Executive Summary

Overview

The Santa Clara Valley Habitat Plan (Plan) provides a framework for promoting the protection and recovery of natural resources, including endangered species, while streamlining the permitting process for planned development, infrastructure, and maintenance activities. The Plan will allow the County of Santa Clara (County), the Santa Clara Valley Water District (SCVWD), the Santa Clara Valley Transportation Authority (VTA) and the cities of Gilroy, Morgan Hill, and San José (collectively, the Local Partners or Permittees) to receive endangered-species permits for activities and projects they conduct and those under their jurisdiction. The Santa Clara Valley Open Space Authority (Open Space Authority) has also contributed to Plan preparation. The Plan will protect, enhance, and restore natural resources in specific areas of Santa Clara County and contribute to the recovery of endangered species. Rather than separately permitting and mitigating individual projects, the Plan evaluates natural-resource impacts and mitigation requirements comprehensively in a way that is more efficient and effective for at-risk species and their essential habitats.

This Plan was developed in association with the U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG), and in consultation with stakeholder groups and the general public. The Permittees are asking the USFWS to issue them a 50-year permit that authorizes incidental take[1] of listed species under the federal Endangered Species Act (ESA). The Permittees are also asking CDFG to issue to them a 50-year permit that authorizes take[2] of all covered species under the Natural Community Conservation Planning Act (NCCP Act). This approach will allow the Permittees to streamline future mitigation requirements into one comprehensive program. In addition to obtaining take authorization for each participating agency's respective activities, the cities and County will be able to extend take authorization to project applicants under their jurisdiction.

USFWS and CDFG (collectively the Wildlife Agencies) will also provide assurances to the Permittees that no further commitments of funds, land, or water

[1] *Take*, as defined by the Endangered Species Act, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification."

[2] *Take* is defined under the California Fish and Game Code as any action or attempt to "hunt, pursue, catch, capture, or kill."

will be required to address impacts on covered species beyond that described in the Plan to address changed circumstances.

In addition to strengthening local control over land use and species protection, the Plan will provide a more efficient process for protecting natural resources by creating new habitat reserves that will be larger in scale, more ecologically valuable, and easier to manage than the individual mitigation sites created under the current approach.

Geographic Scope

The study area (519,506 acres) is located in Santa Clara County in the central California Coast Range. The primary valley in the study area is the Santa Clara Valley, which stretches from San Francisco Bay to San Benito County. The Santa Clara Valley is bounded on the east by the Diablo Range, on the west by the Santa Cruz Mountains, and on the north by the San Francisco Bay shoreline. The study area was defined as the area in which covered activities will occur, impacts will be evaluated, and the majority of Plan conservation activities will be implemented. Some conservation actions for western burrowing owl will occur in the northern portion of the County in an area referred to as the expanded study area for burrowing owl conservation. The boundary of the study area was based on political, ecological, and hydrologic factors. The study area excludes tidally influenced portions of the Baylands. See **Figures 1-1 and 1-2** for maps of the study area, which covers 62% of the county.

The Santa Clara Valley is generally split into two geographic regions, the North Valley and the South Valley. The North Valley is extensively urbanized and is home to almost all of the County's residents. Thirteen of the County's fifteen cities are located in the North Valley, while the remaining two cities, Gilroy and Morgan Hill, are located in the South Valley. The South Valley remains predominantly rural, with the exception of Gilroy, Morgan Hill, small unincorporated community of San Martin, and scattered residential areas generally having parcels of five acres or less. Low-density residential developments are also scattered along the Valley floor and foothill areas. Almost the entire city of San José lies within the study area.

Permit Term

The permit term is the time period in which all covered activities can receive take authorization under the Plan, consistent with the requirements of the Plan. The permit term is also the time in which all conservation actions must be successfully completed to offset the impacts of the covered activities. The Permittees will request permits from CDFG and USFWS. Each permit will be issued to all Permittees collectively. These permits will be tied to this Plan and to the Implementing Agreement. The Local Partners are seeking permits from the Wildlife Agencies with terms of 50 years. The permit term of 50 years was

selected because it allows for the full and successful implementation of the covered activities, the conservation strategy, the monitoring and adaptive management program, and the funding strategy.

Covered Activities

A primary goal of this Plan is to obtain authorization for incidental take of covered species under the ESA and the NCCP Act for specific activities, called covered activities, which will occur in accordance with approved land-use and capital-improvement plans. Covered activities in the Plan fall into seven general categories.

- Urban development.
- In-stream capital projects.
- In-stream operations and maintenance.
- Rural capital projects
- Rural operations and maintenance
- Rural development
- Conservation strategy implementation (i.e., activities within the lands managed, enhanced, restored, and monitored to conserve the natural resources targeted by this Plan).

Covered Species

This Plan provides take authorization for 18 listed and non-listed species (i.e., covered species) (**Table ES-1**). The 18 covered species were identified from a larger pool of 148 species in the region that are listed or that could become listed during the permit term. Species were selected for coverage based on their potential to be affected by covered activities, their occurrence in the study area, the adequacy of data for the species, and the species' current or foreseeable listing status. The Plan includes conservation measures to protect all 18 species selected for coverage under the Plan, whether or not they are currently listed. Accordingly, should any non-listed, covered species become listed during the permit term, additional conservation measures will not be required.

Table ES-1. Covered Species

Invertebrates	**Plants**
Bay checkerspot butterfly	Tiburon Indian paintbrush
Amphibians and Reptiles	Coyote ceanothus
California tiger salamander	Mount Hamilton thistle
California red-legged frog	Santa Clara Valley dudleya
Foothill yellow-legged frog	Fragrant fritillary
Western pond turtle	Loma Prieta hoita
Birds	Smooth lessingia
Western burrowing owl	Metcalf Canyon jewelflower
Least Bell's vireo	Most beautiful jewelflower
Tricolored blackbird	
Mammals	
San Joaquin kit fox	

Conservation Strategy

The conservation strategy was designed to mitigate impacts on covered species and to contribute to the recovery of these species in the study area. The conservation strategy provides for the protection and enhancement of natural resources at multiple scales including landscape, natural-community, and species-specific levels.

The conservation strategy is based on a set of biological goals and objectives developed specifically for the Plan. Conservation actions were then identified to achieve these goals and objectives. The conservation strategy consists of the following major components:

- the acquisition of land and the creation of a Reserve System, including regional connections between protected areas;
- the long-term management, enhancement, and in some cases restoration of natural communities within the Reserve System;
- the development of a comprehensive aquatic conservation strategy to address the needs of covered amphibians and aquatic reptiles;
- the implementation of a comprehensive, long-term, adaptive management and monitoring program; and
- the implementation of avoidance and minimization measures on covered activities (called conditions on covered activities).

The general level of conservation effort for each covered species and natural community was determined by four broad criteria, namely:

- amount of impact from covered activities;

- proportion of the species' range or uniqueness of natural community in study area;
- rarity in study area; and
- stressors and threats in study area.

The benefits of the conservation strategy for each of the covered species are summarized in **Table ES-2**.

Reserve System

The heart of the conservation strategy is the creation of a Reserve System that will protect an estimated 46,920 acres for the benefit of covered species, natural communities, biological diversity, and ecosystem function. Land acquisition and protection will create a network of reserves that accomplishes the following:

- Acquires and permanently protects a minimum of 33,205 acres and an estimated 33,629 acres of land for the benefit of covered species, natural communities, biological diversity, and ecosystem function.
- Permanently protects up to 13,291 acres of existing open space areas and enhances the long-term management and monitoring on those lands within the Reserve System. Therefore, the total size of the Reserve System will be an estimated 46,496 acres to 46,920 acres.
- Protects 100 miles of streams.
- Provides management and monitoring of habitats on protected lands to enhance populations of covered species and maintain ecosystem processes.
- Preserves major local and regional connections between key habitat areas and between existing protected areas.

The Plan describes a detailed but flexible process to assemble the Reserve System using acquisition of fee title or conservation easements from willing sellers and partnerships with other conservation organizations already active in the region. Reserve assembly will be required to stay ahead of the impacts of covered activities. All land acquisition will be completed by Year 45 of the permit term.

Habitat Enhancement and Restoration

All terrestrial and aquatic land cover types in the Reserve System, including streams, will be enhanced to benefit covered and other native species. Wetland and aquatic land cover types will be restored, which involves the recovery of a natural community that has been ecologically degraded. Restoration actions will promote ecosystem recovery by enhancing functional processes, species composition, and community structure. To contribute to species recovery, a minimum of 90 acres of riparian woodland and scrub, wetlands, and ponds will be restored and a minimum of 1.0 mile of stream will be restored regardless of

the level of impacts. The remaining restoration will occur according to ratios of 1:1 or 2:1. If all predicted impacts occur, the Plan will restore up to 500 acres of riparian woodland and scrub, wetlands, and ponds, and up to 10.4 miles of streams to offset losses of these land cover types and to contribute to species recovery. Construction of all habitat-restoration or creation projects will be completed by Year 40 of the permit term.

Adaptive Management and Monitoring

Adaptive management is a decision-making process promoting flexible management such that actions can be adjusted as uncertainties become better understood or as conditions change. Monitoring the outcomes of management is the foundation of an adaptive approach. The Plan contains detailed guidelines and recommendations for monitoring landscapes as well as the management, enhancement, or restoration of the following land cover types:

- Grassland, including serpentine grassland,
- Chaparral and northern coastal scrub,
- Oak and conifer woodland,
- Riverine and riparian forest, and
- Wetlands and ponds.

