowable Permanent Impact on Critical Habitat (acres)**	**Percentage used of Total Allowable Permanent Impacts (%)**	**Maximum Allowable Temporary Impact on Critical Habitat (acres)**	**Percentage used of Total Allowable Temporary Impacts (%)**
California Red-Legged Frog								
STC Unit 1	–	–	20.8	7.9	–	–	–	–
STC Unit 2	–	0.5	26.3	6.9	–	–	–	–
ALA Unit 2	–	–	–	–	–	–	–	–
Total	–	**0.5**	**47.1**	**14.7**	**1,035**	**5%**	**277**	**5%**
California Tiger Salamander								
EBR Unit 5	–	–	–	–	–	–	–	–
EBR Unit 6	–	–	4.2	1.1	–	–	–	–
EBR Unit 7	–	–	2.1	4.7	–	–	–	–
EBR Unit 8	0.0015	2.4	30.0	12.5	–	–	–	–
EBR Unit 9	–	–	–	–	–	–	–	–
EBR Unit 10a	–	–	0.2	–	–	–	–	–
EBR Unit 10b	–	–	–	–	–	–	–	–
EBR Unit 11	–	–	–	–	–	–	–	–
EBR Unit 12	–	2.3	4.3	10.2	–	–	–	–
Total	**0.0**	**4.7**	**40.7**	**28.6**	**272**	**15%**	**125**	**23%**
Bay Checkerspot Butterfly								
Tulare Hill	–	–	0.4	1.2	–	–	–	–
Metcalf	–	–	1.7	2.4	–	–	–	–
Santa Teresa Hills	–	–	7.5	1.0	–	–	–	–
Calero Reservoir	–	–	13.5	6.3	–	–	–	–
Kirby	0.05	0.07	42.7	10.4	–	–	–	–
Kalana	–	–	0.3	-	–	–	–	–
Hale	–	–	–	–	–	–	–	–
Bear Ranch	–	–	–	–	–	–	–	–
San Martin	–	–	–	–	–	–	–	–
Total	**0.1**	**0.1**	**66.2**	**21.3**	**550**	**12%**	**86**	**25%**

Table 8. Summary of Impacts on Covered Plants

Known Occurrences that May be Removed by Covered Activities[a]	Reporting Period[b]		Cumulative[b]	
	Extant	New	Extant	New
Tiburon Paintbrush				
0	0	0	0	0
Coyote Ceanothus[c]				
3,650	321	0	853 (individuals)	0
Mount Hamilton Thistle				
6	0	0	0	0
Santa Clara Valley Dudleya				
11	0	0	0	1
Fragrant Fritillary				
1	0	0	0	0
Loma Prieta Hoita				
0	0	0	0	0
Smooth Lessingia				
6	0	0	0	0
Metcalf Canyon Jewelflower				
2	0	0	0	0
Most Beautiful Jewelflower				
6	0	0	0	0

[a] 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.

[b] Extant are the known occurrences at the time of Habitat Plan adoption, and new are those discovered after Habitat Plan adoption.

[c] A total of 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.

Land Acquisition and Preservation Status

This section documents properties acquired for the Reserve System during the reporting period (as of June 30, 2023). It also tracks impacts and preservation status across the Reserve System.

Sites Acquired

Five properties were protected or acquired by the Habitat Agency during the reporting period: O'Connell Ranch, Calero County Park Conservation Easement, Gschwend Property, Castle and Cooke Property, and the San José/Santa Clara Regional Wastewater Facility Burrowing Owl Conservation Easement. These properties added 4,202 new acres to the Habitat Agency's Reserve System, bringing the total size of the Reserve System to 10,704 acres!

WEBLINK: MAP OF THE CURRENT RESERVE SYSTEM

O'Connell Ranch

O'Connell Ranch is located on the south side of SR 152 in Pacheco Pass and consists of 1,125 acres of ranchland transected by a Pacheco Creek reach approximately 2 miles in length. About 6 additional miles of other stream habitat exist within the property, as well as associated riparian habitat and 25 acres of California sycamore alluvial woodland. Also present are abundant oak woodlands, grasslands, ponds, and serpentine soils.

The site includes valuable habitat for eight of the Habitat Plan's currently covered species, including critical habitat for red-legged frog, and is suitable habitat for several species being considered for coverage under the Habitat Plan Amendment, including mountain lion (*Puma concolor*), American badger (*Taxidea taxus*), monarch butterfly (*Danaus plexippus*), Crotch's bumblebee (*Bombus crotchii*), loggerhead shrike (*Lanius ludovicianus*), Hall's bushmallow (*Malacothamnus hallii*), and woodland woollythreads (*Monolopia gracilens*). The property provides important wildlife linkages for terrestrial and aquatic species identified in the Habitat Plan (Linkages 15 and 17).

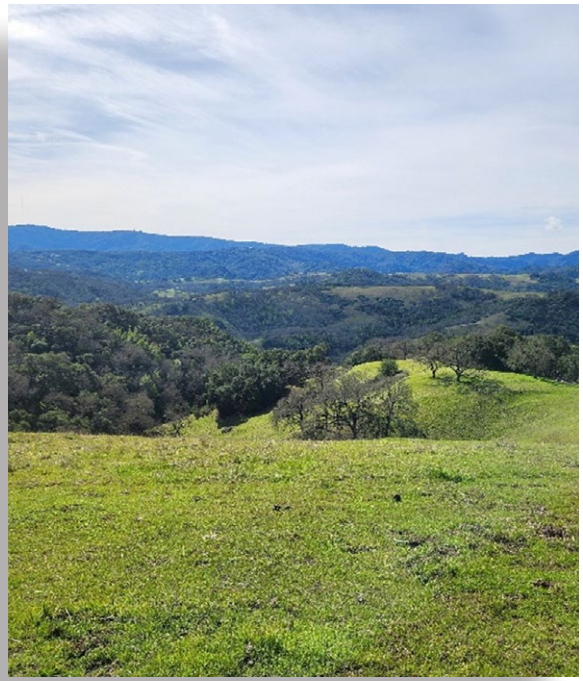
Valuable habitat for covered species. Known occurrences of covered species in this area include western pond turtle, California tiger salamander, most beautiful jewelflower, and Santa Clara Valley dudleya.

Calero County Park Conservation Easement

The Calero County Park Conservation Easement includes 2,815 acres of established open space. Consistent with the Habitat Plan's land acquisition requirements, 12,300 acres of open space land are to be protected by conservation easement and enrolled in the Habitat Agency's Reserve System. Existing open space land that becomes enrolled in the Reserve System benefits from the additional protection of a conservation easement and land management assistance from the Habitat Agency. Critical to this partnership is additional enhancement of the natural landscapes to benefit one or more of the Habitat Plan's covered species.

The Calero easement includes several occurrences of the covered rare plants, including Santa Clara Valley dudleya, most beautiful jewelflower, smooth lessingia, Mount Hamilton thistle, and Loma Prieta hoita. There are also known wildlife occurrences of Bay checkerspot butterfly, foothill yellow-legged frog, California tiger salamander, western pond turtle, and overwintering burrowing owl. Habitat onsite is suitable for several species being considered for coverage through the Habitat Plan Amendment, including mountain lion, American badger, monarch butterfly, Crotch's bumblebee, loggerhead shrike, Hall's bushmallow, and woodland woollythreads.

A special thanks goes to Santa Clara County Parks staff and leadership for this land dedication and the partnership opportunity it provides.



Linkage and land cover protection. The Calero County Park Conservation Easement protects an important wildlife linkage between the Santa Cruz Mountains and Coyote Valley. Also protected within this easement are 8.9 miles of streams, 1.7 acres of ponds, and over 400 acres of serpentine land covers.

Gschwend Property

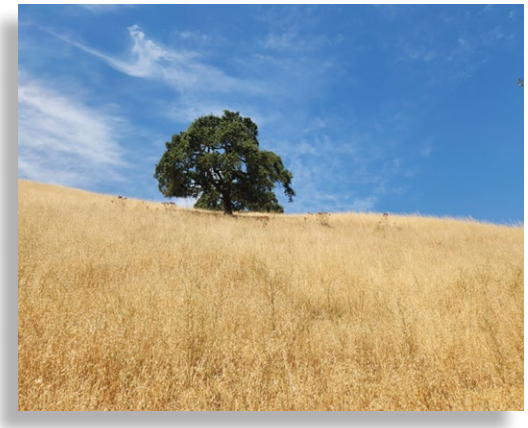
The Gschwend Property is a 17-acre site that was acquired to protect a wildlife connectivity crossing and to remove the threat of development of this vacant land at the urban edge of south San José. The acquisition will permanently protect a primary terrestrial linkage between the Santa Cruz Mountains and the Diablo Range through Tulare Hill (Linkage 8).

Monarch butterfly is found on the property, and the property will provide suitable habitat for several other new species proposed for coverage under the Habitat Plan Amendment.

Monarch butterfly habitat. Monarch butterfly, shown here as a caterpillar on milkweed, occurs on the Gschwend Property.

Castle and Cooke Property

The Castle and Cooke Property was acquired in the reporting year to protect 44 acres of grassland and oak woodland that is strategically located between existing protected open space land and Highway 101, just south of San José. It removes development potential along a highly visible corridor, thus enhancing the habitat value of the adjacent open space lands. It protects modeled habitat for nine covered species and is occupied by Bay checkerspot butterfly, Mount Hamilton thistle, smooth lessingia, Santa Clara dudleya, and most beautiful jewelflower.



Oak and grassland protection. This property is occupied by Bay checkerspot butterfly, Mount Hamilton thistle, smooth lessingia, Santa Clara dudleya, and most beautiful jewelflower.

San José/Santa Clara Regional Wastewater Facility Conservation Easement

The San José/Santa Clara Regional Wastewater Facility (RWF) Conservation Easement protects 201 acres of occupied burrowing owl nesting habitat. It has been managed by the Habitat Agency and the City of San José since the Plan's adoption in 2013, and its protection contributes to the 600 acres of occupied nesting habitat required to be enrolled by the Habitat Agency. Other sensitive species observed at this site include golden eagle, loggerhead shrike, and monarch butterfly.

Talon Ecological Research Group and the Santa Clara Valley Audubon Society have been instrumental in managing the site for burrowing owl habitat. The Habitat Agency appreciates the dedication of this 200-acre conservation easement, which was provided by the City of San José as land in-lieu of development impact fees. Protection of occupied nesting habitat has been challenging, and the City of San José is to be commended for helping secure this site for the benefit of owls and other species.

WEBLINK: ANNUAL SURVEYING AND MONITORING REPORTS FOR BURROWING OWL

Burrowing owl breeding. The RWF site is the lone remaining viable breeding location for burrowing owl in the Plan Area and is the source population for the Habitat Agency's captive breeding, captive rearing, and translocation efforts to recover the species.

Preservation Achieved

Figures 6–10 summarize the Habitat Plan's progress in terms of impacts incurred and preservation achieved. **Figure 6** displays the percentages of impacts and preservation for terrestrial land cover types; **Figure 7** summarizes the same plus restoration/creation achieved for aquatic land cover types. **Figures 8 and 9** summarize impacts and preservation for wildlife and plant modeled habitat. **Figure 10** shows impacts incurred, conservation achieved, and funding received in comparison to the Habitat Plan limits and targets for Year 10 of the 50-year permit term.

Table 9 shows the status of species occupancy requirements for wildlife species in the Reserve System. The reporting period (Year 10) represents 20% of the permit term. If a constant rate of impacts is assumed, allowable impacts should be at about 20% of the impact cap.

Aquatic garter snake in the Plan Area. Although not a covered species under the Habitat Plan, aquatic garter snake occurs in the Plan Area and is shown here at the Coyote Ridge East Reserve.

The only terrestrial land cover type with a Habitat Plan target for which 20% of the permanent impact cap was exceeded was coyote brush (36%). Temporary impacts on California annual grassland and serpentine bunchgrass grassland are at 24% and 21%, respectively, of the allowable temporary impacts. Preservation of terrestrial land cover types changed notably from the previous year because of the multiple land acquisitions and incorporation of open space lands during the reporting year.

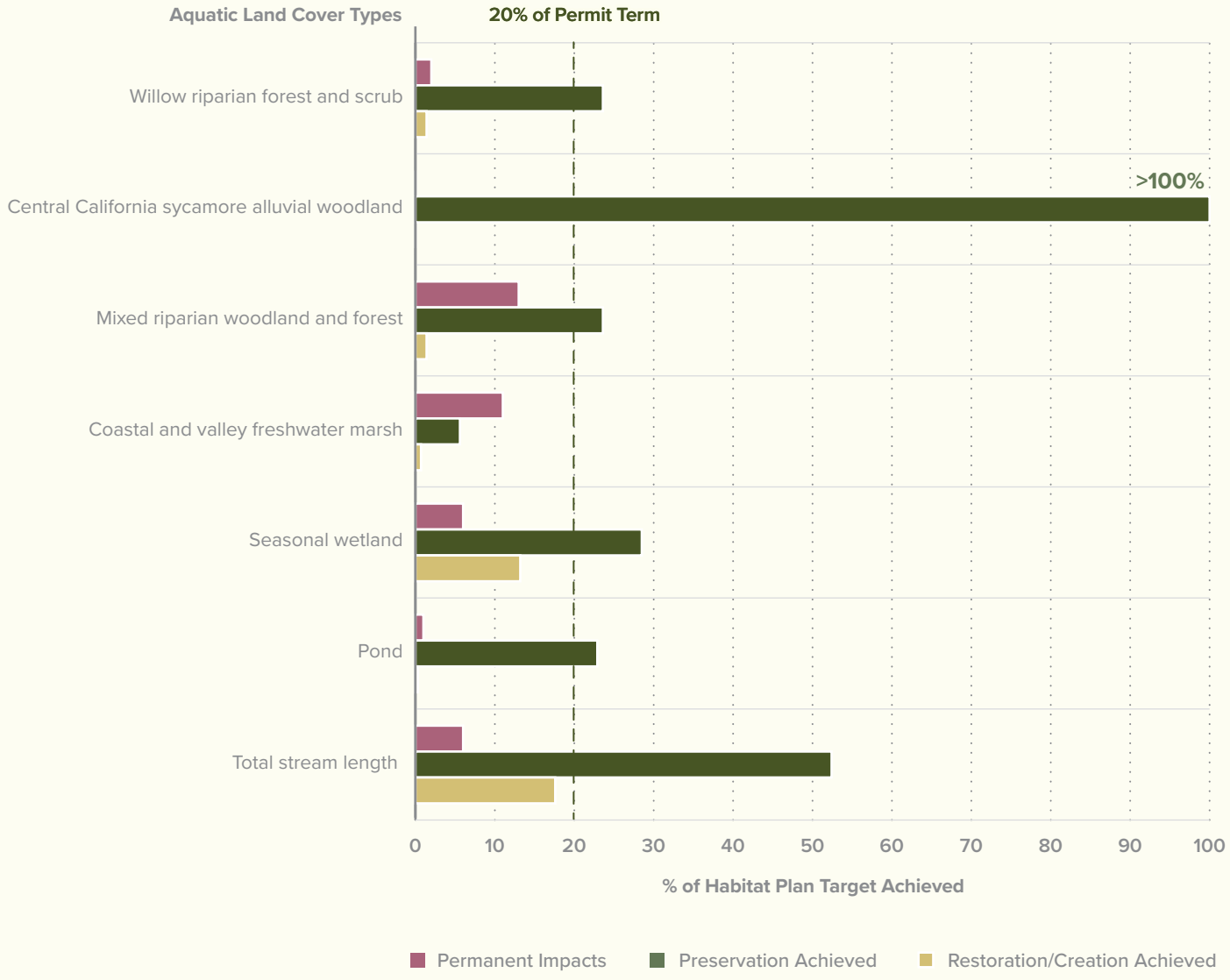
Figure 6. Cumulative Impacts Incurred and Preservation Achieved for Terrestrial Land Cover Types

Temporary impacts on coastal and valley freshwater marsh increased from 68% to 77% during the reporting periods, and temporary impacts on pond habitat greatly exceeds 20%.