The Plan also contains guidelines for the monitoring and adaptive management of each covered species. The program will incorporate important principles of "learning by doing" into the operation of the Reserve System.

Conditions on Covered Activities

A primary component of regional species protection is the development of comprehensive avoidance and minimization measures to help ensure that impacts from covered activities are reduced. As such, the Plan has developed broad principles for regional avoidance and minimization as well as specific conditions on covered activities. All Permitees and private applicants under the jurisdiction of Gilroy, Morgan Hill, San José, and the County will be required to adhere to these measures in order to receive take authorization. All parties covered by the Plan will submit an application package to receive or document take authorization.

As a regional conservation plan, one of the greatest benefits of the Plan is that mitigation for individual projects can be implemented systematically on a landscape scale. Regional avoidance and minimization concentrates protection in areas where it has the greatest value. By protecting high-quality areas and restricting covered activities in these areas, regional avoidance and minimization goals are supported. Conditions on covered activities are included that

- minimize impacts on sensitive natural communities and covered species,

- minimize impacts on select ground-dwelling wildlife species during project construction,
- ensure compliance with related state and federal wildlife laws,
- establish a comprehensive stream- and riparian-setback requirement, and
- protect water quality in wetlands and streams.

Implementation

A new organization will be created to oversee assembly and operation of the Reserve System, oversee implementation of other conservation actions, develop and oversee the management and monitoring program, and ensure compliance with all terms of the Plan, permits, and Implementing Agreement. This *Implementing Entity* will be run by a Governing Board and Implementation Board that will consist of designated officials from each of the Permittees. The Implementing Entity will be advised by representatives of USFWS and CDFG, local land-management agencies, a technical advisory committee, a pool of science advisors, and a public advisory committee. It is anticipated that the Implementing Entity will partner with existing agencies and organizations to conduct a significant portion of its responsibilities.

The Plan also includes a detailed process for land acquisition from willing sellers and allowances for landowners to provide land in lieu of fees under certain circumstances.

Cost and Funding

The cost of implementing the HCP/NCCP during the 50-year permit term is estimated at an average of approximately $11 million annually. This includes the cost of land acquisition, Plan administration, habitat management, habitat restoration, biological monitoring, remedial measures, and a contingency. Plan costs were estimated from a detailed model of all expected cost components based on actual costs of tasks.

In addition, the Plan will create an endowment during the permit term to fund all needed implementation after the permit term. An endowment of $90 million in current dollars is needed to generate average annual real returns of $3.5 million to fund post-permit term management and monitoring of the Reserve System.

Plan funding will come from a number of different sources, including fees on private development and public infrastructure, conservation actions by local and state agencies, and state and federal funding. In general, non-fee funding from local, state, and federal sources will contribute to the conservation needs of the Plan (i.e., the contribution to species recovery). Additional information on funding sources is provided below:

- **Development Fees (Private).** This source includes developer mitigation fees or developer land dedications in lieu of fees.
- **Development Fees (Public Infrastructure).** This source includes fees paid by public infrastructure projects and operations that are covered by this Plan such as roads, flood-control and water-supply facilities, and other public projects.
- **Local Funding.** Non-fee local funding will take many forms, including continued and new investments in conservation actions and land acquisition by organizations such as the Santa Clara County Parks and Recreation Department (County Parks), local land management agencies, local land trusts, and local foundations.
- **State and Federal Funding.** This source includes federal and state grant programs that may fund land acquisition, habitat restoration, and other conservation actions. Some of these funding sources are generally available throughout the state and nation, while others can only be used to implement an approved HCP or NCCP.

A summary of the Plan costs and funding strategy is presented in **Table ES-3**.

The Plan establishes a framework for compliance with state and federal endangered-species laws and regulations that accommodates future growth in the study area. Without the Plan, public and private entities whose activities would affect listed species and their habitats would be required to obtain permits and approvals from USFWS and CDFG before undertaking those activities to mitigate the impacts of their activities on the listed species. Project proponents may also have to implement mitigation required by local jurisdictions based on an environmental analysis conducted for CEQA compliance. To comply with the NCCP Act, the Habitat Plan also provides for contribution to the recovery ("conservation") of the covered species. Proponents of private and public development activities will benefit from this comprehensive approach in several ways: they will be assured of take coverage; they will avoid the time and expense of securing their own regulatory approvals; and they will have certainty and predictability with respect to their permit obligations. Consequently, the mitigation fees imposed to implement the Habitat Plan include some of the costs associated with the conservation activities. However, because a variety of groups will directly benefit from the Habitat Plan, those groups will also share in the responsibility for funding and otherwise implementing the Habitat Plan.

Table ES-3. Habitat Plan Cost and Funding Overview

Type	Amount (rounded to nearest $10,000)
Estimated Costs Over Permit Term	
Land Acquisition	$278,940,000
Reserve Management and Maintenance	$95,360,000
Monitoring, Research, and Scientific Review	$30,230,000
Western Burrowing Owl Conservation Strategy	$8,570,000
Habitat Restoration/Creation	$92,630,000
Program Administration	$45,890,000
Contingency Fund	$12,420,000
Plan Preparation Costs	$3,010,000
Endowment Balance at End of Permit Term	$90,140,000
Total Estimated Costs	***$657,190,000***
Projected Funding[1]	
Fee Funding	
Land Cover and Nitrogen Deposition Fees	$175,460,000
Serpentine Fee	$29,270,000
Wetland Fee	$77,600,000
Burrowing Owl Fee	$8,830,000
Temporary Impact Fees	$16,010,000
Endowment Fee Component	$36,500,000
Plan Preparation Fee Component	$3,010,000
Participating Special Entity Fees	$17,000,000
Total projected fee funding	$363,680,000
Non-Fee Funding	
Land acquisition by County Parks	$45,980,000
Land acquisition by other local land agencies, non-profits, foundations	$77,270,000
Interest Income on Permit Period Funding	$2,180,000
Endowment Investment Income	$53,640,000
New Wildlife Agency funds (ESA Section 6, park bonds, etc.)	$115,000,000
Total Non-Fee Funding	$294,070,000
Total Projected Funding	***$657,750,000***

Table ES-2. Summary Evaluation of Species Proposed for Coverage by the Santa Clara Valley Habitat Plan