Permanent and temporary impacts on other aquatic land cover types are all below 20%.

Preservation of aquatic land cover types increased from the previous year, with Central California sycamore alluvial woodland now at 130% of the target, and all land cover types except coastal and valley freshwater marsh exceeding 20%. No restoration/creation projects began in FY2022–2023.

Figure 7. Cumulative Impacts Incurred and Preservation Achieved for Aquatic Land Cover Types



Permanent impact accrual rates far exceed 20% for Bay checkerspot butterfly (53%, same as last year), western burrowing owl occupied nesting habitat (82%, same as last year), least Bell's vireo primary habitat (31%), and tricolored blackbird primary habitat (49%).

Temporary impact accrual rates far exceed 20% for western burrowing owl occupied nesting habitat (95%, same as last year) and overwintering habitat (71%). Habitat preservation is generally tracking closely with impacts except for western burrowing owl.

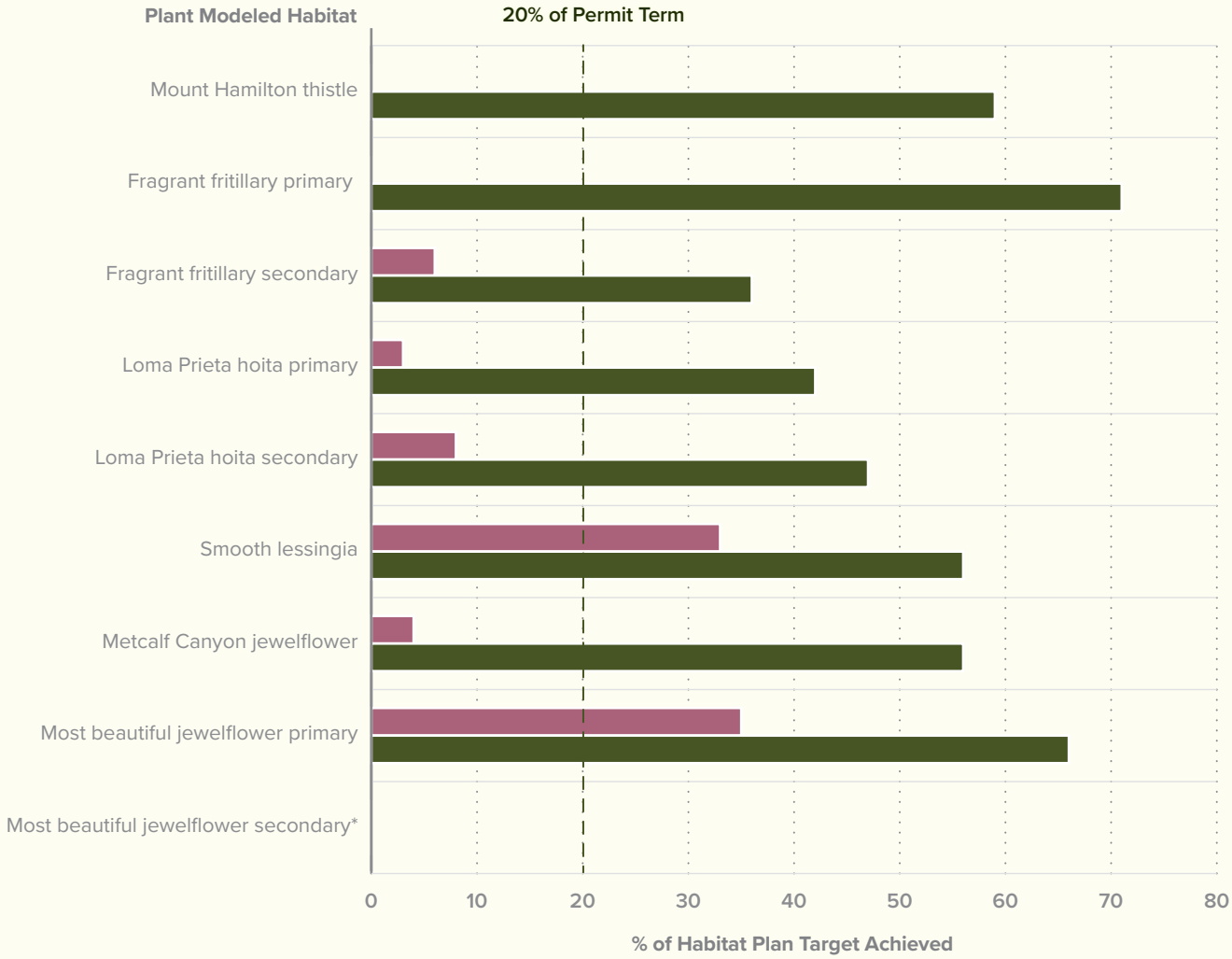
The Habitat Agency is not authorizing any additional take for impacts on occupied burrowing owl habitat.

Figure 8. Cumulative Impacts Incurred and Preservation Achieved for Wildlife Habitat

As in previous years, only smooth lessingia and most beautiful jewelflower exceeded the 20% impact cap for the reporting period. Impacts on both species increased slightly during the reporting period, but preservation of modeled habitat for both species far exceeds impacts.

Preservation of covered plant species habitat increased substantially from the previous year because of the land acquisitions during the reporting year.

Figure 9. Cumulative Impacts Incurred and Preservation Achieved for Plant Habitat



* To date no impacts have been incurred nor preservaton achieved for this habitat.

Permanent project impacts have largely occurred in urban and agricultural areas—39% and 40%, respectively—with only 21% occurring in natural lands. This results in lower fees paid, as most projects avoid high-fee sensitive land cover types. For this reason, the impacts accrued appear to outpace the fees paid. If more natural lands are developed and sensitive land cover types are impacted, the fees paid will increase. The Reserve System totals approximately 10,700 acres with about 31% of the conservation target being achieved.

Figure 10. Cumulative Impacts Incurred, Preservation Achieved, and Funding Received as Percentages of Habitat Plan Limits and Targets

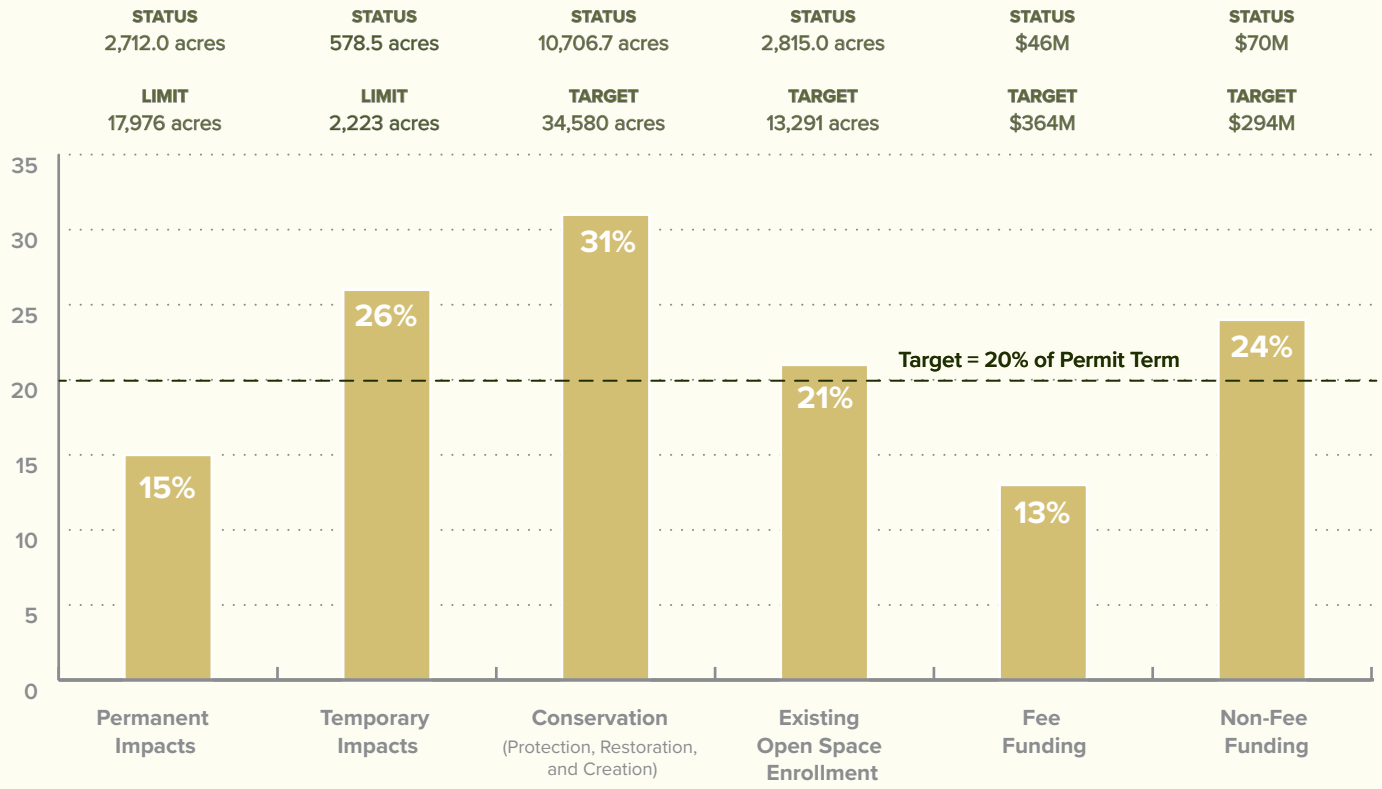


Table 9. Status of Wildlife Species Occupancy Requirements for Select Species in Reserve System

Species	Requirement	Status	Status Notes
Bay checkerspot butterfly	The four 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. Occupancy is met by demonstrating the presence of both larvae and adults.	Currently being met	Occupancy has been recorded 10 out of the 10 past years in the USFWS Kirby Recovery Unit. Other core units are in private ownership and not surveyed by the Habitat Agency at this time.
Bay checkerspot butterfly	Half of the satellite units occupied once by year 45 of the permit term. Occupancy is met by demonstrating the presence of both larvae and adults.	Met	Occupancy criteria met. At least 50% of the satellite units in 1998 Recovery Plan have been occupied once during the permit term.
California red-legged frog[a]	40% of ponds and wetlands occupied (support full lifecycle) in Federal Recovery Unit 4	16%	4/25 occupied
California red-legged frog[a]	40% of ponds and wetlands occupied (support full lifecycle) in Federal Recovery Unit 6	0%	0/13 occupied
California tiger salamander[a]	30% of ponds and wetlands occupied (support full lifecycle) within the entire Reserve System	23%	10/43 occupied
Western pond turtle[a]	25% of ponds and wetlands occupied (adults and signs of successful reproduction) within the entire Reserve System	20%	9/45 occupied
Foothill yellow-legged frog	Occupancy (eggs masses detected) in at least 4 of the watersheds in Habitat Plan Figure 3-6	25%	Occupancy detected in 1 watershed within the Reserve System (Llagas)

[a] Ponds created or wetlands restored in the Reserve System that meet occupancy criteria will count towards the occupancy requirement. Ponds created or wetlands restored that are not occupied do not count towards occupancy requirements.

Table 10. Summary of Covered Plant Preservation to Date

Species	Number of Covered Plant Occurrences																		Total in Reserve System
	Coyote Ridge Open Space Preserve			Calero County Park Conservation Easement			Baird & Davidson Reserves[a]			Tilton Ranch Reserve			O'Connell Ranch			Tulare Hill Wedge Reserve			
	Habitat Plan Occurrences	New Occurrences Identified in Baseline Surveys	Compliance	Habitat Plan Occurrences	New Occurrences Identified in Baseline Surveys	Compliance	Habitat Plan Occurrences	New Occurrences Identified in Baseline Surveys	Compliance	Habitat Plan Occurrences	New Occurrences Identified in Baseline Surveys	Compliance	Habitat Plan Occurrences	New Occurrences Identified in Baseline Surveys	Compliance	Habitat Plan Occurrences	New Occurrences Identified in Baseline Surveys	Compliance	
Mount Hamilton thistle	16	6	22	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**24**
Santa Clara Valley dudleya	99	-3	96	6	2	8	0	1	1	1	2	3	0	0	0	0	1	1	**109**
Fragrant fritillary	3	0	3	1	-1[d]	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
Loma Prieta hoita	0	2	2	2	0	2	0	2	2	0	0	0	0	0	0	0	0	0	**7**
Smooth lessingia	6	0	6	3	1	4	0	1	1	0	3	3	0	0	0	0	1	1	**15**
Metcalf Canyon jewelflower	1 (45)[b]	7[c]	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**8**
Most beautiful jewelflower	1 (45)[b]	1	2	4	1	5	0	1	1	0	3	3	0	1	1	0	0	0	**12**
Coyote ceanothus	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	**1**

This table summarizes the number of plant occurrences identified in baseline surveys and tracked for Habitat Plan compliance. For most covered plants, the Habitat Plan occurrences align with the results of the baseline surveys; site surveys documented plants in approximately the same location, extent, and numbers to what was documented in the Habitat Plan. For other species, such as Santa Clara Valley dudleya, smooth lessingia, and most beautiful jewelflower in the Coyote Ridge Open Space Preserve, plant surveys documented much more widespread occurrences. In these cases, the number of compliance occurrences is based on the overlap of the Habitat Plan occurrences preserved. For example, using the 0.25 mile rule to determine separate occurrences for Santa Clara Valley dudleya, there are only 2 separate occurrences per the baseline surveys; however, the Habitat Plan assumed the same area included 99. For this species, 3 are removed because the surveys revealed 3 occurrence points to now be unoccupied.

[a] Reserves are adjacent parcels that support the same covered plant occurrences.

[b] There are 45 occurrences of jewelflowers (*Streptanthus albidus*) at the Máyyan 'Ooyákama Coyote Ridge Open Space Preserve that represent gradations of interbreeding individuals of at least two subspecies (most beautiful jewelflower and Metcalf Canyon jewelflower). Recent analysis of this species implemented in a partnership between Santa Clara University (Justen Whittall) and Creekside Science (Stu Weiss and Christal Neiderer) determined that the relative occurrences of particular flower sepal colors, which are correlated to genetics, within a population can be used to help distinguish populations to subspecies. However, it is premature at this point to attempt to differentiate the jewelflowers into distinct subspecies for these occurrences. Additional analysis by the Habitat Agency will be needed to determine population sepal color characteristics that differentiate one subspecies population from the other in order to distinguish these occurrences into respective subspecies occurrences.

[c] This number may increase or decrease based upon the genetic study results (see footnote b).

[d] There was one California Natural Diversity Database occurrence of fragrant fritillary; however, this species was not located again after baseline surveys and is now considered possibly extirpated at the Calero County Park Conservation Easement.

Habitat Restoration and Creation

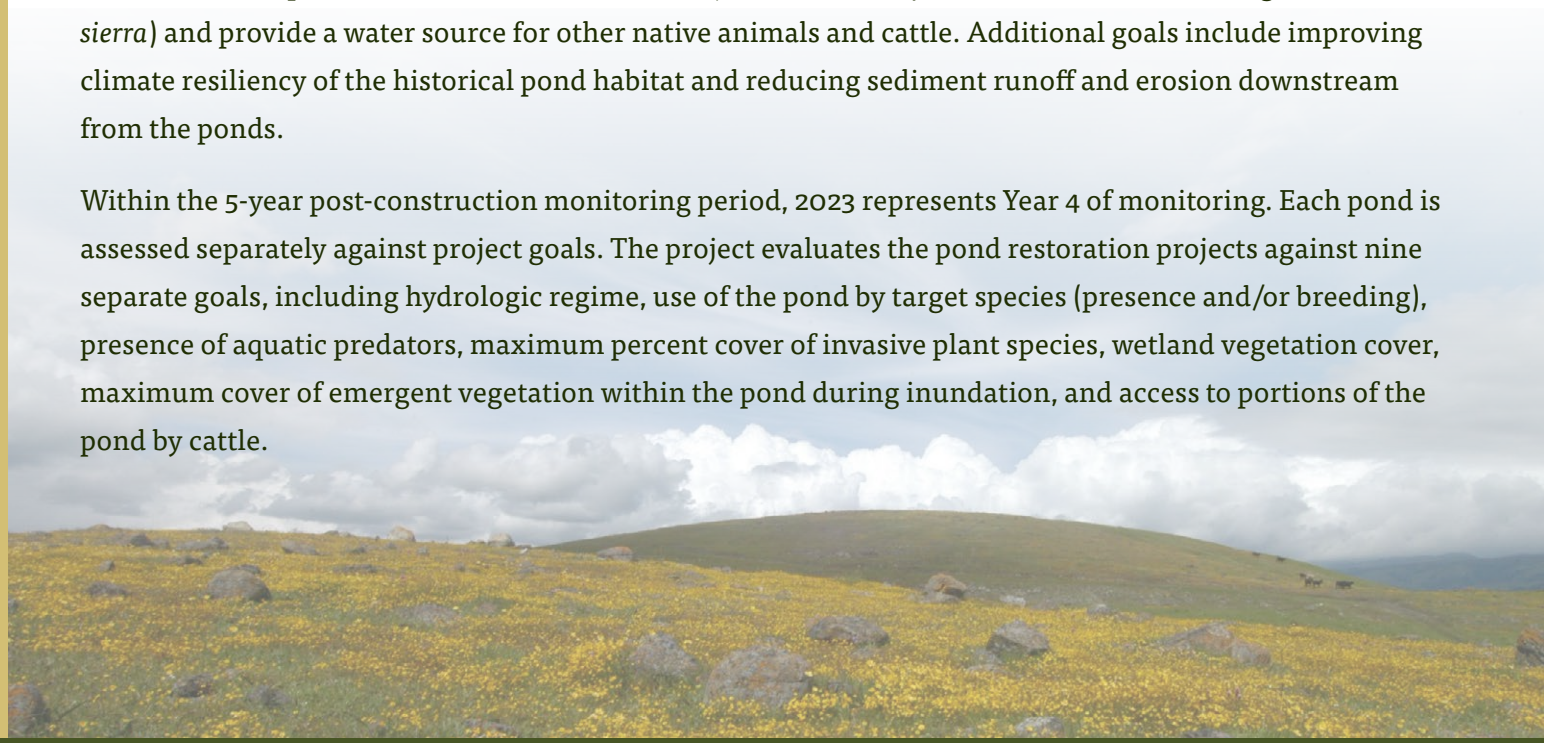
This section summarizes habitat restoration and creation projects undertaken during the reporting period and documents cumulative restoration and creation by watershed. During the reporting year, Habitat Agency staffing was enhanced with the hire of its new Senior Restoration Ecologist, Nathan Hale. Nathan hit the ground running and now oversees all Habitat Agency restoration projects.

Coyote Ridge Open Space Preserve Ponds Restoration Project, Ponds CR1 and CR4

In 2019, the Habitat Agency constructed the Coyote Ridge Open Space Preserve Ponds Restoration Project, creating two ponds in partnership with the Santa Clara Valley OSA. The project was constructed to restore and establish pond habitat at two locations (pond CR1 and pond CR4) in the preserve and within the Coyote Creek watershed.

The primary goal of the project is to restore suitable breeding habitat for California red-legged frog and California tiger salamander. Secondarily, the project is intended to provide potential habitat for species such as western pond turtle, California toad (*Anaxyrus boreas halophilus*), and Sierran tree frog (*Pseudacris sierra*) and provide a water source for other native animals and cattle. Additional goals include improving climate resiliency of the historical pond habitat and reducing sediment runoff and erosion downstream from the ponds.

Within the 5-year post-construction monitoring period, 2023 represents Year 4 of monitoring. Each pond is assessed separately against project goals. The project evaluates the pond restoration projects against nine separate goals, including hydrologic regime, use of the pond by target species (presence and/or breeding), presence of aquatic predators, maximum percent cover of invasive plant species, wetland vegetation cover, maximum cover of emergent vegetation within the pond during inundation, and access to portions of the pond by cattle.



Because 2022–2023 was an above-average rainfall year, ponds CR1 and CR4 were able to be formally inspected for their performance relative to the target hydrologic regime. Pond CR4 held water throughout the year, while pond CR1 failed to hold water for the target hydroperiod, indicating water was infiltrating. California tiger salamander eggs were observed in pond CR4, but larval individuals or adults were not subsequently detected. Invasive plant cover decreased from the previous year and poses a minimal threat to wetland habitat establishment at the pond sites, but cover was still a little higher than the performance standard.

Going forward, the Habitat Agency will continue to manage invasive plants, monitor covered amphibians, and work to resolve the pond CR1 drawdown through adaptive management strategies.

WEBLINK: COYOTE RIDGE OPEN SPACE PRESERVE RESTORATION PROJECT REPORT

Water levels in ponds CR1 and CR4. Following an above-average water year, pond CR4 (right) continued to hold water well through 2023, while pond CR1 (left) dried down faster than intended, indicating expedited infiltration in the pond bottom. Pond CR1 was functionally dry by June 23, while pond CR4 continued to hold water at least through November 2, 2023, the last observation for the year.

Calero Park Pond and Wetland Restoration Project

The Calero Park Pond and Wetland Restoration Project was built in 2016. The project aims to restore and establish pond and wetland habitats in Calero County Park. This project also targeted habitat restoration/enhancement for the California red-legged frog, California tiger salamander, western pond turtle, and Mount Hamilton thistle.

In 2023, the pond missed the target goals of holding water through August 31, maintaining California red-legged frog presence, and supporting Mount Hamilton thistle (i.e., populations declined). However, the site has met all remaining goals including geomorphic stability, wetland vegetation cover along the margin of the pond, and the absence of aquatic predators. In 2024, further analysis will aim to identify why the pond is drawing down faster than in previous periods and what effect this has on the intended pond function.

California red-legged frog has never been observed in the pond indicating that the site location is not yet within range by a source population. Monitoring for frog colonization will continue in the hopes that this species will successfully colonize the restored pond.

The Mount Hamilton thistle population continued to decline in the number of individuals that has been observed over the course of the restoration project. This may be the result of competitive exclusion by other native plants that have benefited from the restoration project and are growing well within the wetland seep. The Habitat Agency will implement intentional disturbances in the wetland seep to emulate grazing and plant seedlings of Mount Hamilton thistle grown from site-specific seed collected in 2023. Once the population has recovered, managed grazing will be implemented.

Restoring and enhancing habitat. The project aims to restore and establish pond and wetland habitats in Calero County Park, targeting habitat restoration/enhancement for the California red-legged frog, California tiger salamander, western pond turtle, and Mount Hamilton thistle.

This project is also successful in many aspects. California tiger salamanders continue to breed successfully, western pond turtles continue to utilize the pond, invasive species like American bullfrogs (*Lithobates catesbeianus*) and Louisiana red swamp crawfish (*Procambarus clarkii*) have been absent in recent years, and jurisdictional wetland creation and restoration criteria have been met for both the pond and the wetland mitigation site.

WEBLINK: CALERO PARK POND AND WETLAND RESTORATION PROJECT REPORT

San Felipe Creek Restoration at Grant Park

The San Felipe Creek Restoration Project aims to restore approximately 1 mile of stream along San Felipe Creek in Joseph D. Grant County Park by modifying in-channel habitat and restoring natural channel and floodplain functions. The restoration design of this project addresses issues such as incised channels, disconnected historical floodplains, limited groundwater connectivity, and areas converted to non-native and upland plant species. By mitigating these impacts caused by historical land uses and enhancing riparian, wetland, and aquatic habitats through planting and management, the project supports special-status species and aquatic resource functions and promotes water retention and infiltration, which improves resilience to climate change.

The project met many of the performance standards for 2023 (Year 5 of the monitoring period), except some involving plant cover in the restored habitats. This was because many of the restoration plants died due to drought and irrigation malfunctions in 2019 and 2020 and were replaced with new plants in 2020 and 2021; therefore, as of 2023, the plants are on average smaller than they would have been had the original 2018 plantings survived. Nevertheless, the restoration project is on a trajectory toward significant ecological improvement compared to pre-project conditions, and 2023 provided a quality year

Creek restoration at Grant Park. Shown here are riparian planting along San Felipe Creek (top) and seasonal wetland in May 2023 (bottom).

of precipitation and on-point maintenance supporting that trajectory. Specifically, the project met four of seven wetland performance standards and three of six stream and riparian buffer area criteria, and it performed as intended in terms of the project hydrology. Continued plant growth and invasive plant management will ensure more criteria are met in coming years.

Recommendations based on this year's monitoring include the addition of a few targeted plantings and cage replacement for plants that have outgrown the initial small diameter cages. Additional maintenance tasks for next year will be continued invasive plant control, measures to reduce feral pig (*Sus scrofa*) impacts, and the addition of a second course of staked debris jams in the Eastern Incised Channel, which has been successfully aggrading, as intended. Also, adaptive management strategies involving the in-stream wood elements are recommended for Boyds Creek distributary channels to reduce flow requirements and increase activation frequency.

WEBLINK: SAN FELIPE CREEK RESTORATION AT GRANT PARK REPORT

San Felipe Creek Restoration—Eastern Tributary

High flows and opportunistic vegetation development in 2023 at the San Felipe Creek Restoration Project site resulted in erosion around the edges of one of the staked debris jams that was installed as part of the project to reverse years of erosion in an unnamed tributary to San Felipe Creek. The Habitat Agency implemented a quick response to repair the erosion and keep the debris jam functioning. These debris jams have worked well to focus sediment accretion where intended, improving the channel function, supporting native riparian habitat development, increasing water quality, and helping increase groundwater levels in the vicinity of the channel.

Creek restoration in a tributary. Shown here is progress of restoration in an unnamed tributary to San Felipe Creek, before (top) and after (bottom).

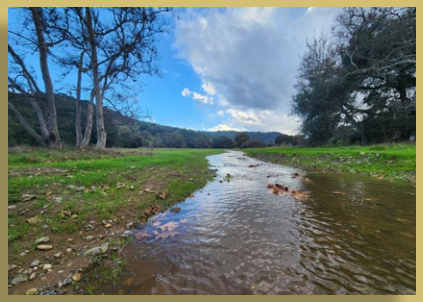
Pacheco Creek Riparian Restoration Project

In 2023, the Habitat Agency initiated construction on the Pacheco Creek Riparian Restoration Project as scheduled, following years of rigorous study, planning, land acquisitions, and permitting. By the close of the year, project installation was essentially complete, pending final plantings and irrigation installation to be finished in early 2024. The project will then transition to an intensive maintenance and monitoring phase over the next 10 years to ensure that it stays on track to restore, enhance, and create the sensitive, native habitats that are the aims of the effort. In the end, the project will have created or restored California sycamore alluvial woodland habitat, seasonal wetlands, freshwater marsh, and stream channel. The project will also enhance these habitats as well as willow riparian woodland habitat and ponds.