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Bay checkerspot butterfly (*Euphydryas editha bayensis*)/(T/–)			
Status in Range: Most historic populations occurring in the southern and eastern portions of the greater San Francisco Bay Area in serpentine grassland habitat have been extirpated, with the exception of south-central Santa Clara County (multiple locations) and one reintroduction site in San Mateo County. The reintroduction had very limited success, one adult was observed in 2008, the year following the reintroduction. Species is reported to be declining within its highly restricted range.	**Land Acquisition:** 3,800 acres modeled habitat acquired for Reserve System. 754 acres modeled habitat added to Reserve System from existing open space. Successful implementation of the Habitat Plan will result in the acquisition, protection, and management of a portion of most Bay checkerspot critical habitat units, all four of the core habitat areas as identified in Figure 5-A of the 1998 Serpentine Recovery Plan (Kirby, Metcalf, San Felipe, and Silver Creek Hills) to ensure occupancy of each of the four core habitat units, and at least three of the six (50%) satellite habitat units identified in the 1998 Serpentine Recovery Plan (W. Hills of Santa Clara Valley, Tulare Hill, Santa Teresa Hills, Calero, Communication Hill, or North of Llagas Avenue) by Year 45. Protection of sites will be prioritized according to threat, patch size, current occupancy, and prevalence of cool microsites.	**Permanent:** 300 acres of modeled primary habitat (3%), which includes a maximum of 300 acres of critical habitat.	Conduct annual surveys of post-diapause larvae in occupied habitat and of host plants and adult butterflies in suitable, unoccupied habitat. Evaluate species response to grassland management. Evaluate translocation efforts determine success of new population establishment.
Status in Permit Area: 8,621 acres of modeled habitat. 1,336 acres of modeled habitat currently protected in Type 1 open space. Species is abundant in multiple populations along the eastern foothills, from Silver Creek Hills down Coyote Ridge to Pigeon Point. Several populations regularly comprise more than 250,000 adult butterflies. South of Pigeon Point, species is present in small patches of grassland west of Coyote Reservoir. On west side of permit area, species is variably present in serpentine grasslands adjacent to Hale Avenue, adjacent to Kalana Avenue, in southern portions of the Santa Teresa Hills, in hills near Calero Reservoir, and on Tulare Hill. Species is reported to be declining in the permit area.	**Enhancement, Restoration, and Creation:** All acquired/added habitat enhanced to ensure occupancy of at least three of the six (50%) satellite habitat units identified in the 1998 Serpentine Recovery Plan (W. Hills of Santa Clara Valley, Tulare Hill, Santa Teresa Hills, Calero, Communication Hill , or North of Llagas Avenue). Conservation strategy specifies appropriate grazing regimes, prescribed burns, seeding with native forbs and grasses, and other appropriate vegetative management techniques to increase diversity of native plants on acquired species habitat. Translocation of species from core populations to unoccupied suitable habitat may be conducted in close coordination with the Wildlife Agencies.	**Temporary:** 54 acres of modeled primary habitat (<1%), which includes a maximum of 49 acres of critical habitat.	
Conditions on Covered Activities: Development guidelines will ensure that impacts on this species from covered activities are minimized (Condition 13). This includes design measures to limit project footprint, buffer establishment, and landscaping restrictions. Surveys will be conducted to evaluate habitat quality and allow for development to occur as far as possible from high-quality habitat.			
Net effects: Up to 354 acres (4%) of modeled primary habitat, including 349 acres of critical habitat, will be affected by covered activities. The Reserve System will protect a minimum of 4,554 acres of modeled primary habitat as Type 1 open space all of which will be enhanced. This will result in a 341% increase of lands managed as primary habitat and a total of 68% of existing modeled habitat protected as Type 1 open space. Extensive land acquisition will protect all four of the core habitat areas as defined in the recovery plan for the species namely, Kirby, Metcalf, San Felipe, and Silver Creek Hills and secondary sites deemed essential for species recovery. Most critical habitat units will be partially protected with the successful implementation of the Habitat Plan (including lands currently protected as Type 1 open space). New reserves will ensure protection of the ranges of slopes, aspects, and microhabitats important to the species (LAND-G3, L5) and management of habitat to enhance populations of larval host plants and adult nectar sources to allow for natural migration across reserves (GRASS-1–4, LM-11). Targeted studies will allow for population translocation to unoccupied suitable habitat (GRASS-7) with close coordination with the Wildlife Agencies. Development guidelines will ensure that indirect impacts on this species from covered activities that occur outside the Reserve System are minimized. This includes limiting impacts to 3%, 11%, or 13% in any one core area (Condition 13). The Plan will contribute substantially to the recovery of the species in the permit area and, consequently, throughout its range through habitat acquisition, habitat enhancement, and avoidance or minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
California tiger salamander (*Ambystoma californiense*)/(T/T)			
Status in Range: Endemic to grasslands of California, species is distributed in six populations: (1) Santa Rosa, Sonoma County; (2) Bay Area (central and southern Alameda, Santa Clara, western Stanislaus, western Merced, and San Benito Counties); (3) Central Valley (Yolo, Sacramento, Solano, eastern Contra Costa, northeast Alameda, San Joaquin, Stanislaus, Merced, and northwestern Madera Counties); (4) southern San Joaquin Valley (portions of Madera, central Fresno, and northern Tulare and Kings Counties), (5) Central Coast Range (southern Santa Cruz, Monterey, northern San Luis Obispo, and portions of western San Benito, Fresno, and Kern Counties); and (6) Santa Barbara County. Most populations occur at elevations of 200–1,500 feet, having been extirpated at lower elevations due to presence nonnative species in breeding ponds; however, extirpation has occurred across species range due to habitat loss. Species is reported to be declining throughout its limited California range.	**Land Acquisition:** 30,150 acres modeled habitat acquired for Reserve System. 11,745 acres modeled habitat added to Reserve System from existing open space. Included in the acreages above are 50 to 104 acres of ponds and 15 to 80 acres of wetlands. Reserve System species occupancy requirements include 25% of ponds/wetlands by Year 30 and 30% by Year 45. Extensive land acquisition will occur in 7 critical habitat units. Target areas include areas adjacent to existing open space (Joseph D. Grant County Park, Palassou Ridge Open Space Preserve, and Henry W. Coe State Park), and isolated areas (east of Uvas Reservoir) with known species occurrences. To ensure habitat connectivity, upland habitat between ponds/wetlands will be targeted between known occurrences in Santa Cruz foothills and Diablo Range, including areas near Santa Teresa Hills and Tulare Hill, and along Pajaro River south of Gilroy.	**Permanent:** 77 acres of modeled breeding habitat (7%). 12,855 acres of modeled non-breeding habitat (4%). 12,932 acres total, (4%), including up to 264 acres of critical habitat.	Conduct annual surveys of occupied and potential breeding and upland habitat. Evaluate species response to habitat enhancement, restoration, or creation. Determine species response to predator control programs. Determine effects of and response to additional threats, such as diseases and hybridization.
Status in Permit Area: 324,748 acres of modeled habitat (breeding and non-breeding). 45,767 acres of modeled habitat currently protected in Type 1 open space (breeding and non-breeding). Approximately 100 occurrence records (1990–2005) scattered throughout the permit area and on both sides of the Santa Clara valley, with large clusters of occurrences in Joseph D. Grant County Park. Eight historical breeding areas along the valley floor and along the US 101 corridor have been extirpated due to habitat conversion to development. Status of species in permit area is unknown.	**Enhancement, Restoration, and Creation:** 50 to 104 acres of ponds and 15 to 80 acres of wetlands enhanced. 20 to 72 acres of ponds created/ 20 to 75 acres of wetlands restored. Conservation Strategy specifies targeting sites to reduce habitat fragmentation and promote genetic exchange within the population. This includes sites within dispersal distance of known breeding sites to contribute to species recovery, as well as replacement of sites lost to covered activities. Site characteristics include hydrologic, geomorphic, and soil conditions to ensure successful restoration/creation. All acquired/added habitat will be enhanced to ensure occupancy of 30% of ponds and wetlands in each of the federal Recovery Units 4 and 6 in the Reserve System.	**Temporary:** 14 acres of modeled breeding habitat (1%). 1,529 acres of modeled non-breeding habitat (<1%). 1,543 acres total (<1%), including up to 119 acres of critical habitat.	
Conditions on Covered Activities: Development guidelines for wetlands and ponds (breeding habitat) and valley oak and blue oak woodlands (upland habitat) will minimize effects of covered activities (Conditions 12, 14). Stream and Riparian Setbacks, may also have ancillary benefits to this species. Although the streams themselves do not provide habitat, aquatic breeding sites and dispersal corridors may be located within the riparian areas protected by the setbacks (Condition 11). Project planning guidelines include maintenance of landscape connectivity, maintenance of site hydrology to the extent possible, and establishment of buffer/setback requirements. Construction guidelines include buffer zone establishment and fencing; staking of wetlands/ponds during construction; staff training by professional biologist; erosion control measures; and restrictions on seasonality of activities, vegetative management, use of heavy machinery, access points, and ground disturbance (Conditions 12, 14). Recreational use guidelines include leash law restrictions and public access limitations within reserve recreational use areas to prevent potential species impacts from domestic dogs (Condition 9).			
Net effects: Up to 91 acres (9%) of modeled breeding habitat and 14,384 acres (4%) of modeled non-breeding habitat, including 383 acres of critical habitat, will be affected by covered activities. The Reserve System will protect and enhance a minimum of 195 acres of modeled breeding habitat and 41,700 acres of non-breeding habitat as Type 1 open space. This will result in an increase of 92% of lands managed as species habitat and a total of 27% of modeled habitat protected as Type 1 open space. A minimum of 105 and up to 331 acres of aquatic habitat will be created/restored/enhanced in the Reserve System. Some of these sites will be suitable species habitat. A network of core reserves will protect large blocks of breeding/non-breeding habitat. New linkages will be created in blocks of modeled habitat to facilitate dispersal and colonization throughout the permit area and movement between breeding sites (LAND-G2, OC1–5, WP4–7). Habitat management will improve quality of breeding habitat (e.g., predator eradication and access control programs, woody debris and native vegetation installation) and upland habitat (e.g., grassland management) (POND-1–4, 9–11, 13; GRASS-1, 2; LM-11–14; STUDIES-7, 8). Development guidelines will ensure that impacts on this species from covered activities outside the Reserve System are minimized (Conditions 9, 12, 14). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement/restoration, and avoidance and minimization of direct impacts on the species.			