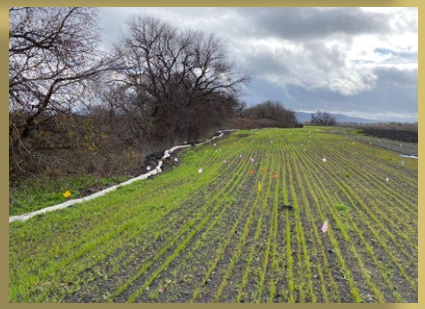
The project is in the northeastern portion of the Pacheco Creek Reserve, along SR 152, within the Pacheco Creek corridor of the Pajaro River watershed. This vital project is providing significant improvements to the property by supporting Habitat Plan goals for habitat restoration, creation, and enhancement of sensitive habitats. It is also providing habitat for covered species including tricolored blackbird, least Bell's vireo, California red-legged frog, and western pond turtle, as well as potentially benefiting other native species including South-Central California Coast steelhead (*Oncorhynchus mykiss*), yellow warbler (*Setophaga petechia*), and yellow-breasted chat (*Icteria virens*). The project may also benefit species that are on track to become covered by the Habitat Plan in the current amendment planning, including mountain lion, monarch butterfly, American badger, and Crotch's bumblebee.

In addition, the Habitat Agency is currently working with the Interagency Review Team (i.e., U.S. Army Corps of Engineers, Regional Water Quality Control Board, National Marine Fisheries Service, U.S. Environmental Protection Agency, USFWS, and CDFW) to enroll the restoration values provided by this project into an in-lieu fee program enabling the project to provide watershed-specific compensatory mitigation for impacts that may result from future projects covered by the Habitat Plan on waters of the United States and waters of the state.

This project was primarily paid for with Habitat Plan impact fees. Approximately a third of the project funding was generously paid by grant support from the CDFW's Local Assistance Grant program, the Proposition 68—State of California Parks & Water Bond 2018, and Valley Water's Safe, Clean Water Project D3 Grant.



Channel construction. Shown above is the newly constructed secondary channel in November 2023 (top) and after rains in February 2024 (bottom).



Converting highly degraded land into habitat. This project will result in 1 acre of freshwater marsh habitat, 4 acres of multi-level riparian woodland, and enhancement of approximately 3,800 linear feet of stream within the Pajaro River.

Pajaro River Riparian Habitat Restoration

After years of planning, permitting, and plant production, the Pajaro River Riparian Habitat Restoration Project is well underway with all grading and soil preparation established in fall 2023 and planting beginning in winter 2023 to be completed by early 2024. This project, which occurs on the Santa Clara OSA-owned South Pajaro River Agricultural Preserve property at the southern boundary of Santa Clara County, is being led by the Habitat Agency and paid for through Habitat Plan mitigation fees and grant funding. The project is designed to transition highly degraded land into approximately 1 acre of freshwater marsh habitat, 4 acres of multi-level riparian woodland, and the enhancement of approximately 3,800 linear feet of stream within the Pajaro River. The project occurs along the margin of actively farmed organic row crop production within the property, just upstream from the confluence of Llagas Creek and the Pajaro River.

This reach of the Pajaro is adjacent to one of the only recent observations of the least Bell's vireo in Santa Clara County (i.e., 1997 and 2001 occurrences documented by Valley Water biologists along the proximal reach of Llagas Creek), a covered species that requires dense multi-leveled riparian canopy. It also provides potential habitat for western pond turtle and native anadromous fish species. Additionally, the restored riparian woodland habitat will provide corridor habitat along one of the only remaining potential movement corridors connecting the Santa Cruz Mountains to the Diablo Mountain Range.

A portion of the upland riparian buffer plantings will be installed by Point Blue Conservation Science's S.T.R.A.W. program (Students and Teachers Restoring a Watershed). This program organizes school groups to help in the planting of habitat restoration projects, supplemented with in-class curriculum provided by Point Blue, turning this important habitat restoration project into a memorable learning opportunity for hundreds of student volunteers. The next steps will be to complete planting and shift into maintenance and monitoring for a 5-year period to make sure the project meets success criteria.

San José–Santa Clara Regional Wastewater Facility Bufferlands Pilot Planting

In the reporting year, the 201-acre San José–Santa Clara RWF Bufferlands was formally added to the Habitat Agency Reserve System with the recordation of a conservation easement held by the Habitat Agency. This property, embedded in a highly urbanized portion of the coverage area, is a rare patch of critical burrowing owl habitat in the county. The Habitat Agency coordinates with the City of San José on site management and works with the Grassroots Ecology and Talon Ecological Resource Group to enhance habitat quality, increase the number of nesting western burrowing owls, and increase their reproductive success at the site. Part of the site management has been native habitat creation, which is implemented by Grassroots Ecology with support from Valley Water's D2 Clean, Safe Creeks grant funding. The goal of this work is creating a self-sustaining native plant zone to provide habitat for native pollinators and herbivores, thereby increasing the species diversity of the site and potentially increasing the prey base of burrowing owls on the site.

The 2023 work was based on lessons learned in prior years, namely installing new plants that proved to be suited to site conditions based on prior planting success and targeting invasive species that had previously proved problematic to native plant success. In addition, 2023 provided another learning opportunity for native plant success at the site. The early wet season brought substantial flooding throughout the property, creating extended inundation periods with a substantial loss in plants. Perennial species that survived the flooding were noted, including hairy gum plant (*Grindelia hirsutula*), California rose (*Rosa californica*), California aster (*Symphyotrichum chilense*), and western vervain (*Verbena lasiostachys*). Future plantings may focus on these species.

In addition to the native plant work by Grassroots Ecology, Talon Ecological Resource Group coordinated and conducted extensive non-native plant control efforts, primarily designed to ensure site conditions are maintained for the ideal habitat structure to support burrowing owls.

Activities at the San José–Santa Clara RWF Bufferlands. Grassroots Ecology interns, staff, and volunteers weed, plant, and water the native habitat areas of RWF Alviso Reserve (top). Heavy winter precipitation led to flooding of the planting area, which challenged many of the installed native species and provided insights about species to use in future plantings (middle). Monarch caterpillar enjoys some of the planted milkweed (bottom).

Table 11. Aquatic Land Cover Restoration and Creation by Watershed—Cumulative[a]

Watershed	Aquatic Land Cover (acres or as shown)							
	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	0.82	—	0.82	0.15	3.72	—	9,645	5.51
Creation	—	—			—	—	—	0.00
Subtotal	*0.82*	*0.00*	*0.82*	*0.15*	*3.72*	*0.00*	*9,645*	*5.51*
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			3.30	—	—	—	—	3.30
Creation	—	—	—	—	—	—	—	0.00
Subtotal	*0.00*	*0.00*	*3.30*	*0.00*	*0.00*	*0.00*	*0*	*3.30*
Uvas								
Restoration	—	—	—	—	—	—	850	—
Creation	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	*850*	—
Llagas								
Restoration	—	—	—	—	—	—	—	—
Creation	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—
Total	**0.82**	**0.00**	**4.12**	**0.31**	**3.96**	**0.22**	**10,495**	**9.43**

[a] No aquatic land cover restoration and creation occurred during the reporting period.

Western Burrowing Owl Management and Monitoring

This section notes western burrowing owl–related management and monitoring actions undertaken during the reporting period and shows young fledged annually since 2014.

Two adult western burrowing owls at Shoreline at Mountain View.

Through the reporting period, the Habitat Agency managed two of five western burrowing owl breeding sites and two new reintroduction sites discussed below. Also within the reporting period, the Habitat Agency constructed and began managing a captive breeding facility to increase the number of owls in the Plan Area. Burrowing owl surveys were conducted throughout the Plan Area and Extended Plan Area for burrowing owl conservation. Another noteworthy achievement is that the Habitat Agency recorded a conservation easement for San José-Santa Clara RWF, in addition to the existing management agreement. This site includes 200 acres of occupied nesting habitat, approximately 33% of the 600 acres required under the Habitat Plan.

The 2023 western burrowing owl surveys documented breeding owls at three of the five sites, with successful reproduction at two sites: RWF and Shoreline at Mountain View. At the third site, Moffett Field, two males were present throughout the breeding season, but no female burrowing owls were observed. Breeding burrowing owls were absent at San José Airport for the first time in decades and continued to be absent at the Don Edwards National Wildlife Refuge. Nonetheless, the total number of adult owls observed

during the breeding season increased from 33 to 47 adults (21 pairs) between 2022 and 2023. The number of young fledged increased from 64 young to 93 young, and the average number of offspring per pair also increased from 3.7 to 4.4 between 2022 and 2023.

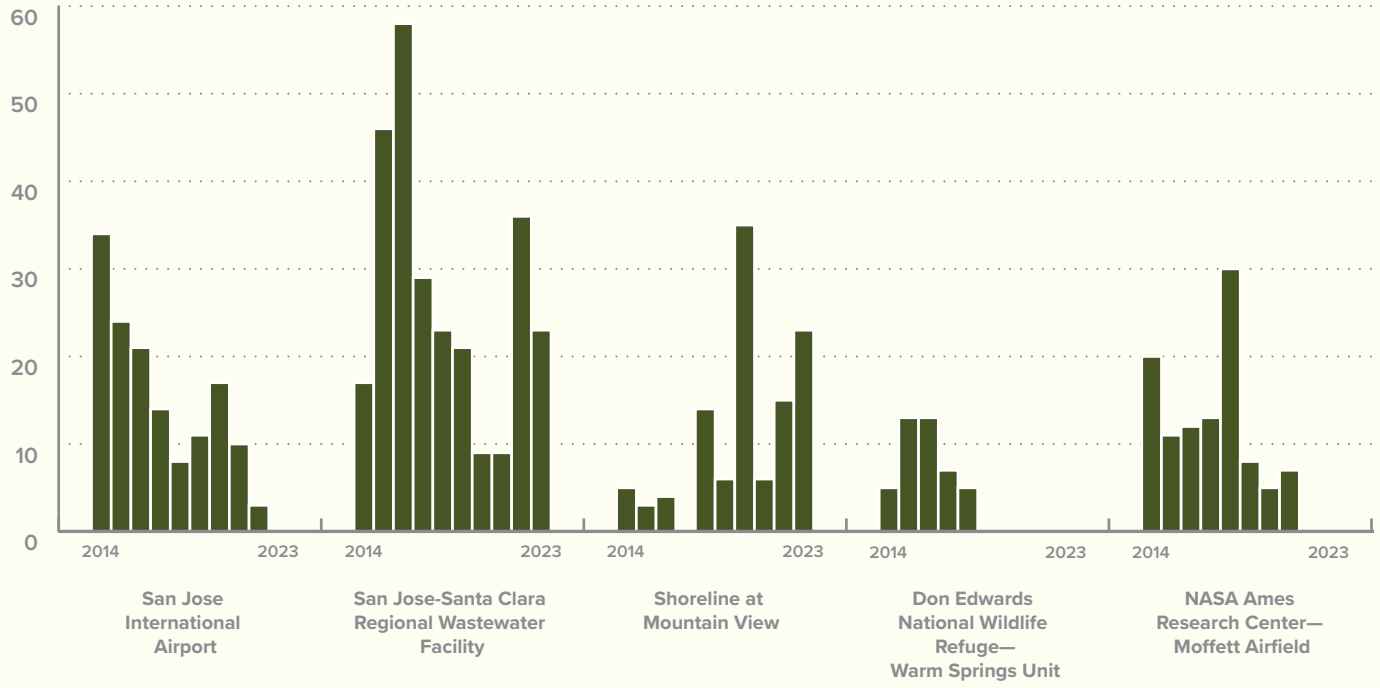
Despite record rainfalls and flooding into April, these results were very encouraging. The increase in the number of breeding adults and their offspring is a result of continued Tier 3 recovery actions that the Habitat Agency conducted during the FY2022–2023 reporting period. This year, 35 of the breeding owls were soft-released as part of the Juvenile Burrowing Owl Overwintering Project. These 35 owls represent 69% of the total breeding population in the Plan Area. For the first time, nine pairs were soft-released at two reintroduction sites in the southern part of the county that were not occupied by wild burrowing owls prior to reintroduction. Those two sites are the Peninsula Open Space Trust/Santa Clara OSA Reintroduction Site and the Santa Clara County Parks and Recreation Department Reintroduction Site. All nine pairs successfully reproduced at both sites. Additionally, four owls (two pairs) remained in the captive breeding program. These two captive pairs produced a total of nine offspring. The success of the overwintering project and the captive breeding program are crucial for meeting a conservation goal for this species in the Plan Area, which is to first stabilize the population, then demonstrate a positive population growth trend.

Juvenile western burrowing owl retained for the overwintering project, a Tier 3 conservation action under the Habitat Plan. One of the main objectives is to reduce juvenile mortality by overwintering juveniles in captivity for approximately 9 months for release back into the wild the following spring.

Western Burrowing Owl Management and Monitoring

The number of young fledged at the five conservation sites each year has varied over time; however, the total number of young produced across these sites has decreased since 2014. The decreasing trend in offspring rate is attributable partly to inbreeding depression (i.e., the reduction in the average fitness of offspring born to parents that are closely related to each other). Other factors include climate change, habitat loss and disturbance, rodent eradication, lack of suitable habitat, and increase in predation by non-native predators.

Figure 11. Number of Young Fledged (2014–2023)



This section summarizes management actions that took place during the reporting period and highlights notable accomplishments.

Reserve System Management

Through consistent prioritization of land acquisition early in Habitat Plan implementation, the Reserve System has grown by over 1,000 acres of land per year on average. This rate of growth is good news for the Habitat Agency as it continues to outpace the Stay-Ahead requirements for conservation in Plan compliance. This rate of land enrollment has also necessitated growth in land management staffing. In the reporting year, Julie King (Principal Land Management Specialist since 2020) was joined by Matt Fogarty, the Habitat Agency's new Senior Land Management Specialist. Together, with some help from consultants, they have been busy with the following activities and projects:

- Conservation easement preparation and monitoring
- Reserve patrols and safety checks
- Grazing oversight
- Grazing water distribution maintenance
- Fence and gate maintenance
- Access coordination
- Native seed collection
- Invasive plant and animal control
- Litter and trash removal
- GIS improvements to support and track the above-listed tasks
- Contractor management to support the above-listed tasks
- Hired new staff to support land management objectives

Highlights from the aforementioned tasks include:

- Habitat Agency Staff made over 250 site visits to Reserve System properties.
- Ecological Concerns, Inc., and the Habitat Agency treated over 8 acres of invasive artichoke thistle (*Cynara cardunculus*) and 21 acres of barbed goatgrass (*Aegilops triuncialis*) between Davidson Reserve, Baird Reserve, and Coyote Ridge East Reserve.
- Habitat Agency staff removed infestations of yellowstar thistle (*Centaurea solstitialis*), French broom (*Genista monspessulana*), eggleaf spurge (*Euphorbia oblongata*), and stinkwort (*Dittrichia graveolens*) across the Reserve System.
- Ecological Concerns, Inc., and the Habitat Agency removed eucalyptus (*Eucalyptus* spp.) and tree of heaven (*Ailanthus altissima*) from Davidson Reserve and Coyote Ridge East Reserve.
- LD Ford, Consultants in Rangeland Conservation Science conducted residual dry matter surveys on Baird, Davidson, and Tilton Reserves to inform grazing management.
- Working with partners, the Habitat Agency dispatched 59 feral pigs.

Monitoring, Research, and Adaptive Management

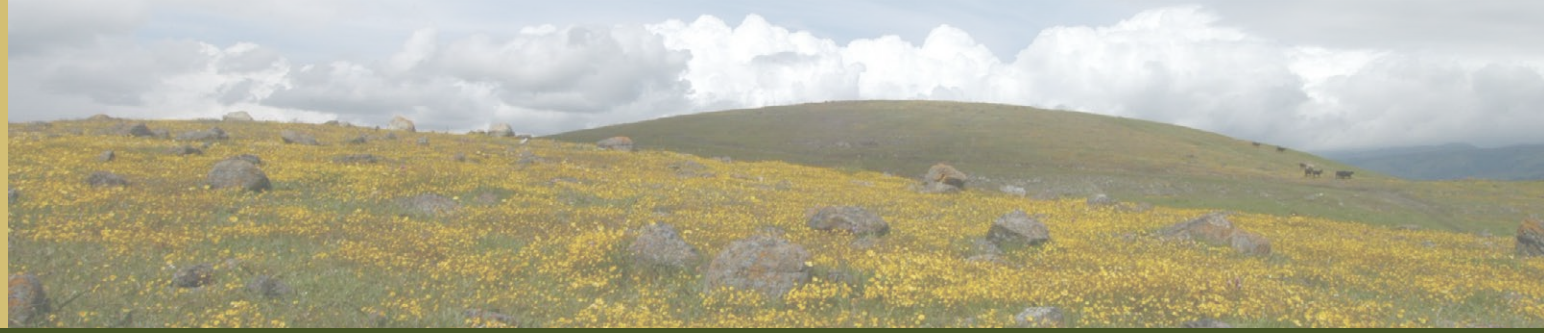
This section summarizes monitoring, research, and adaptive management projects undertaken during the reporting period.

Western Burrowing Owl Supplemental Feeding Study

The Western Burrowing Owl Supplemental Feeding Study at the Shoreline Regional Wildlife Area, NASA's Ames Research Center in Mountain View, and San José–Santa Clara RWF in San José contributes to the Habitat Plan's commitment to burrowing owl conservation actions. Owls were fed mice each week throughout the breeding season. In 2023, a total of 21 breeding pairs producing a total of 102 offspring were supplementally fed across four sites. In comparison, during the 2022 breeding season, 11 pairs were fed, and in 2021 14 pairs were fed. Releases from the Juvenile Burrowing Owl Overwintering Project during 2023 contributed a total of 16 pairs and 3 single females.

WEBLINK: WESTERN BURROWING OWL REPORTS

Burrowing owl with a supplementally fed mouse.



Bay Checkerspot Butterfly Surveys. This project tracks the status and trends of Bay checkerspot butterfly populations in the Reserve System to determine whether the number of populations and the geographic distribution of the species are increasing or decreasing.

Bay Checkerspot Butterfly Surveys

In early 2023, the Habitat Agency retained Creekside Center for Earth Observation to conduct Bay checkerspot butterfly larvae and adult surveys to determine occupancy patterns across the Reserve System. Larval and adult surveys were conducted at Coyote Ridge, Baird, Calero, Rancho San Vicente, and Tulare Hill Reserves. Adult surveys were also conducted at Tilton and Davidson as well as at Lakeside Ranch, a property acquired by Peninsula Open Space Trust and which the Habitat Agency will acquire in 2024. Reporting for this year's survey effort is in the process of being finalized, but surveys suggest that the population declined across the Reserve System due to drought and high temperatures in spring 2022.

WEBLINK: BAY CHECKERSPOT BUTTERFLY SURVEY REPORT

Name that Jewelflower

The Habitat Agency contracted Creekside Science and Santa Clara University to determine taxonomic boundaries and define occurrences for most beautiful jewelflower and Metcalf Canyon jewelflower on Coyote Ridge. The study examined genetics, pollination, sepal color, and spatial distribution to inform conservation efforts. Research showed that there is a dynamic evolutionary process taking place along Coyote Ridge. The final report, provided to CDFW in May 2023, found that these evolutionary processes are more complex than a typological taxonomic approach can account for. Thus, it recommended delineating four phenotypic zones to geographically distribute occurrences. This project was supported by a CDFW NCCP Local Assistance Grant.

WEBLINK: NAME THAT JEWELFLOWER STUDY

Coyote Valley Road Ecology Study

Through a Local Assistance Grant awarded in April 2021, this study sought to evaluate the current ecological connectivity between the newly protected properties in the North Coyote Valley Conservation Area (NCVCA) and identify opportunities to improve connectivity. Study methods included camera trapping at three kinds of sites: existing undercrossings (culverts and bridge), at-grade along Santa Teresa Boulevard and Bailey Avenue, and fences and gates along the NCVCA properties. These methods were coupled with roadkill surveys for a comprehensive understanding of how wildlife is interacting with roads in the NCVCA.

The study found that at-grade sites had the highest rates of detections, followed by fence/gate sites and undercrossings. Coyotes (*Canis latrans*) and wild pigs were the species most frequently detected at-grade. The culverts and bridge had low rates of passage, likely because of restrictive fencing, flooding issues, and sediment buildup. Fencing along the NCVCA properties also limited wildlife movement. The highest rates of wildlife–vehicle collisions were detected on Monterey Road, followed by Highway 101 and McKean Road. Despite high rates of at-grade detections, Bailey Avenue and Santa Teresa Boulevard had the lowest rates of collisions. Over half of all recorded collisions were with raccoons (*Procyon lotor*) and coyotes.

Documenting wildlife crossings. A coyote is caught on camera near an undercrossing along Coyote Valley Road.

Recommendations to improve connectivity include installing wildlife-friendly fencing, retrofitting culverts, clearing sediment and/or modifying the Bailey Avenue Fisher Creek bridge to improve passage opportunities for large mammals, restoring native vegetation, installing barrier fencing along US 101 and modifying the Monterey Road median to reduce wildlife–vehicle collisions, and limiting recreational trails in areas that are important for wildlife habitat and connectivity. This study was completed in partnership with Pathways for Wildlife and Peninsula Open Space Trust.

WEBLINK: COYOTE VALLEY ROAD ECOLOGY STUDY

Documenting Tiburon paintbrush. This occurrence was found at Paintbrush Hill.

Tiburon Paintbrush Project

Tiburon paintbrush is a covered species under the Habitat Plan and is restricted to only two occurrences in the Plan Area (and Santa Clara County). Both occurrences are at risk of extirpation from threats (e.g., grazing, feral pig uprooting) and have shown declines in recent years. The Paintbrush Hill occurrence on property owned, monitored, and managed by Valley Water has historically been documented as three separate subpopulations. No plants were observed in the two smaller polygons until 2019, when plants were rediscovered near the north polygon. The number of plants in the Paintbrush Hill occurrence has fluctuated over time, with the number of plants counted per year ranging from a low of 9 individuals in 1994 to a high of 208 or 224 in 2018, depending on the count method.

In the 2023 monitoring season 105 reproductively mature plants and no seedlings were counted, for a total population size of 105 individuals. This included 88 plants in the main (central) polygon and 17 plants in the northern polygon. The number of plants observed inside cages declined over the first 3 years of observations, then increased again in 2022 and 2023. The proportion of the total population within enclosures has remained within a close range, between 14% in 2021 and 20% in 2023. Across 5 years, a pattern emerges showing that enclosures make a difference to Tiburon paintbrush plants. Statistically significant higher numbers for plant height, number of inflorescences, number of infructescences, and number of capsules per plant occur inside enclosures when compared with plants outside them.

Seed was collected from three plants (5% of plants that set fruit in 2023) and sent to the California Botanic Garden. Germination tests have not yet been completed on the 2023 seeds. Seeds collected by Valley Water over the 5 years of this population monitoring effort are stored in a permanent collection at the California Botanic Garden, which deposits a backup sample with the National Laboratory for Genetic Resources Preservation in Fort Collins, Colorado.

The Habitat Agency acknowledges the role that Valley Water biologists, especially including Laura Garrison, have played to understand and protect this population.

WEBLINK: TIBURON PAINTBRUSH PROJECT REPORT

Documenting coyote ceanothus. Shown above are mature coyote ceanothus in flower at the Upper Sage plot (top) and a seedling documented at the Lower Sage plot (bottom).

Coyote Ceanothus Mitigation Project

Annual planting of coyote ceanothus concluded at the mitigation site in winter 2022. Planting at the site began in 2015 within the four original test plots. From 2019 to 2022, annual planting occurred in serpentine grassland located outside the test plots as the test plots reached capacity. Planting consisted of a combination of direct seeded basins and container plants installed in basins. At the time of annual monitoring in summer of 2023, there were a total of 1,295 active basins (basins with at least one living coyote ceanothus in them; direct seeded basins are installed with four seeds per basin). Monitoring of all planted basins is conducted annually in June. Monitoring metrics include recruitment, survivorship, plant height and vigor, and evidence of flowering and seed production.

A major milestone in 2023 was the documentation of natural recruitment of coyote ceanothus seedlings in several of the plots near larger and more mature planted coyote ceanothus. At the time of annual monitoring in June, 13 seedlings were documented in the Pine plot, 36 seedlings were documented in the Lower Sage plot, and 3 seedlings were documented in the Chaparral Edge plot. One of the Lower Sage seedlings was quite large (greater than 6 inches), indicating it likely germinated in a previous year and was overlooked until 2023.

At over 1,200 occupied basins, this is the appropriate size of the planted population of coyote ceanothus at the introduction site. At this point Valley Water Senior Biologist and project lead, Janell Hillman, is pausing the annual planting activity to see how much natural recruitment will occur and how plants may naturally establish without active planting, which would transition the introduction site to a self-sustaining population of coyote ceanothus. The natural recruitment documented in 2023 (a total of 52 seedlings) is an incredible achievement for the project. The Habitat Agency extends a special thanks to Janell for championing this important project.

WEBLINK: COYOTE CEANOTHUS MITIGATION PROJECT REPORT

Improving corridors for wildlife. Shown above is a wildlife crossing improvement under the Pacheco Creek bridge, before (top) and after (bottom).

Wildlife Linkage and Connectivity Projects

A summary of ongoing grant-funded projects below.

- **SR 152 Pacheco Creek Wildlife Connectivity and Corridor Enhancement.** Funding awarded by the State of California Wildlife Conservation Board has supported (1) creating a wildlife crossing under Pacheco Creek Reserve bridge, (2) restoration of Pacheco Creek to improve wildlife habitat and movement, and (3) future installation of directional fencing between the bridges and culverts at the Pacheco Creek Reserve.
- **Pacheco Pass Wildlife Linkage and Connectivity Improvements.** Additional Wildlife Conservation Board funding was received for directional fencing. It is essential that both sides of the highway be fenced to prevent wildlife from accessing the highway from one unfenced side and becoming trapped on the road behind the new fence on the other side. Based on the data collected during prior wildlife studies in Pacheco Pass, these structures are facilitating the movement of multiple species under SR 152. Fencing between crossing structures (culverts and bridges) will encourage the use of the under crossings rather than travel over the roadway.
- **Pacheco Pass Wildlife Overpass Planning.** Throughout the reporting year, staff coordinated with several partners to advance the study and design of a potential wildlife overcrossing in Pacheco Pass to address the high rate of wildlife mortality on the highway. The key project outcomes are a conservation easement over Malech Ranch; directional fencing installation to guide wildlife towards existing crossing infrastructure; and final land bridge design, permitting, and environmental clearance. This project is funded by the Wildlife Conservation Board. During the reporting period, habitat suitability and cost surface models were created to produce a linkage analysis for focal species, and the feasibility of six potential wildlife crossing locations were evaluated. This work is ongoing.

- **Pacheco Pass Wildlife Connectivity.** The key project outcomes are protection of the Malech Ranch; GPS collars placed on tule elk (*Cervus canadensis nannodes*) and mountain lions to inform wildlife crossing infrastructure investments; directional fencing installation to nudge wildlife towards existing crossing infrastructure; and final land bridge design, permitting, and environmental clearance. During the reporting period, a design for directional fencing was proposed. This includes removal of 4,909 linear feet of existing fencing and installing 4,758 linear feet of 8-foot-tall chain link fencing and three timber retaining walls with wildlife jump-out ramps. The project is funded by the Wildlife Conservation Network and the Gordon and Betty Moore Foundation.

Linking habitat and protected lands. Pacheco Pass is essential to connectivity between the Diablo and the Inner Coast Ranges; it is a wildlife corridor priority for many local, state, and federal conservation organizations. The Pacheco Pass Wildlife Connectivity Project will link wildlife habitat and protected public lands on both sides of SR 152 including current and future Reserve System lands, existing protected lands, and working ranch lands. Over the next several years, the Habitat Agency will utilize grant funding to implement a suite of wildlife connectivity improvements in Pacheco Pass.

Evaluating wildlife movement. Shown here is a mule deer traveling south through a culvert at Post Mile 17.24 near San Felipe Lake on July 5, 2021.

SR 152 Pacheco Pass Regional Wildlife Connectivity Study, 2021–2022

Through a CDFW Local Assistance Grant awarded in April 2021, this study sought to evaluate wildlife movement across a 20-mile stretch of SR 152 through Pacheco Pass and identify opportunities to improve wildlife connectivity. Study methods included 12 months of camera trapping at 29 existing undercrossings, including 23 culverts greater than 3 feet in diameter and six bridges. These methods were coupled with roadkill surveys for an improved understanding of how medium- to large-sized mammals were interacting with SR 152.

The study found that coyote, striped skunk (*Mephitis mephitis*), and feral pig were the species most frequently detected using undercrossings. Mule deer (*Odocoileus hemionus*) utilized five of six bridges and one culvert. Mountain lion was detected at two locations. Culverts with low rates of wildlife passage

often had restrictive fencing, flooding issues, or sediment buildup that restricted the culvert opening. The highest rates of wildlife–vehicle collisions were detected between Casa de Fruta and Cedar Creek.

Of the nine species identified, striped skunk was most frequently detected during roadkill surveys. Recommendations to improve connectivity included installing wildlife-friendly fencing, retrofitting culverts, clearing sediment, and constructing a wildlife overpass to improve crossing opportunities for large mammals. This study was completed in partnership with Pathways for Wildlife and Peninsula Open Space Trust.