<table>
<tr><th>Species/Status (Federal/State/CNPS)[1]</th><th>Acquisition[2], Enhancement, Restoration, and Creation</th><th>Impacts[3,4]</th><th>Monitoring[5]</th></tr>
<tr><td colspan="4">California red-legged frog (Rana aurora draytonii)/(T/CSC)</td></tr>
<tr><td>Status in Range: Although the historical distribution extended south along the coast from Pt. Reyes National Seashore in Marin County and inland from Redding in Shasta County to northwestern Baja California, current distribution is limited to isolated patches in the Sierra Nevada, Northern Coast Ranges, and Santa Monica Mountains. Taxon remains common in the San Francisco Bay area and along the central coast. In southern California, taxon is believed extirpated from Santa Rosa Ecological Reserve but persists in the Santa Monica Mountains and in San Fransquito Canyon in Newhall. Species is reported to be declining at a global scale, as well as in California.</td><td>Land Acquisition:
31,300 acres modeled habitat acquired for Reserve System.
11,930 acres modeled habitat added to Reserve System from existing open space.
Included in the acreages above are 15 to 80 acres of wetlands, 50 to 104 acres of ponds, and 100 miles of streams. 35% of ponds/wetlands in each of the federal Recovery Units 4 and 6 in the Reserve System will be occupied by species by Year 30 and with 40% by Year 45.
Target areas include the East San Francisco Bay Recovery Unit, Critical Habitat Unit STC-1A, and areas adjacent to existing open space with known species occurrences, such as Joseph D. Grant County Park, Palassou Ridge Open Space Preserve, and Henry W. Coe State Park.</td><td>Permanent:
299 acres of modeled primary habitat (3%).
12,937 acres of modeled secondary habitat (4%).
13,236 acres total (4%), including 1,023 acres of critical habitat.</td><td rowspan="2">Conduct preacquisition baseline surveys to document species occupancy, potential occupied breeding habitat, quality of upland habitat around occupied or potential breeding habitat, presence of predators, and presence of other threats that may affect reproductive success. Determine presence/absence of potential breeding adults through nighttime breeding season surveys. Conduct daytime surveys to determine local species population. Determine species response in occupied habitat to enhancement and restoration techniques. Evaluate quality and quantity of adjacent uplands using ground squirrel colony size and burrow density as a proxy. Determine species response to predator control programs. Monitor disease to prevent population epidemic.</td></tr>
<tr><td>Status in Permit Area:
341,773 acres of modeled habitat (primary and secondary).
46,253 acres of modeled habitat currently protected in Type 1 open space.
Species has been extirpated from the urbanized valley floor and brackish marshlands bordering the San Francisco Bay due to habitat removal/degradation and invasive species predation. Species persists in the foothills and mountain ranges throughout the county. There are 93 documented occurrences, with adult frogs observed in creeks from Upper Alameda Creek (Sunol Regional Wilderness) south to Henry W. Coe State Park, with half the occurrences in Henry W. Coe State Park, 24 on private property, and the remainder on public properties of City of San José, Santa Clara Valley Water District, and Santa Clara County. Species is reported to be declining in the permit area.</td><td>Enhancement, Restoration and Creation:
All acquired/added habitat enhanced to ensure occupancy of 25% of ponds and wetlands in the entire Reserve System.
10 to 50 acres of wetlands/ 50 to 104 acres of ponds enhanced.
20 to 45 acres of perennial wetlands restored.
20 to 72 acres of ponds created.
Conservation Strategy specifies increasing habitat, enhancing connectivity among existing ponds and wetlands, and contributing to species recovery. Sites will be targeted to reduce habitat fragmentation and promote genetic exchange within the population, and will include hydrologic, geomorphic, and soil conditions to ensure successful restoration/creation.</td><td>Temporary:
116 acres of modeled primary habitat (1%).
1,489 acres of modeled secondary habitat (<1%).
1,605 acres total (<1%), including 276 acres of critical habitat.</td></tr>
<tr><td colspan="4">Conditions on Covered Activities: Development guidelines for wetlands, ponds, and streams (breeding habitat) and valley oak and blue oak woodlands (upland habitat) will ensure that impacts from covered activities are minimized (Conditions 4, 5, 11, 12, 14). Project planning guidelines include maintenance of landscape connectivity, maintenance of site hydrology to the extent possible, and establishment of buffer/setback requirements. Construction guidelines include buffer zone establishment and fencing; staking of wetlands/ponds during construction; staff training by professional biologist; erosion control measures; and restrictions on seasonality of activities, vegetative management, use of heavy machinery, access points, and ground disturbance. Recreational use guidelines include leash law restrictions and public access limitations within reserve recreational use areas to prevent potential species impacts from domestic dogs (Condition 9).</td></tr>
<tr><td colspan="4">Net effects: Up to 415 acres (4%) of modeled primary habitat and 14,426 acres (4%) of modeled secondary habitat will be affected by covered activities. The Reserve System will protect and enhance a minimum of 1,430 acres of modeled primary habitat and 41,800 acres of modeled secondary habitat. This will result in an increase of 93% of protected modeled habitat and a total of 26% of modeled habitat protected as Type 1 open space. A minimum of 100 and up to 271 acres of aquatic habitat will be created/restored/enhanced. Some of these sites will be suitable species habitat. A network of core reserves will protect large blocks of breeding/non-breeding habitat. New linkages will be created in blocks of modeled habitat to facilitate dispersal and colonization throughout the permit area and movement between breeding sites (LAND-G2, OC1–5, WP4–7). Habitat management will improve quality of breeding habitat (e.g., predator eradication and access control programs, woody debris and native vegetation installation) and upland habitat (e.g., grassland management) (POND-1–4, 10, 11, 13; GRASS-1, 2; LM-10–13; STUDIES-7, 8). Development guidelines will ensure that impacts from covered activities outside the Reserve System are minimized (Conditions 3, 4, 5, 9, 11, 12, 14). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement/restoration, and avoidance and minimization of direct impacts on the species.</td></tr>
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Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Foothill yellow-legged frog (*Rana boylii)/(–*/CSC)			
Status in Range: Species range extends from west of the crest of the Cascade mountains in Oregon south to the Transverse Ranges in Los Angeles County, and in the Sierra Nevada foothills south to Kern County, excluding coastal areas south of northern San Luis Obispo County and foothills area south of Fresno County, where the species is apparently extirpated. Known elevation range extends from near sea level to ~6,700 feet. Species is still common along the northern California coast as well as in suitable habitat in the Diablo Range in Alameda, western Stanislaus, Santa Clara, San Benito, and western Fresno Counties. Species is reported to be declining at a global scale, as well as within California.	**Land Acquisition:** 80 stream miles of modeled habitat acquired for Reserve System. 24 stream miles of modeled habitat added to Reserve System from existing open space. Protect occupied habitat in the Reserve System in at least four of the watersheds in Figure 3-6. Occupied habitat within the Reserve System is defined as perennial streams with an observation of egg masses by Year 45. Occupancy will be demonstrated upstream of dams that present permanent barriers to the species or on streams unaffected by dam operations and must be in both the Diablo Range and in the Santa Cruz Mountains. Target areas include streams that have, or historically had, perennial flows and cobblestone substrate.	**Permanent:** 1.9 stream miles of modeled primary habitat (1%). 4.8 stream miles of modeled secondary habitat (4%). 6.7 stream miles total (1%).	Assess habitat quality and conduct visual detection baseline surveys (to determine species presence/absence) in potential species habitat prior to Reserve System land acquisition. Document species baseline levels using in-depth population surveys, as warranted. Determine changes in number of egg masses (i.e., weekly egg mass surveys during peak egg-laying period) to evaluate species response to enhancement and restoration of stream habitat and riparian corridors (e.g., addition of cobblestone substrate, riparian plantings, livestock exclusion). Conduct a directed study to inform how and when reservoir releases should be implemented during egg-laying months. Determine species response to predator control programs. Monitor disease to prevent population epidemic. Evaluate species response to barrier removal.
Status in Permit Area: 690 stream miles of modeled habitat. 119 miles of modeled habitat currently protected in Type 1 open space (primary and secondary habitat). Species has been virtually extirpated from the lowland areas and from many of the perennial streams below major reservoirs; however, species remains abundant in the foothills and mountains of eastern Santa Clara County. Species is still found in the upper reaches of most perennial streams, including Coyote Creek and nearly all the streams of the Pajaro watershed. Species is reported to be declining within the permit area.	**Enhancement, Restoration, and Creation:** All stream miles of acquired/added habitat enhanced to ensure occupancy in at least three of the watersheds in the Reserve System. 1 to 10.4 stream miles restored. Conservation Strategy specifies targeting reaches of perennial streams above the Uvas, Calero, Chesbro, Anderson, or Coyote Reservoirs, Uvas Creek below Uvas Reservoir, Little Arthur Creek, Upper Penitencia Creek, Alamitos Creek, and Guadalupe Creek. Riparian vegetation will be seeded/planted to create structural diversity, provide overhead cover, and regulate stream temperature. Cobblestone substrate will be increased in _ stream miles within model habitat to increase breeding habitat suitability. Uvas Reservoir releases will be adjusted to create necessary seasonal flow regimes. Herbicide and other vegetative treatments will be selectively applied to avoid species impacts.	**Temporary:** 0.7 stream miles of modeled primary habitat (<1%). 1.3 stream miles of modeled secondary habitat (<1%). 2.0 stream miles total (<1%).	
Conditions on Covered Activities: Development and operations and maintenance guidelines will ensure that impacts from covered activities are avoided or minimized through maintenance of hydrologic conditions and protection of water quality (Condition 3), stream avoidance and minimization for in-stream projects (Condition 4), BMPs for in-stream operations and maintenance (Condition 5), rural development design requirements (Condition 7), preparation and implementation of a Reserve System recreation plan (Condition 9), and riparian setbacks (Condition 11). Conditions include but are not limited to: creation of landscape features to maintain preproject hydrograph, remove pollutants and sediments from surface runoff prior to stream entry, and reduce runoff velocity; development of construction sediment and erosion management plans; installation of fish passage mechanisms during in-stream work; and bank stabilization. Recreational use guidelines include leash law restrictions and public access limitations within reserve recreational use areas to prevent potential species impacts from domestic dogs (Condition 9).			
Net effects: Up to 8.7 stream miles (<1%) of modeled habitat will be affected by covered activities. The Reserve System will protect and enhance a minimum of 37 stream miles of modeled primary habitat and 67 stream miles of modeled secondary habitat. This will result in an 88% increase of protected modeled habitat as Type 1 open space and protection of a total of 32% of modeled habitat protected as Type 1 open space. Within the Reserve System a minimum of 1 and up to 10.4 stream miles will be restored. Some of these sites will be suitable species habitat. Engineered channels will be replaced to restore floodplain connectivity (STREAM-4, 5). Protection of streams with perennial flows will target reaches with high habitat value or restoration potential (LAND-R5). Restoration and enhancement of perennial streams (e.g., selective herbicide applications, riparian plantings, increase in cobblestone substrate, appropriate flow regimes) will ensure improvement of habitat quality and breeding success (LM-14; STREAM-2, 4, 5, 8; STUDIES-6). Development guidelines will ensure that impacts from covered activities outside the Reserve System are minimized (Conditions 3,-5, 7, 9, 11). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement/restoration, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Western pond turtle (*Clemmys marmorata*)/(–/CSC)			
Status in Range: Species range extends from most Pacific slope drainages from Klickitat County, Washington, along the Columbia River, to Arroyo Santa Domingo in northern Baja California. In California, it was historically present in most Pacific slope drainages between the Oregon and Mexican borders. Occurring in 90% of its historic California range in the Central Valley and west of the Sierra Nevada, its numbers have been greatly reduced. Species is reported to be declining at a global scale; however, the species status in California is unknown due to lack of data.	**Land Acquisition:** 27,000 acres modeled habitat acquired for Reserve System. 11,900 acres modeled habitat added to Reserve System from existing open space. Included in the acreages above are 50 to 104 acres of ponds, 10 to 50 acres of perennial wetlands, and 100 stream miles. 20% of ponds and wetlands in the entire Reserve System will be occupied by western pond turtles by Year 30. 25% of ponds and wetlands in the entire Reserve System will be occupied by western pond turtles by Year 45. Target areas include stream segments or ponds that currently provide or could provide high-quality basking, breeding, and nesting habitat. This includes land between existing ponds and wetlands that provide a linked matrix of pond, wetland, and upland habitat.	**Permanent:** 1,824 acres of modeled primary habitat (2%). 7,825 acres of modeled secondary habitat (3%). 9,649 acres total (3%).	Assess habitat quality and document baseline population levels in potential habitat within Reserve System acquisitions. Determine population response (i.e., changes in the average number of individuals basking) to enhancement and restoration of occupied habitat. Assess effects of habitat management (e.g., livestock exclusion) on nesting and basking habitat and determine population response.