WEBLINK: WILDLIFE CONNECTIVITY STUDY

Amphibian and Reptile Surveys

In spring 2023, the Habitat Agency contracted Vollmar Natural Lands Consulting to replicate the baseline study performed at Coyote Ridge in 2016. The study consisted of a habitat assessment, visual encounter surveys for adults, larval surveys, and stream surveys for metamorphosed individuals. A visual encounter survey for adults in stream corridors on Coyote Ridge East was also performed.

Habitat Agency staff also conducted larval sampling and visual encounter surveys for amphibians and reptiles at Calero, Coyote Ridge East, and O'Connell Reserves. Sampling was also conducted at the San Felipe Creek Restoration Project Site.

Surveying for amphibians. Shown here are the California tiger salamander larval survey at Coyote Ridge East (left) and a California tiger salamander at Coyote Ridge East (right).

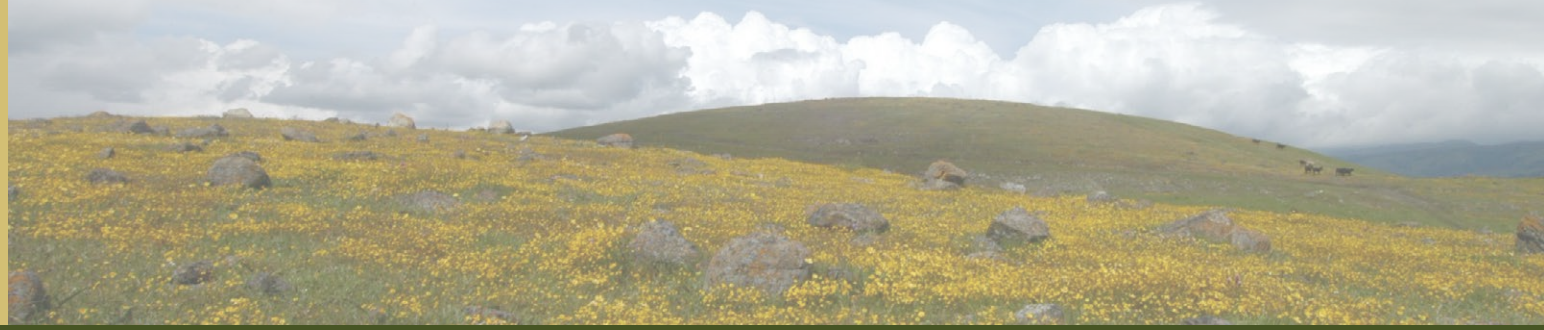
This section evaluates compliance with the Habitat Plan's Stay-Ahead provisions for natural communities, the burrowing owl conservation strategy, and covered plants.

Stay-Ahead Provision

The Stay-Ahead provision requires that the amount of each land cover type conserved, restored, or created by the Habitat Agency as a proportion of the total requirement for each land cover type must be roughly proportional to the impact on that land cover type as a proportion of the total impact expected by all covered activities. For example, if 25% of the expected impacts on mixed serpentine chaparral have occurred, then at least 25% of the required land acquisition for mixed serpentine chaparral must also have occurred. To provide flexibility during implementation, the Habitat Agency may fall behind by a maximum of 10% of its conservation strategy requirements (conservation overall and by each applicable land cover type) and still be in compliance with the Stay-Ahead provision. This deviation accounts for the likely pattern of infrequent land acquisition of large parcels that will allow the Habitat Agency to jump far ahead of impacts with just one acquisition.

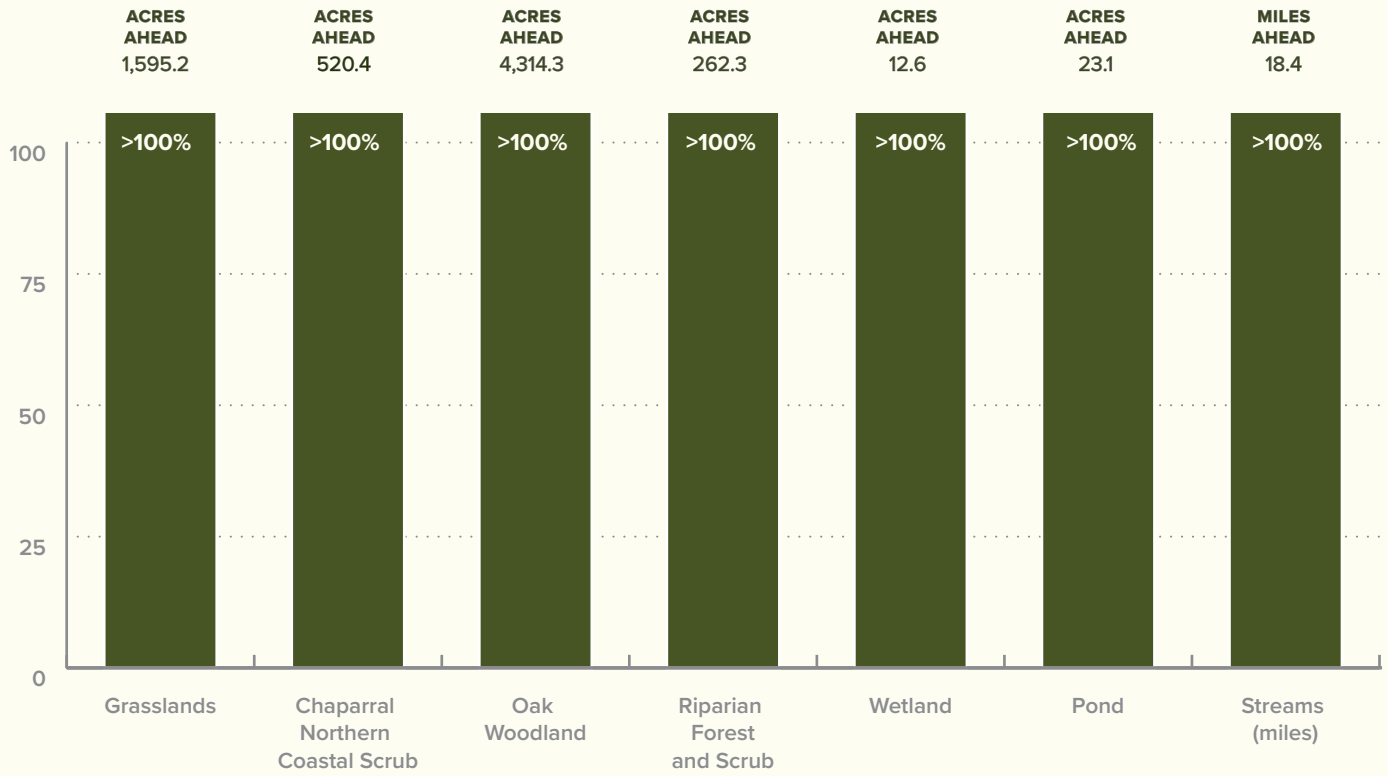
The Habitat Plan's Stay-Ahead provision requires that conservation is ahead of or proportional to impacts for natural communities, plants, and the western burrowing owl conservation strategy. For natural communities and plants, this is achieved by acquiring land for the Reserve System in advance of impacts. For the burrowing owl conservation strategy, land acquisition, management agreements, and conservation actions contribute to the Stay-Ahead requirements.

The following pages show Stay-Ahead compliance for natural communities (**Figure 12**), western burrowing owl (**Figure 13**), and plants (**Figure 14**).



Stay-Ahead requirements for natural communities are still being exceeded. The Habitat Agency acquired several properties within the reporting period, further contributing to compliance with the Stay-Ahead provision. The Habitat Agency will continue to acquire land throughout the permit term in order to remain in compliance with the Stay-Ahead requirement.

Figure 12. Stay-Ahead Compliance for Natural Communities



Notes

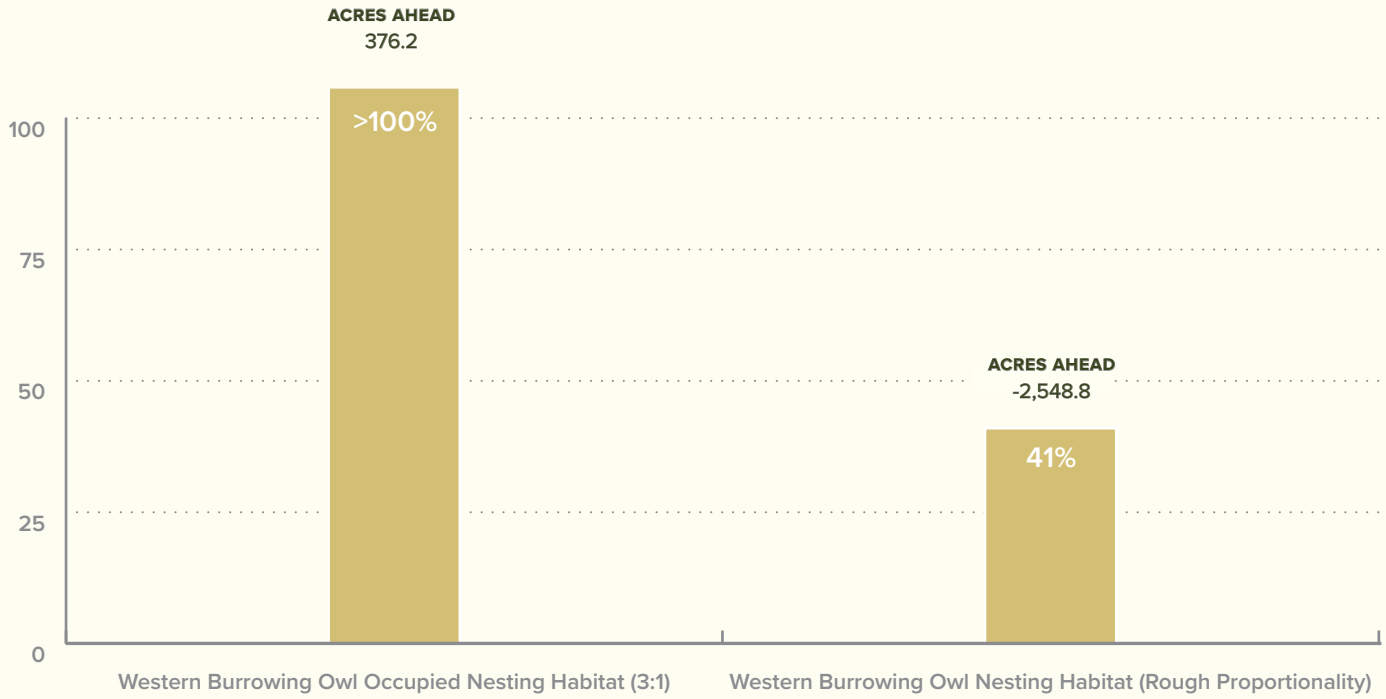
Stay-Ahead is tracked by natural community rather than land cover type to allow for flexibility in Reserve System assembly. Compliance is tracked as a proportion of conservation achieved/expected compared to impacts incurred/expected.

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

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

The Habitat Agency continues to remain in compliance with the Stay-Ahead requirement for occupied nesting habitat but is not in compliance with nesting habitat (rough proportionality).

Figure 13. Stay-Ahead Compliance for Western Burrowing Owl



Notes

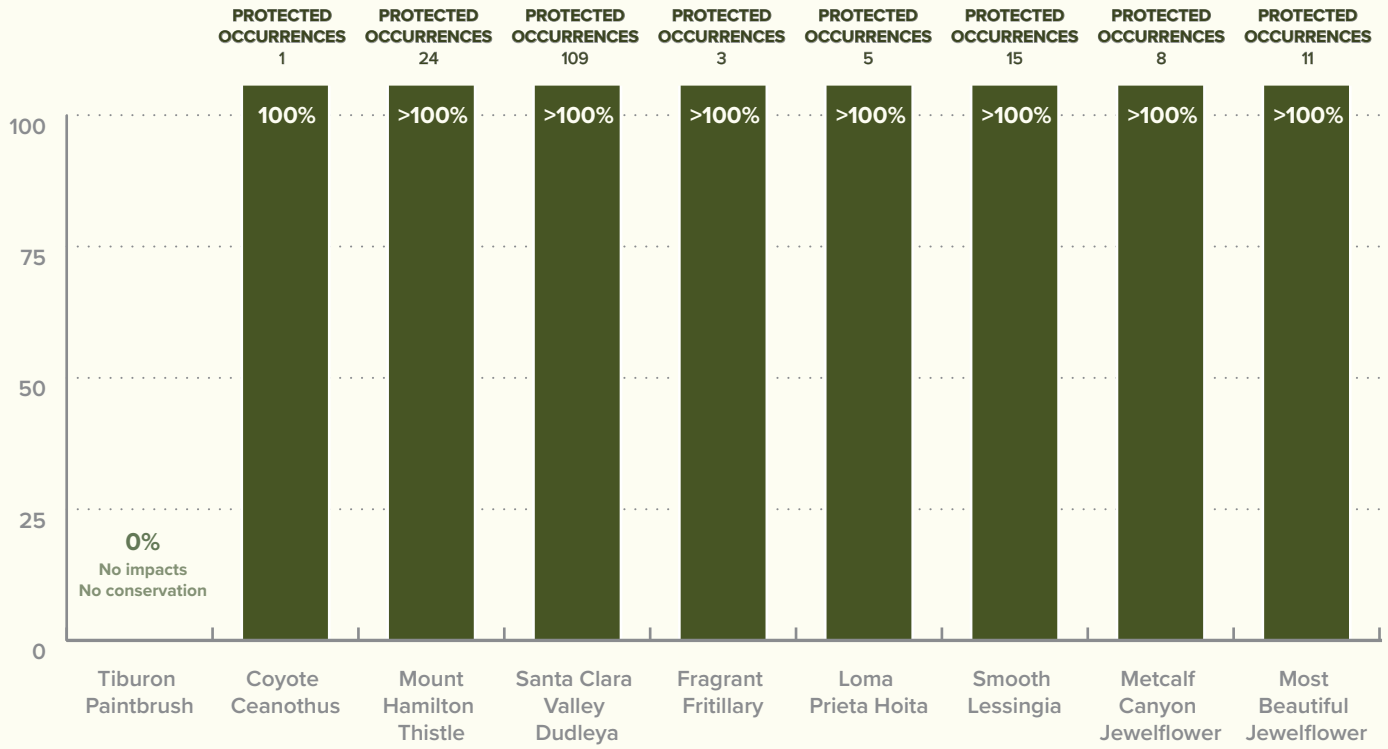
The western burrowing owl Stay-Ahead requirement measures two different compliance metrics— (1) occupied nesting habitat: impacts and conservation of occupied nesting habitat using a 3:1 ratio within a 10% deviation, and (2) nesting habitat rough proportionality: rough proportionality for impacts to occupied breeding habitat compared to conserved occupied nesting and potential breeding habitat within a 10–15% deviation. For both metrics, both lands enrolled in the Reserve System and lands under management agreements can be credited toward conservation. For the second metric, conservation actions implemented on managed lands allow for the 10% deviation to be increased to 15%.

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

Compliance = (Conservation Achieved)/(Conservation Required).

All the covered plant species continue to exceed the Stay-Ahead requirements in the Habitat Plan for the reporting period, given that there have been very few impacts on covered plant species occurrences to date.

Figure 14. Stay-Ahead Compliance for Plants



Notes

Stay-Ahead requirements for covered plants are tracked by covered plant occurrence and do 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 deviate—a 5-year grace period is allowed from the first impact.

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

Compliance = (Conservation Achieved)/(Conservation Required).

Changed and Unforeseen Circumstances

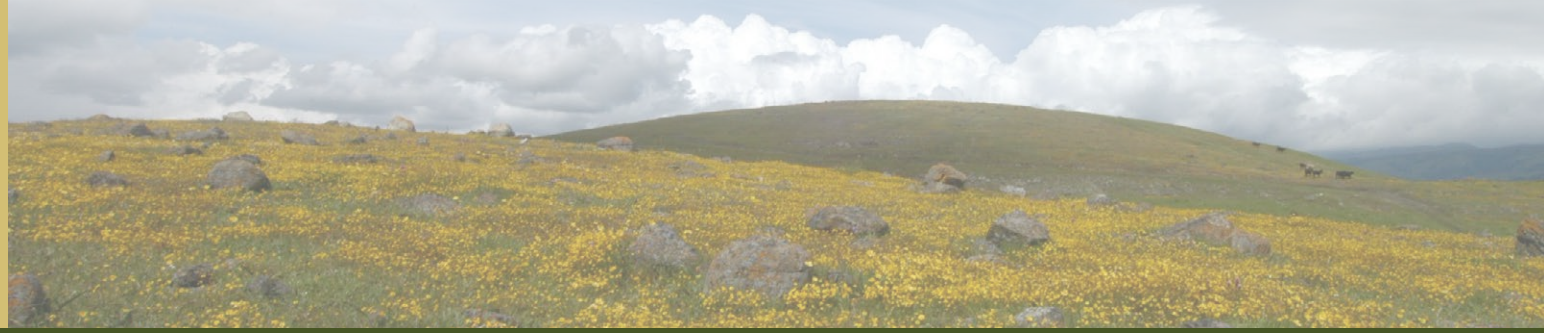
This section notes any changed or unforeseen circumstances that occurred during the reporting period.

The "No Surprises" Regulation established by USFWS defines *changed circumstances* as those circumstances affecting a species or geographic area covered by an HCP that can be reasonably anticipated by the applicant or USFWS and to which the parties preparing the HCP can plan a response. The Natural Community Conservation Planning Act has a similar provision for NCCPs.

No changed circumstances occurred during the reporting period. Data to illustrate no changed circumstance for climate change are described below.

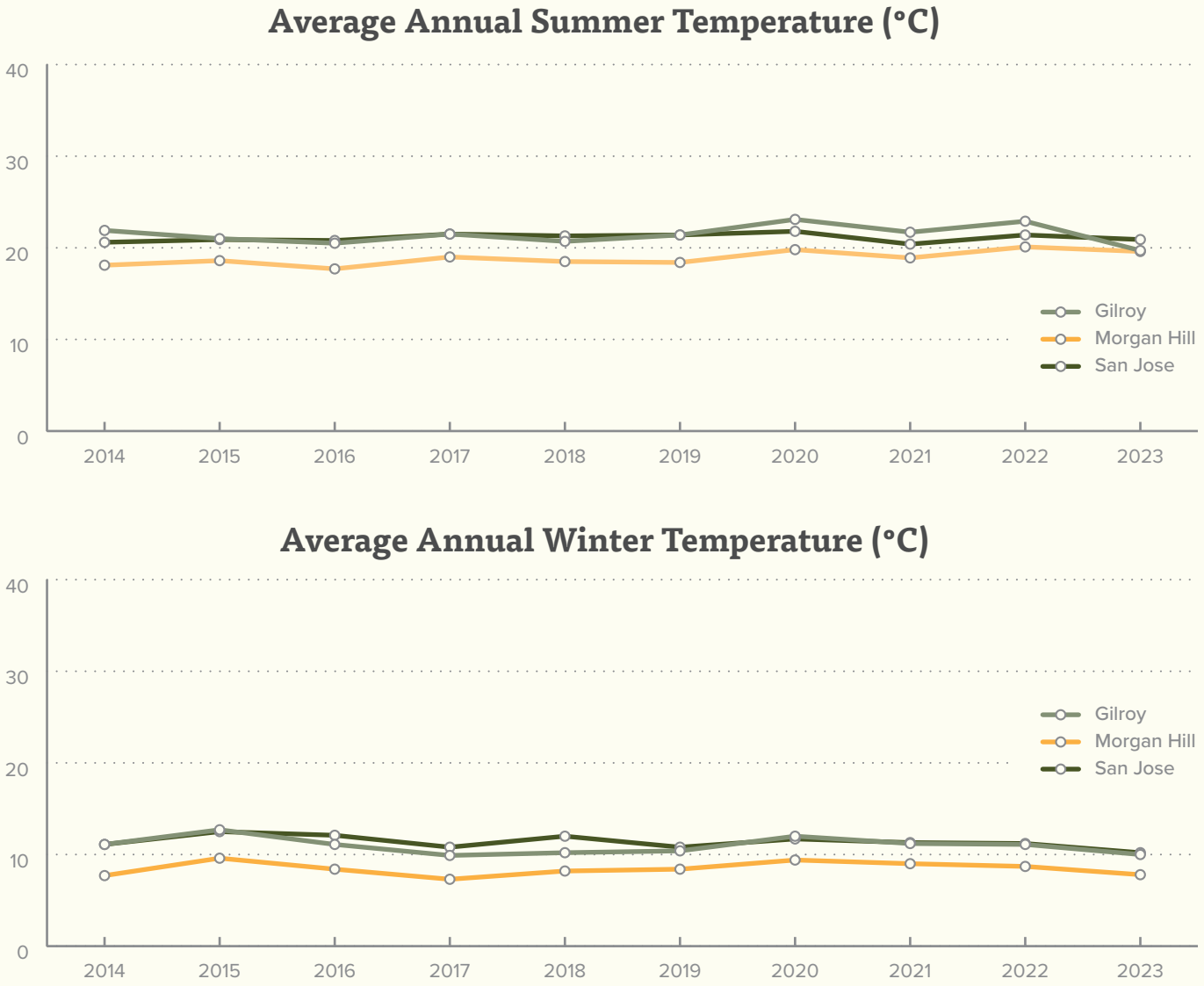
Climate Change

Under the Habitat Plan, an increase in temperature of up to 2.8 degrees Celsius for any of the three baseline periods measured as a 10-year running average is a changed circumstance. The Habitat Agency is tracking these average annual temperatures. The changed circumstance **has not been met**; based on the last 10 years of data, temperatures have generally been stable or decreasing. These trends are shown on the following page in **Figure 15**, which charts the average annual summer and winter temperatures in the Plan Area since Habitat Plan inception.



Since Habitat Plan inception, temperatures have generally been stable within the Plan Area, meaning the climate change changed circumstance has not occurred.

Figure 15. Average Temperatures in the Plan Area



Note

Data from previous annual reports have been updated in this figure.

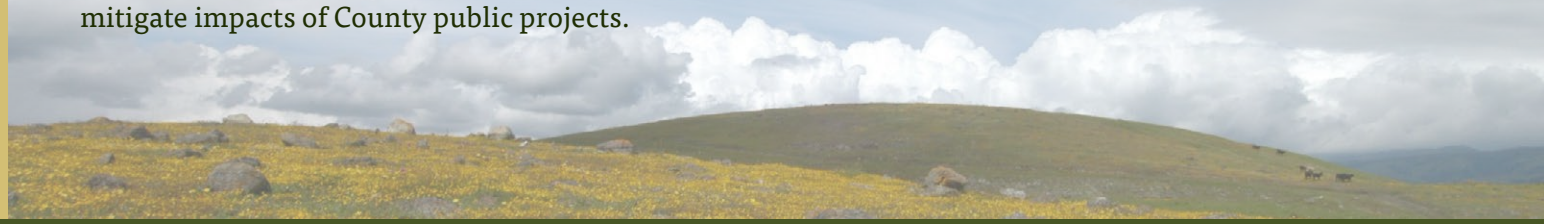
Finances

This section includes the economic assumptions on which the Habitat Plan was based, summarizes all revenues received, and assesses the post-permit term funding strategy.

Each year, the Habitat Agency evaluates 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 Habitat Agency's allocated budget and expenditures varied from what was anticipated by the Habitat Plan (**Figure 16**). For Years 6–10, the Habitat Plan assumed $11.7 million for its average annual budget. The FY2022–2023 Habitat Plan implementation budget was $5.2 million —44% of the anticipated budget. The budget focused on habitat restoration, program administration, land enrollment, land management activities, burrowing owl management, reserve management, and monitoring (**Figure 17**).

The Habitat Plan anticipates 55% of funding from fees and 45% from non-fee sources (grants and donations). 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.

Non-fee-based funding comes from local, state, and federal sources other than Habitat Plan fees. These include land acquisitions and other conservation actions by local organizations and grants from federal, state, local, and private entities. These local funding sources typically require that 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 has begun enrolling its land to mitigate impacts of County public projects.



A percentage of collected development fees is set aside for an endowment fund. For land cover and serpentine fees, the endowment is 20%. In the FY2022–2023 reporting period, endowment funds were deposited to and managed by the Sand Hill Global Advisors investment team.

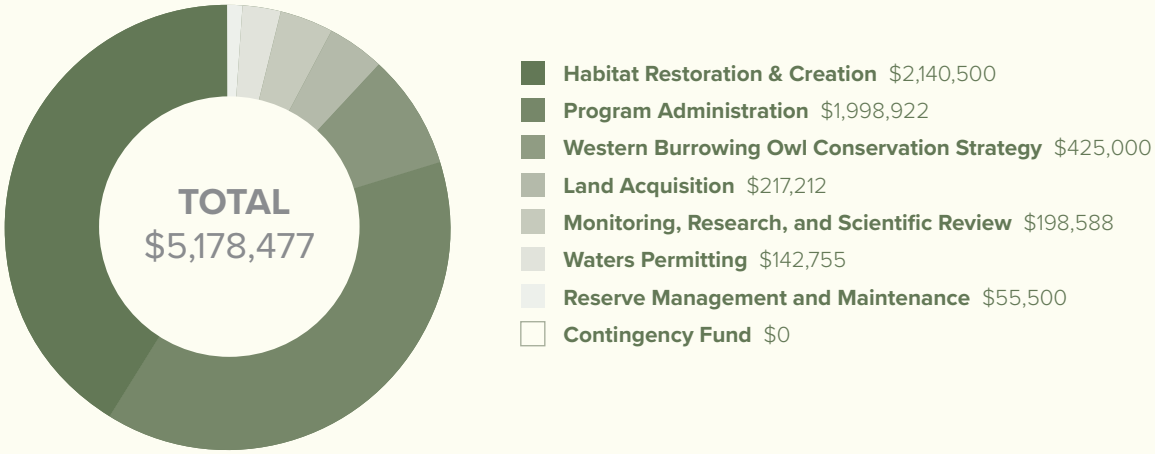
As mentioned in last year's annual report, the Habitat Plan Effects Analysis relies on anticipated build-out of the general plans of the Co-Permittee agencies as well as master planning for Valley Water, VTA, and Co-Permittee public agencies. As of the end of the reporting year, the Habitat Agency has provided take coverage for permanent impacts to 2,712 acres of land. This amount is 883 acres short of land conversion expectations that drive the Habitat Plan conservation and restoration requirements. When taken as an average of Zone A and Zone B land cover fees since Plan inception, the 883 fewer acres of impacts equates to revenue shortfalls of at least $15 million, a conservative estimate. The amount is much higher if specialty land cover types are factored into the analysis. The revenue and land cover impacts for the first 10 years of the permit term are illustrated in **Figure 18**. The resulting revenue deficit means the Plan is outperforming its cost model in terms of the conservation and restoration that the Habitat Agency has achieved to date with less fee funding. This early conservation success is due to better-than-expected grant funding, strategic land acquisition, and cooperation with partners in land enrollment and restoration. However, this model will not be sustainable in the long term as the fee revenue gap may continue to grow and grant funding might not be able to close the gap indefinitely.

Although the effects analysis was based on the best available information in 2012, development is not occurring at the rate anticipated. The Habitat Plan may have overestimated the land cover impacts in its assumptions and/or development in the Plan Area may be slowing or may be occurring more commonly in non-fee-paying land cover types (urban/suburban). In either event, and with several years of tracking, it appears evident that the Plan Area will not see the full build-out envisioned by the Co-Permittees within the permit term. Reducing the anticipated land cover impacts for the remainder of the permit term would reduce the total conservation and restoration commitments, which will bring the Plan costs more in line with actual fee revenues. This issue has become a focus in the Plan Amendment currently underway.