Status in Permit Area: 314,916 acres of modeled habitat. 44,967 acres of modeled habitat currently protected in Type 1 open space (primary and secondary habitat). Species occurs throughout the Coyote Creek drainage from its upper reaches in Henry W. Coe State Park to the urbanized reaches in San José; however, the majority of known occurrences are in the southern half of the county, namely Uvas and Llagas Creeks where they enter reservoirs. Species status is unknown in the permit area due to lack of targeted studies; reported occurrences are thought to biased by incidental observation, consequently, occurrences may be more extensive throughout the permit area.	**Enhancement, Restoration, and Creation:** All acquired/added habitat enhanced to ensure occupancy of 25% of ponds and wetlands in the entire Reserve System. 50 to 104 acres of ponds enhanced. 20 to 72 acres of ponds created. 20 to 45 acres of perennial wetlands restored. 1 to 10.4 stream miles restored. Habitat management of riverine and riparian forest and scrub, wetlands, and ponds will increase the quality and quantity of species habitat within the permit area. Artificial basking substrate and woody debris will be installed to create suitable basking sites.	**Temporary:** 440 acres of modeled primary habitat (<1%). 986 acres of modeled secondary habitat (<1%). 1,426 acres total (<1%).	
Conditions on Covered Activities: Development guidelines for wetlands, ponds, and streams and valley oak and blue oak woodlands will ensure that impacts from covered activities are avoided and minimized (Conditions 4, 5, 11, 12 & 14). Project planning guidelines include maintenance of landscape connectivity, maintenance of site hydrology to the extent possible, and establishment of buffer/setback requirements. Construction guidelines include buffer zone establishment and fencing; staking of wetlands/ponds during construction; staff training by professional biologist; erosion control measures; and restrictions on seasonality of activities, vegetative management, use of heavy machinery, access points, and ground disturbance. Recreational use guidelines include leash law restrictions and public access limitations within reserve recreational use areas to prevent potential species impacts from domestic dogs (Condition 9).			
Net effects: Up to 2,264 acres (3%) of modeled primary habitat and 8,811 acres (4%) of secondary habitat will be affected by covered activities. The Reserve System will protect a minimum of 9,800 acres of modeled primary habitat and 29,100 acres of modeled secondary habitat. All habitat within Reserve System will be enhanced. This will result in an 87% increase of lands managed as species habitat and protection of a total of 27% of modeled habitat protected as Type 1 open space. Within the Reserve System 100 stream miles, a minimum of 50 and up to 104 acres of ponds, and a minimum of 10 and up to 50 acres of perennial wetlands will be protected. A minimum of 20 and up to 72 ponds will be created. A minimum of 20 and up 45 acres of perennial wetlands and minimum of 1 and up to 10.4 stream miles will be restored. A portion of these stream and aquatic natural community acquisition, creation, and restoration sites will provide suitable species habitat. A network of core reserves will protect large blocks of breeding/non-breeding habitat. New linkages will be created in blocks of modeled habitat to facilitate dispersal and colonization throughout the permit area and movement between breeding sites (LAND-G2, OC1–5, WP4–7). Habitat management will improve quality of breeding habitat (e.g., predator eradication and access control programs, woody debris and native vegetation installation) and upland habitat (e.g., grassland management) (STREAM-1–3; LM-11–14; POND-1–4, 9–11, 13; GRASS-1, 2; STUDIES-7–9). Development guidelines will ensure that impacts from covered activities outside the Reserve System are minimized (Condition 9, 12, 14). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement/restoration, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Western burrowing owl (*Athene cunicularia hypugea*)/(MBTA/CSC)			
Status in Range: Species is found throughout western North American, west of the Mississippi River and south into Mexico. In California, species range extends through the lowlands south and west from north central California to Mexico, with small, scattered populations occurring in the Great Basin and the desert regions of the southwestern part of the state. Species is absent from the coast north of Sonoma County and from high mountain areas. Populations have been greatly reduced or extirpated from most of the San Francisco Bay Area and along the California coast to Los Angeles. The remaining major population densities are in the Central and Imperial Valleys. Species is reported to be declining at a global scale, as well as within California.	**Land Acquisition, Easement, or Management Agreement:** Overwintering Habitat 17,000 acres modeled overwintering habitat acquired for Reserve System. 4,310 acres modeled overwintering habitat added to Reserve System from existing open space. Nesting Habitat 5,300 acres occupied and potential nesting habitat managed with permanent long-term management plans by Year 45. A minimum of 600 of these 5,300 acres will be occupied nesting habitat acquired in fee title or easement for the Reserve System. The geographic breakdown of nesting habitat would include the following minimums: 3,700 acres in the North San José/Baylands region, 800 acres in the Gilroy region, 530 acres in the Morgan Hill region, and 270 acres in the South San José region.	**Permanent:** 9,671 acres of modeled overwintering only habitat (7%). 198 acres of modeled occupied nesting habitat. 4,000 acres of modeled potential nesting habitat.	Assess habitat quality and document available nesting, foraging, and overwintering habitat within the Reserve System. Determine species movements and indentify habitat corridors during breeding and wintering seasons. Use multiple approaches (e.g., track nesting pairs, density and distribution of California ground squirrels) to determine species response (i.e., nesting success, site fidelity) to habitat protection and enhancement. Track species response to grassland management by monitoring California ground squirrel colonies to determine burrow and prey availability.
Status in Permit Area: 197,869 acres modeled habitat. 13,586 acres of modeled habitat currently protected in Type 1 open space. There are 25 extant species occurrences in the permit area. Many of these occurrence records include sitings of several breeding individuals over multiple years. Core populations of breeding and overwintering populations of western burrowing owls continue to be at the San José International Airport. Species is reported to be declining within the permit area.	**Enhancement, Restoration, and Creation:** All acquired/added/managed habitat enhanced. Conservation Strategy specifies using grassland management to enhance habitat quality through vegetation management, creating artificial burrows and increasing extent of ground squirrel colonies, encouraging the colonization of new areas, and ceasing rodenticide use to the extent possible.	**Temporary:** 762 acres of modeled overwintering habitat (<1%). 20 acres of modeled occupied nesting habitat (<1%). 604 acres of modeled potential nesting habitat (<1%).	
Conditions on Covered Activities: Development and operations and maintenance guidelines will ensure that impacts from covered activities are avoided or minimized (Condition 15). Species-specific surveys will be conducted during project planning phase, and potential impacts to occupied breeding habitat will be mapped. Preconstruction surveys will establish species presence/absence. Project monitoring will be coordinated with other regional efforts. Avoidance and minimization measures, including the establishment of a 250-ft buffer zone, will avoid all nest sites that could be disturbed by project construction throughout the breeding season. During the non-breeding season, active burrows will be avoided by the establishment of a 160-ft border, and exclusion doors will be put in place for 48 hours prior to excavation. All project monitoring will be conducted by a qualified biologist.			
Net effects: Up to 10,433 acres (8%) of modeled overwintering habitat, 218 acres of estimated occupied nesting habitat, and 4,604 acres of potential nesting habitat will be affected by covered activities. The Reserve System will protect or manage a minimum of 22,300 acres of species habitat (acquire 17,000 acres of modeled overwintering only and 600 acres of occupied nesting habitat , protect or manage another 4,700 acres of occupied or potential nesting habitat) An additional 4,310 acres of modeled overwintering habitat will be incorporated from existing open space. All habitat within the Reserve System or under long-term management will be enhanced. The Implementing Entity will maintain or increase the size of the breeding and overwintering burrowing owl population and increase the distribution of breeding and overwintering burrowing owls in the permit area and the expanded burrowing owl conservation area. New reserves will ensure protection of both breeding and overwintering habitat on the valley floor and in the Diablo Range (LAND G8-10). Habitat management will focus on enhancement of breeding habitat (i.e., vegetation management, artificial burrow creation, limiting rodenticide use, increased ground squirrel colonization) in four regions: North San José/Baylands, Gilroy, Morgan Hill, and South San José (GRASS-5, 6, 8, 9). Development guidelines will ensure that impacts from covered activities that occur outside the Reserve System are minimized (Condition 15). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement/restoration, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Least Bell's vireo (*Vireo bellii pusillus*)/(E, MBTA/E)			
Status in Range: A migratory species that breeds in North America and overwinters primarily along the Pacific Coast in southern Mexico. Breeding range extends from north central to southwestern U.S. and into central Mexico. Additional breeding sites have been documented from southwestern California and northwestern Baja California to central South Dakota, east to Illinois and northwestern Indiana, south to the gulf coast and into southern Sonora. Recently, breeding individuals have been reported as far north as southern Santa Clara County along Llagas Creek and in southeastern Monterey, western Merced, and Stanislaus Counties, demonstrating that the species may be expanding back into its historical range. Species is reported to be declining at a global scale, as well as in California; however, there is recent evidence of range extensions in San Joaquin Valley.	**Land Acquisition:** 460acres modeled habitat acquired for Reserve System. 2 acres modeled habitat added to Reserve System from existing open space. Included in the acreages above are the 290 to 592 acres of riparian forest and scrub and California alluvial sycamore woodland habitat that will be acquired to meet riparian natural community acquisition commitments. Target areas include riparian woodland habitat in Uvas, Llagas, and Pacheco watersheds.	**Permanent:** 72 acres of modeled primary habitat (2%).	Survey riparian woodland during the nesting season to document and monitor species status. Evaluate species response to habitat enhancement and restoration. Document nesting success, once a population becomes established in the permit area.
Status in Permit Area: 3,097 acres of modeled habitat. 65 acres of modeled habitat currently protected in Type 1 open space. Due to isolated, infrequent sighting of the species and lack of survey efforts, the extent of the species range in the permit area is not well understood. Species sightings have occurred along Llagas Creek between SR 152 and the Pajaro River, east of Gilroy (evidence of breeding, nest found) and Coyote Creek near Coyote Creek Golf Club (breeding behavior observed, no nest found). Species is poorly understood in the permit area, but may be increasing.	**Enhancement, Restoration, and Creation:** All acquired/added habitat enhanced, including 290 to 592 acres of acquired riparian forest/scrub and California alluvial sycamore woodland. Fifty to 353 acres of riparian forest/scrub and California alluvial sycamore woodland will be restored. Target areas include Uvas/Carnadero Creek, Llagas Creek between SR 152 and its confluence with Pajaro River, and sections of Pacheco Creek in Santa Clara County between Pacheco Lake and San Felipe Lake. Geomorphic and ecological stream functions, including floodplain benches, will be restored. All riparian mitigation will occur in Uvas, Llagas, and Pacheco watersheds. Native vegetation will be planted/seeded to promote continuity of riparian corridors and provide mosaic of successional stages. Predator control program, if needed, will be implemented.	**Temporary:** 43 acres of modeled primary habitat (1%).	
Conditions on Covered Activities: Development guidelines will ensure impacts are avoided and minimized (Condition 16). Surveys will identify and map nesting habitat and active nests for projects occurring in modeled habitat. If nesting habitat is identified, impacts will be avoided and minimized during the breeding season (March 15–July 31). Avoidance measures include relocating impacts at least 250 feet from modeled breeding habitat or conducting work outside of the breeding season. If impacts on least Bell's vireo habitat (occupied or not) are not fully avoided by a 250-foot buffer, preconstruction surveys will be required. Preconstruction surveys will document species presence/absence and habitat use. Occupied nests and previous nesting sites (for up to 3 years) will be avoided during the breeding season (March 15–July 31) with a 250-foot buffer. Required buffers may be reduced on a case-by-case basis as evaluated by the Implementing Entity in coordination with the Wildlife Agencies. If a nest is found, the Wildlife Agencies will be notified immediately. All construction or maintenance personnel must participate in training lead by a qualified biologist.			
Net effects: The Plan does not authorize take of least Bell's vireo in the form of direct injury or mortality. Loss of nests or eggs is also not authorized under the Plan. Up to 115 acres (4%) of modeled primary habitat will be affected by covered activities. The Reserve System will protect a minimum of 462 acres of modeled primary habitat. All species habitat within the Reserve System will be enhanced. This will result in a 711% increase of protected modeled habitat and a total of 17% of modeled habitat protected as Type 1 open space. To meet riparian natural community goals, a minimum of 290, and up 592, acres of riparian forest and scrub will be acquired and enhanced, and a minimum of 50 and up to 353 acres will be restored. Some of these sites may be suitable species habitat. New reserves will increase habitat connectivity by targeting areas along rivers (LAND–R2, R8). Habitat management will ensure improvement of habitat quality and favor increased reproductive success through riparian woodland and forest enhancement/restoration (e.g., predator control program, planting native vegetation) (LM-11; STREAM-2–5, 7). Development guidelines will ensure that impacts on this species from covered activities outside the Reserve System are avoided or minimized (Condition 16). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement/restoration, and avoidance and minimization of direct species impacts.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Tricolored blackbird (*Agelaius tricolor*)/(MBTA/CSC)			
Status in Range: Species is endemic to the west coast of North America, mostly in California. The breeding population is concentrated in the Central Valley with scattered sites occurring in Oregon, Washington, Nevada, and the western coast of Baja California. In California, the historic breeding range included Sacramento and San Joaquin Valleys, lowlands of the Sierra Nevada south to Kern County, the coast region from Sonoma County to the Mexican border, and sporadically on the Modoc Plateau. Species has experienced major declines since 1994. Species is reported to be declining at a global scale, as well as within California.	**Land Acquisition:** 19,000 acres modeled habitat acquired for Reserve System. 3,840 acres modeled habitat added to Reserve System from existing open space. Included in the acreages above are 50 to 104 acres of ponds and 10 to 50 acres of perennial wetlands. Target areas include suitable breeding habitat in dryland farming or ranching complexes in Coyote Valley and the Diablo Hills, prioritizing currently and recently occupied and historic breeding sites. In addition, foraging habitat will be acquired within 2 miles of known breeding sites.	**Permanent:** 276 acres of modeled primary habitat (3%). 10,317 acres of modeled secondary habitat (8%). 10,593 acres total (8%).	Assess habitat quality, species occupancy, and colony size of all suitable freshwater wetland or pond habitat in Reserve System. Determine breeding habitat connectivity in permit area. Evaluate species response to habitat enhancement, restoration, or creation. Monitor nesting colony response to nonnative plant removal. Determine need for predator control programs.
Status in Permit Area: 140,291 acres of modeled habitat. 11,037 acres of modeled habitat currently protected in Type 1 open space (primary and secondary habitat). Although consistently present in the permit area, species' distribution in permit area remains sporadic and ephemeral. There are few documented colony occurrences, comprising 150–200 individuals. Because species wanders considerably during the breeding season, individuals could successfully breed in the permit area if suitable breeding and/or foraging habitat were available. Breeding colonies often go unreported because of individuals' similar appearance to that of red-winged blackbird. Data are insufficient to characterize species status in the permit area.	**Enhancement, Restoration, and Creation:** All acquired/added habitat enhanced. 50 to 104 acres of ponds enhanced. 10 to 50 acres of perennial wetlands enhanced. 20 to 72 acres of ponds created. 20 to 45 acres of perennial wetlands restored. As part of the Conservation Strategy, private landowners will be offered incentives to ensure that farming and ranching practices support foraging habitat. Exclusion fencing will be installed to prevent entry of livestock and feral pigs into breeding habitat. Riparian vegetation will be planted to attract nesting birds. Engineered channels will be replaced where feasible.	**Temporary:** 93 acres of modeled primary habitat (1%). 768 acres of modeled secondary habitat (<1%). 861 acres total (<1%).	
Conditions on Covered Activities: Development and operations and maintenance guidelines ensure that impacts from covered activities are avoided or minimized (Condition 17). During the project planning phase, a qualified biologist will survey and map potential species nesting habitat. Potential nesting habitat identified by these or any other surveys, will be mapped and direct impacts to potential nesting habitat avoided and other impacts minimized. Avoidance measures include relocating impacts away from the potential nesting habitat. If a project is unable to avoid impacts on species nest colonies by locating construction and staging activities at least 250 feet from the outer edge of all hydric vegetation associated with the colony, preconstruction surveys will be required. Preconstruction surveys will conclude no more than two calendar days prior to construction. Covered activities must avoid species nesting colonies (currently occupied or occupied within the past 5 years) and associated habitat with a 250-ft no-activity buffer zone around the outer edge of all hydric vegetation associated with the colony. Required buffers may be adjusted on a case-by-case basis as evaluated by the Implementing Entity in coordination with the Wildlife Agencies. A construction monitor will be present during breeding season construction when an active colony is present.			
Net effects: No impacts are allowed to active tricolored blackbird colonies. The Plan does not authorize the removal of historic and active breeding sites. Up to 11,454 acres (8%) of modeled habitat will be affected by covered activities. The Reserve System will protect a minimum of 22,840 acres of modeled species habitat. All habitat within Reserve System will be enhanced. This will result in a 207% increase of lands managed as species habitat and a total of 24% of modeled habitat protected as Type 1 open space. A minimum of 50 and up to 104 acres of ponds and a minimum of 10 and up to 50 acres of perennial wetlands will be acquired and enhanced. A minimum of 20 and up to 72 acres of ponds will be created and a minimum of 20 and up to 45 acres of perennial wetlands will be restored. Some of these aquatic natural community acquisition, creation, and restoration sites will provide suitable species habitat. New reserves will ensure protection of at least four currently occupied or historic breeding sites and nearby foraging habitat (LAND WP 8). Land owners will be offered incentives to enhance breeding and foraging habitat on their property (POND-14, 15). Habitat management will focus on restoration and enhancement of ponds, freshwater marshes, and seasonal wetlands (e.g., fencing installation, restoration with native vegetation, replacement of engineered channels) to improve quality of breeding and foraging habitat (POND-1, 6, 8–10, 17, 18; STREAM-4). Development guidelines will ensure that impacts from covered activities that occur outside the Reserve System are minimized (Condition 17). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement/restoration, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
San Joaquin kit fox (*Vulpes macrotis mutica*)/(E/T)			
Status in Range: Endemic to California, the historic range is estimated to have extended from Contra Costa and San Joaquin Counties in the north to Kern County in the south. Kit foxes currently inhabit some areas of the San Joaquin Valley floor and the surrounding foothills of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains from Kern County north to Contra Costa, Alameda, and San Joaquin Counties. Known occurrences in Alameda, Contra Costa, Fresno, Kern, Kings, Madera, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Stanislaus, and Tulare Counties, with the largest extant populations in Kern County and San Luis Obispo County in the Carrizo Plain Area. Species is reported to be declining throughout its limited California range.	**Land Acquisition:** 4,100 of modeled secondary habitat acquired for Reserve System. Land acquisition adheres to species Recovery Plan. Focus on building connections between the more isolated satellite populations to contributes to *the Level A Strategy* to "work toward the establishment of a viable complex of kit fox populations (i.e., a viable metapopulation) on private and public lands throughout its geographic range". Plan supports the Habitat *Protection and Population Interchange Recovery Action xiv* to "Protect existing kit fox habitat in the northern, northeastern, and northwestern segments of their geographic range..." (U.S. Fish and Wildlife Service 1998). Target areas include north and south of SR 152 and east of SR 152/156 interchange that have the highest potential to support species.	**Permanent:** 198 acres of modeled secondary habitat (<1%). 28 acres of modeled secondary habitat (low use) (1%). 226 acres total (<1%).	Document and assess all potential den sites for occupancy and wildlife corridor use of SR 152 crossings (e.g., bridges, culverts). Evaluate distribution changes of California ground squirrels (prey base) in response to grassland management. Determine how SR 152 affects habitat connectivity using other terrestrial mammals' movement patterns and response to barriers.
Status in Permit Area: 40,892 acres of modeled habitat. 5,067 acres of modeled habitat currently protected in Type 1 open space (secondary habitat, secondary habitat low use). Four occurrence records for 1972–2002 report both den use and movement through the permit area. Genetic studies demonstrate that interbreeding occurs between individuals of the San Luis Reservoir population, southeast of the permit area, and those of Alameda and Costa Counties. It is assumed that the Pacheco–Santa Ana watershed in the southeastern part of Santa Clara County provides movement habitat between these two areas. Species status in the permit area is unknown due to lack of data.	**Enhancement, Restoration, and Creation:** All habitat enhanced. Specified management of native vegetation and limited the use of rodenticides will support sustainable prey population. Species passage will be improved across SR 152 with the placement of culverts or free span bridges and removal of median barriers. Fencing will be installed to encourage culvert and bridge use to avoid roadway crossings or to use sections without median barriers. Public education will be conducted to inform landowners on land use techniques that are more compatible with species movement and use.	**Temporary:** 46 acres of modeled secondary habitat (<1%). 6 acres of modeled secondary habitat (low use) (<1%). 52 acres total (<1%).	
Conditions on Covered Activities: Development guidelines ensure impacts are avoided or minimized (Condition 18). Surveys for potential breeding and denning sites will be required for projects occurring within modeled habitat as defined by this Plan. If the project does not fully avoid impacts on potential dens, preconstruction surveys will be required. Preconstruction surveys will conclude no more than two calendar days prior to construction. Preconstruction surveys written results will be submitted to USFWS and CDFG within two calendar days after survey completion and before ground disturbance start. If individuals or suitable dens are identified in survey area, minimization measures will be implemented (Condition 18). For example, during covered activities, dens will be monitored; unoccupied dens will be destroyed and use of occupied (non-natal) dens will be discouraged. During construction monitoring, a trained biologist will establish exclusion zones at least 50 feet for atypical and potential dens and at least 100 feet for known dens. If an occupied natal den is found, USFWS and CDFG will be notified immediately and the den will not be destroyed until the pups and adults have vacated and then only after further consultation with USFWS and CDFG. All construction or maintenance personnel must participate in training.			
Net effects: The Plan does not authorize take of San Joaquin kit fox in the form of injury or mortality. Up to 278 acres (<1%) of modeled habitat will be affected by covered activities. The Reserve System will protect a minimum of 4,100 acres of modeled secondary habitat. Within the Reserve System all habitat will be enhanced. This will result in an increase of 81% of protected modeled habitat and a total of 22% of modeled habitat protected as Type 1 open space and. Land acquisition and habitat enhancement includes elements of the *Level A* Strategy, *Population Interchange Recovery Action* xiv, and *Population Ecology Management Recovery Action i* of the species recovery plan. A network of core reserves and movement routes will protect a critical linkage for San Joaquin kit fox through the permit area to adjacent populations in Alameda and Contra Costa Counties (LAND-G9). Grassland and oak woodlands will be managed to support a sustainable prey population (GRASS-5, 6). Barriers to passage will be removed and structural improvements to facilitate movement will be implemented to improve species passage across SR 152 (LM-1–5). A public awareness campaign will encourage species-compatible land uses outside the Reserve System (GRASS-10). Development guidelines will ensure that impacts on this species from covered activities that occur outside the Reserve System are minimized (Condition 18). The Plan is likely to benefit the species in the permit area through habitat acquisition, habitat enhancement, and avoidance and minimization of direct impacts on the species.			