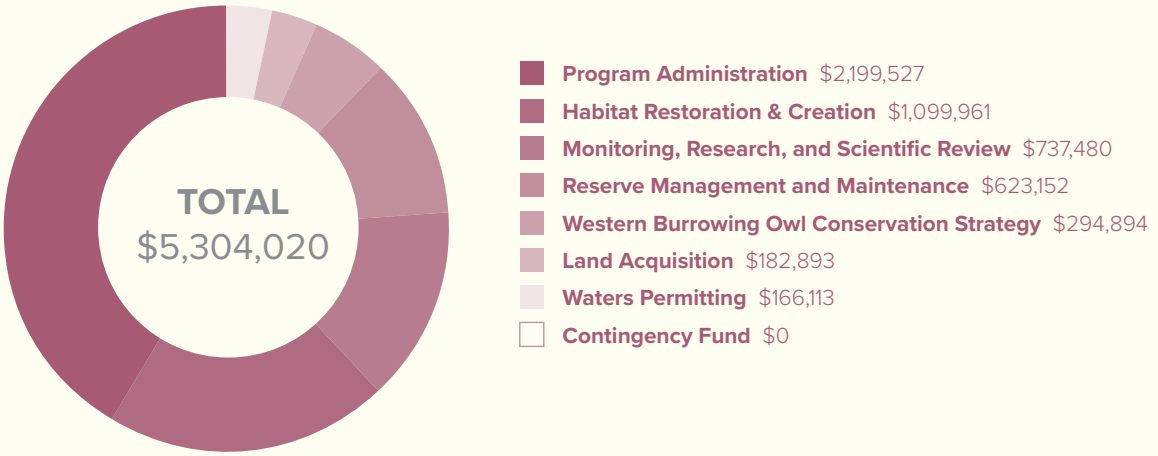
The Habitat Agency expended 102% of its budget during the FY2022–2023 reporting period, with a budget of $5.2M and expenditures of $5.3M. The largest expenditure (43%) was program administration, which consists of the overhead or indirect costs needed by the Habitat Agency to carry out the Habitat Plan requirements, such as employees and equipment. The second largest expenditure (21%) was habitat restoration and creation planning and permitting.

Figure 16. Summary of Expenditures

Budget (Reporting Period)



Expenditures (Reporting Period)



The Habitat Agency received approximately $11.8 million in funds during the reporting period from fee and non-fee funding sources.

Fee funding totaled approximately $3.2 million (28% of total revenues) across private, public, and PSE projects. Non-fee funding totaled approximately $8.6 million (72%).

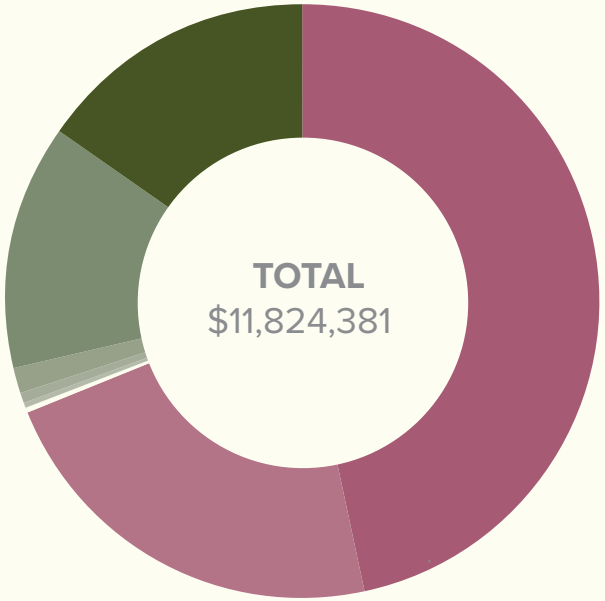
Cumulatively, fee funding and non-fee funding are slightly different from the Habitat Plan's assumptions, with a 40%/60% split, respectively.

Figure 17. Summary of Revenue

Revenue (Reporting Period)

Total Fee Funding
$3,254,124

- **Land Cover Fee** $1,609,172
- **Wetland Fee** $1,411,845
- **Nitrogen Deposition Fee** $139,003
- **Serpentine Fee** $52,721
- **Regional General Permit Fee** $29,250
- **PSE Charges** $12,020
- **Burrowing Owl Fee** $113

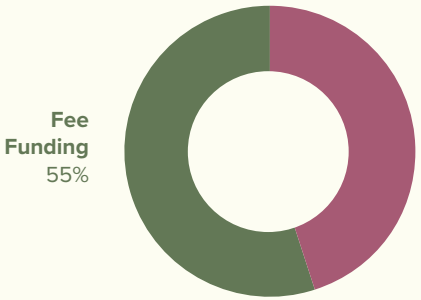


Total Non-Fee Funding
$8,570,257

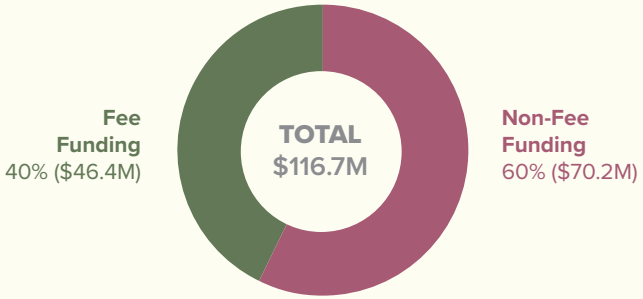
- **Land Acquisition by Local Land Agencies, Non-Profits, and Foundations** $4,900,000
- **Grants** $2,325,000
- **Mitigation Only and Voluntary Contributions** $1,345,257

Fee Funding Non-Fee Funding

Habitat Plan Assumptions

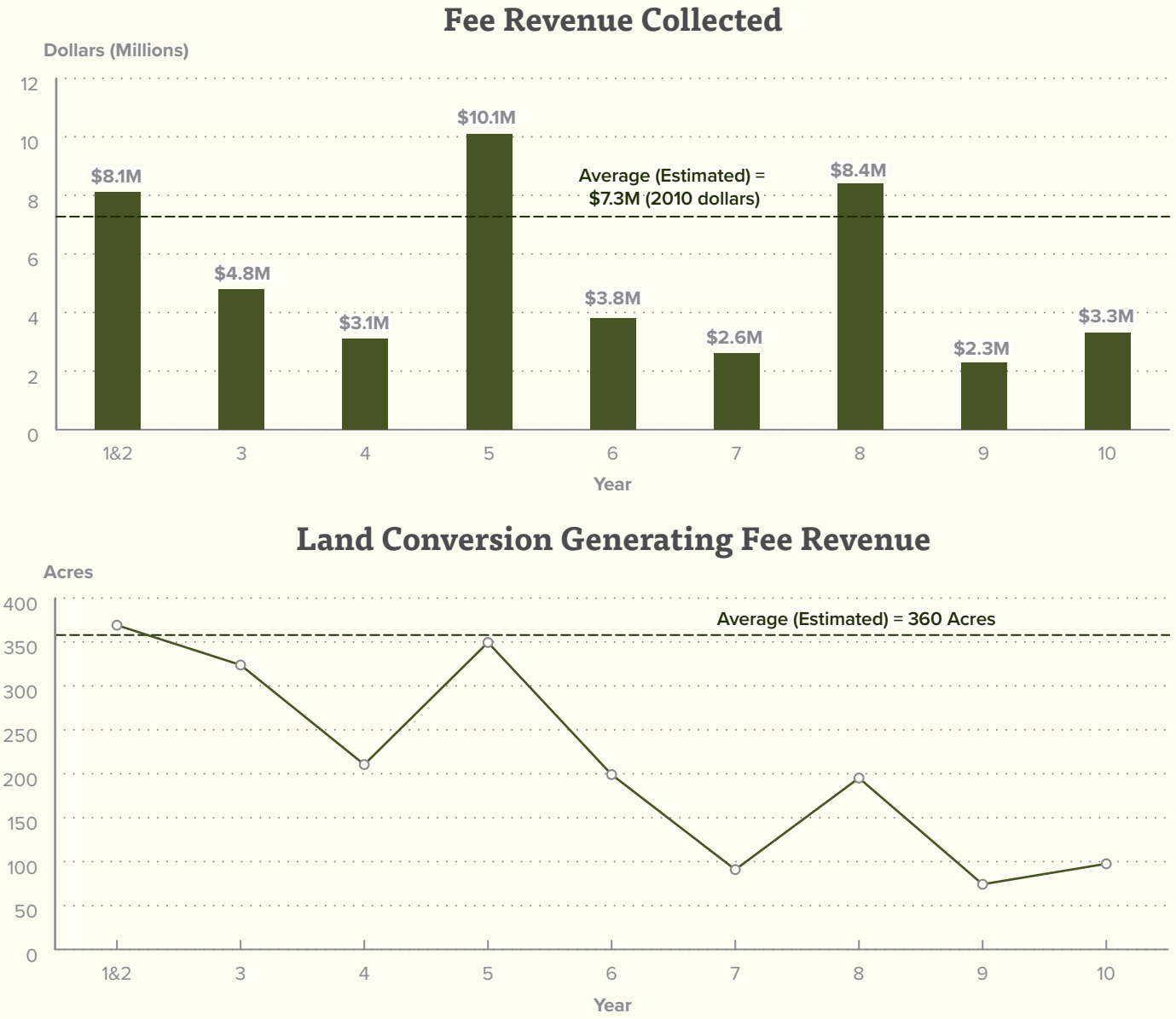


Actual Revenue (Cumulative)



The Habitat Agency has provided take coverage for less land conversion than estimated, as reflected in the fee revenue collected over the first 10 years of the permit term. These two graphs show the actual fee revenue and the source of fee revenue, land conversion, per year. On average impacts have been substantially lower than anticipated.

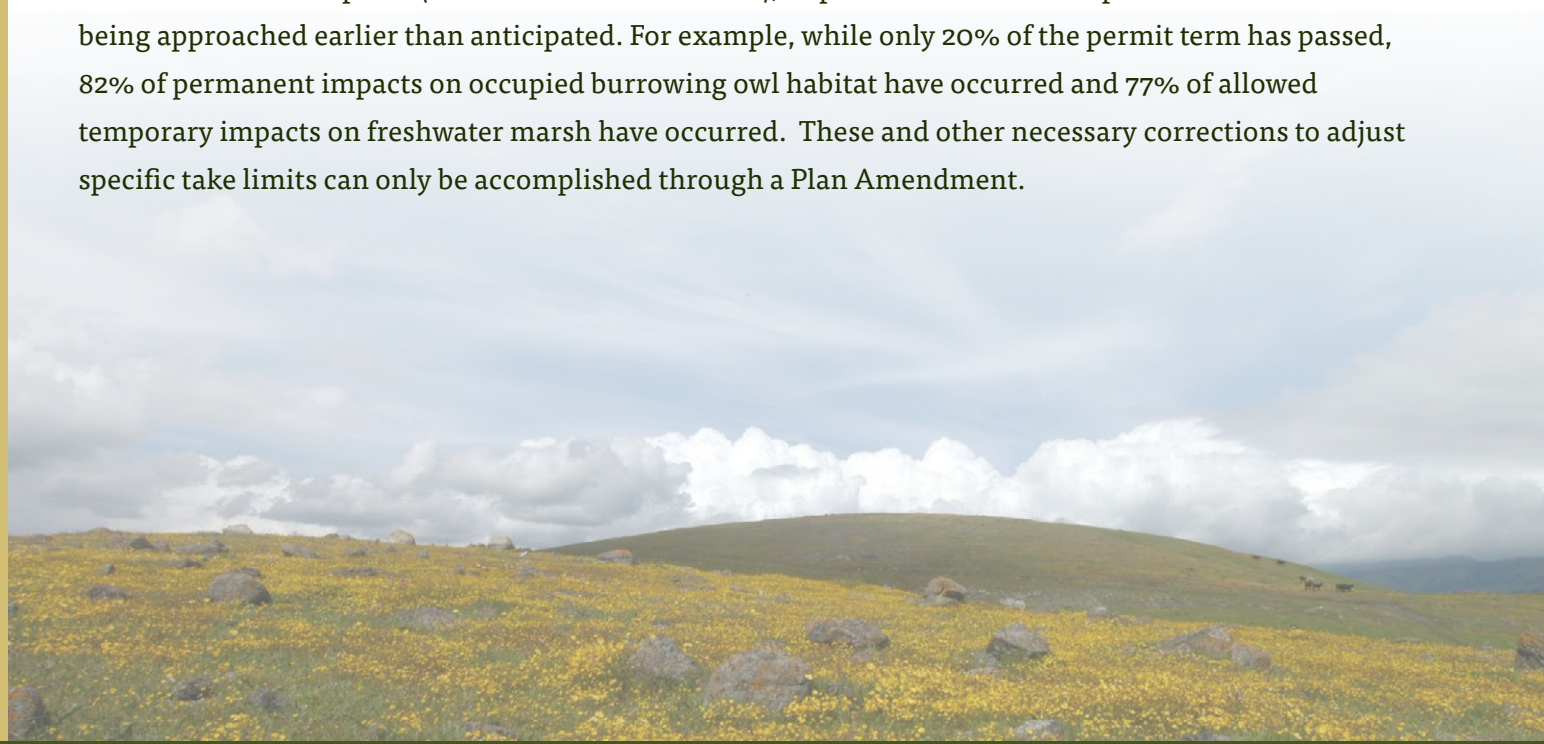
Figure 18. Fee Revenue Shortfalls over the First 10 Years



This section summarizes any administrative changes, minor modifications, and amendments made to the Habitat Plan during the reporting period.

Plan Amendment

During the FY2022–2023 reporting period, there were no administrative changes or minor modifications made to the Habitat Plan. However, the Habitat Agency has continued to work on a major amendment to the Habitat Plan. The amendment is funded by two USFWS Section 6 Planning Assistance Grants, administered by CDFW. The amendment is necessary for the Habitat Agency and its Co-Permittees to remain in compliance with the Habitat Plan and associated take permits. While overall land cover impacts are lower than anticipated (see *Finances* section above), impact limits to certain species and habitats are being approached earlier than anticipated. For example, while only 20% of the permit term has passed, 82% of permanent impacts on occupied burrowing owl habitat have occurred and 77% of allowed temporary impacts on freshwater marsh have occurred. These and other necessary corrections to adjust specific take limits can only be accomplished through a Plan Amendment.



Plan Amendment

A Plan Amendment is also the only way to add new covered plant and wildlife species as a means to protect additional species that were not originally included in the Habitat Plan but that may now warrant inclusion due to changes in listing status, range, or life history information. By including these species in the Habitat Plan, impacts resulting from the covered activities can be mitigated through a well-established, landscape-level conservation program rather than on a project-by-project basis. The Habitat Agency proposes the inclusion of nine special-status species for coverage under the Habitat Plan, including federally listed and candidate species, state fully protected species, and state species of special concern.

The amendment is also evaluating expanding the Plan Area to include the unincorporated portions of northwestern Santa Clara County for select public project coverage, and the northeastern area for additional conservation. New covered activities may be included, such as Valley Water's Stream Maintenance Program and the California Vegetation Treatment Program. The Plan Amendment will also address administrative changes (such as correcting discrepancies), clarify language, and provide more guidance on topics such as the covered plant occurrences.

WEBLINK: INFORMATION ABOUT THE PROPOSED PLAN AMENDMENT

Female mountain lion with cubs at the Habitat Agency's Uvas South Reserve.

This report was prepared by the Santa Clara Valley Habitat Agency with assistance from ICF and Dudek.