<table>
<tr><th>Species/Status (Federal/State/CNPS)[1]</th><th>Acquisition[2], Enhancement, Restoration, and Creation</th><th>Impacts[3,4]</th><th>Monitoring[5]</th></tr>
<tr><td colspan="4">Tiburon Indian paintbrush (Castilleja affinis ssp. neglecta)/(E/T, 1B)</td></tr>
<tr><td>Status in California:
9 known occurrences.
Endemic to California, its range is approximately 30 by 70 miles (north–south), and occurs in Marin, Napa, and Santa Clara Counties. Species is reported to be stable throughout its limited California range.</td><td>Land Acquisition:
1 occurrence added from existing open space to Reserve System.</td><td>Permanent:
0 occurrences.</td><td rowspan="2">Evaluate species response to management and habitat enhancement (e.g., grazing regimes) annually and after significant events that may have strong effects on occurrence size (e.g. fire, severe weather). Identify limiting factors of occurrence expansion through targeted research. Develop appropriate monitoring protocols to study occurrence response to experimental grazing exclusion. Monitor potential threats (e.g. feral pigs, prescribed burns) to occurrence.</td></tr>
<tr><td>Status in Permit Area:
2 of 9 known occurrences.
No occurrences currently protected in Type 1 open space.
1 occurrence is on private land as a mitigation site for expansion of the Kirby Canyon Landfill. The easement for this occurrence will expire in 2034. The site is currently monitored and managed by the Kirby Canyon Butterfly Trust. The second occurrence, located in the North Canyon, is on private land. At the time this Plan was being developed, the landowners was in the process of finalizing a conservation easement on the site.</td><td>Enhancement, Restoration, and Creation:
Increase the size of occurrence to at least 2,000 individuals (number will be adjusted as necessary pending research carried out during Plan implementation to assure viable populations of this species).
Conservation Strategy specifies identification through targeted studies of factors limiting the expansion of extant occurrences including management and microsite needs at all life stages. Effects of livestock grazing on species will be determined. Research results will be incorporated into management plans to mitigate or remove limiting factors.</td><td>Temporary:
N/A</td></tr>
<tr><td colspan="4">Conditions on Covered Activities: Plant surveys will be required during appropriate season period (Table 6-10) if a project site occurs in an area mapped as land cover associated with Tiburon Indian paintbrush (Table 3-6; Figure 3-10). The condition of any new occurrences that may be found during the permit as a result of project surveys will be documented to ensure they are not affected. Exotic plants and recreational use will be controlled in reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13).</td></tr>
<tr><td colspan="4">Net effects: No occurrences of this species will be lost as a result of covered activities. The Reserve System will protect one occurrence that is now under easement which will expire in 2034. Plan implementation will result in 100% of known occurrence protected in Type 1 open space and species management will increase the total occurrence to at least 2,000. Management will enhance habitat quality for this species, and targeted research will be conducted on factors limiting the extent of current occurrences (STUDIES-5, 16). The Reserve System occurrence will be represented in a permanent conservation seed bank unless collection would pose a threat to the occurrence's continued existence (STUDIES-12). Development guidelines will ensure that impacts on currently undiscovered occurrences from covered activities outside the Reserve System are avoided (Condition 9). Guidelines for reserve management will ensure that recreational use will avoid species impacts (Condition 9). The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.</td></tr>
</table>

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Coyote ceanothus (*Ceanothus ferrisiae*)/(E/–/1B)			
Status in California: 3 known occurrences. Species is endemic to Santa Clara County where it occurs in the Mt. Hamilton Range. Species is reported to be declining throughout its limited California range.	**Land Acquisition:** 5 occurrences acquired for Reserve System, 3 known, extant occurrences and 2 newly discovered occurrences.	**Permanent:** No more than 3,650 individuals or 5% of the Anderson Dam occurrence, whichever is less.	Conduct baseline surveys of known occurrences to determine occurrence size and demography upon land acquisition. Evaluate species response to management and habitat enhancement (e.g., controlled burns, `grazing regimes) annually and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., increases in reservoir levels) to occurrences as needed.
Status in Permit Area: 3 of 3 known occurrences. 0 occurrences currently protected in Type 1 open space All three existing occurrences are located in the Morgan Hill area; two are near Anderson Reservoir east of U.S. 101 and the third is on the west side of U.S. 101.	**Enhancement, Restoration, and Creation:** Up to 2 new occurrences created, in lieu of acquisition, if acquisition of naturally-occurring occurrences is infeasible. Increase each occurrence to at least 5,000 individuals (number will be adjusted as necessary pending research carried out during Plan implementation to assure viable populations of this species). Conservation strategy specifies targeting the east side of Coyote Valley to site new occurrence and increase species range. Targeted research will determine limiting factors in expansion of extant occurrences, appropriate and viable propagation or planting techniques, seed sampling and harvest techniques, and will indentify suitable locations and methods for occurrence establishment. Fire and alternative vegetative management in chaparral community will be used to maintain structural diversity and canopy gaps and promote regeneration to benefit species maintenance and regeneration. Success criteria will be developed by the Implementing Entity and approved by USFWS and CDFG prior to occurrence creation.	**Temporary:** No known occurrences (0%).	
Conditions on Covered Activities: Development guidelines will ensure that impacts from covered activities are minimized (Condition 20). Plant surveys will be required during appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with coyote ceanothus (**Table 3-6**; **Figure 3-10**). Individuals to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques and a new separate occurrence will be established in suitable habitat (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled within reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13). If serpentine cannot be avoided, minimization measures described in Condition 13 will be followed.			
Net effects: No more than 3,650 individuals or 5% of the Anderson Dam occurrences (including both occurrences on either side of the Dam), whichever is less, will be affected by covered activities. The Reserve System will protect 3 currently unprotected known occurrences in the permit area and 2 new occurrences will be created if acquisition of any newly-discovered occurrences is infeasible (LAND-P1, STUDIES-13–15). This will result in protection of a 100% of known occurrences and a total of 5 occurrences in Type 1 open space. Management will enhance habitat quality for this species, and targeted research will be conducted on factors limiting the extent of current occurrences (STUDIES-5, 11; CHAP-1, 2; LM-8, 12). As part of species Recovery Plan implementation, a permanent conservation seed bank will be established in the National Collection of Endangered Plants. All known occurrences in the Reserve System will be represented in a permanent conservation seed bank unless collection would pose a threat to the occurrence's continued existence (STUDIES-12). The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Mt. Hamilton thistle (*Cirsium fontinale* var. *campylon*)/(–/–/1B)			
Status in California: 48 known occurrences. Species is endemic to the San Francisco Bay area, with two clusters of occurrences: one in the Mt, Hamilton Ranges, the other in the hills adjacent to the northern Santa Clara Valley, occurring on serpentine soils in seeps and springs and along intermittent and perennial streams, at elevations of 320–2,900 feet. Occurs in Santa Clara, Stanislaus, and Alameda Counties. Data are insufficient to characterize species status across its range; however, species is believed to be stable. Further study is necessary to confirm.	**Land Acquisition:** 20 known occurrences acquired for Reserve System. 2 known occurrences added to Reserve System from existing open space. 150 acres modeled habitat acres modeled habitat acquired for Reserve System. 60 acres modeled habitat added to Reserve System from existing open space. Target sites include drainages or spring systems that support species, such as, spring-fed serpentine drainages on Coyote Ridge that flow west into Coyote Creek, drainages that flow into San Felipe Creek, and other suitable habitat in the Santa Cruz Mountains between Calero County Park and Almaden Quicksilver County Park, and on Tulare Hill. An effort will be made to stratify protection and acquire sites on both sides of Coyote Valley to ensure geographic diversity in protected occurrences.	**Permanent:** 6 known occurrences; 26 acres of modeled primary habitat (5%).	Determine or estimate the number of individuals in known occurrences of covered plants and whether undiscovered occurrences occur on Reserve System acquisitions. Evaluate species response to management and habitat enhancement (e.g., grazing regimes) and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., insect herbivores, livestock grazing) to occurrences as needed.
Status in Permit Area: 40 of 48 known occurrences; 487 acres of modeled habitat. 2 occurrences currently protected in Type 1 open space. 55 acres of modeled habitat currently protected in Type 1 open space. There are occurrence estimates for 34 of the known occurrences of this species, from as early as 1983 up to as recently as 2006. These estimates range from 1 to 4,500 individuals, and the total estimated population of all occurrences is 28,933. The total number may be higher as species numbers are likely to fluctuate from year to year in response to annual fluctuations in rainfall and runoff into serpentine seeps.	**Enhancement, Restoration, and Creation:** Increase each occurrence to at least 2,000 individuals (number will be adjusted as necessary pending research carried out during Plan implementation to assure viable populations of this species). Conservation Strategy specifies determining limiting factors to occurrence expansion, including life stage and microsite needs, through targeted research. Livestock will be experimentally excluded to determine occurrence response. Hydrologic systems will be managed and maintained to provide species habitat.	**Temporary:** 4 acres of modeled primary habitat (<1%).	
Conditions on Covered Activities: Development guidelines will ensure that impacts from covered activities are minimized (Condition 20). Plant surveys will be required during the appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with Mt. Hamilton thistle (**Table 3-6**; **Figure 3-10**). Occurrences to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques and a new separate occurrence will be established in suitable habitat [not mentioned above] (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled within reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13). If serpentine cannot be avoided, minimization measures described in Condition 13 will be followed.			
Net effects: Up to 6 known occurrences and up to 30 acres (6%) of modeled habitat will be affected by covered activities. The Reserve System will protect a minimum of 210 acres of modeled habitat, including 22 known occurrences (LAND-P6). This will result in a 384% increase of lands managed as species habitat, 24 total occurrences managed in Type 1 open space, and 54% of modeled habitat protected as Type 1 open space. Habitat management includes maintaining hydrologic systems required for species habitat. Targeted studies will be conducted to test the effects on livestock on occurrences and to investigate factors that can be used to identify suitable locations for new occurrence establishment, propagation or planting techniques, alternative techniques for occurrence establishment, and factors limiting the extent of current occurrences (STUDIES-5, 16). As part of Recovery Plan implementation, a permanent conservation seed bank will be established in the National Collection of Endangered Plants. All known occurrences in the Reserve System will be represented in a permanent conservation seed bank unless collection would pose a threat to the occurrence's continued existence (STUDIES-12). The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*)/(E/–/1B)			
Status in California: 209 known occurrences. Species is endemic to Santa Clara County, found in the vicinity of Coyote Valley from San José south about 20 miles to San Martin, at elevations of 300–900 feet. Data are insufficient to characterize species status across its range; however, species is believed to be stable, although further study is necessary to confirm.	**Land Acquisition:** 44 known occurrences acquired for Reserve System. 11 known occurrences added to Reserve System from existing open space. Sites will be stratified to protect occurrence on both sides of Coyote Valley to ensure geographic diversity in protected occurrences. This includes the majority of known occurrences along Coyote Ridge, in the Santa Teresa Hills and Tulare Hill (4), west of Calero County Park (2), and north of Morgan Hill (1). Incorporation of portions of Santa Teresa, Calero, and Almaden Quicksilver County Parks into the Reserve System add 10 occurrences for existing open space to be protected as Type 1 open space. The protected land will include a buffer of 150 meters (500 feet), if feasible, around each occurrence to reduce external influences and allow expansion of the occurrence.	**Permanent:** 11 known occurrences.	Conduct baseline occurrence surveys in all suitable habitat to evaluate known occurrences and document new occurrences. Delineate operational "boundary" for discrete occurrences for monitoring and management purposes. Evaluate species response to management and habitat enhancement (e.g., grazing regimes) annually and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., fires, livestock grazing) to occurrences as needed.
Status in Permit Area: 207 of 209 known occurrences. 2 occurrences currently protected in Type 1 open space. Occurrence estimates are only available for 46 occurrences that total 72,500 individuals.	**Enhancement, Restoration, and Creation:** Increase each occurrence to at least 2,000 individuals (number will be adjusted as necessary pending research carried out during Plan implementation to assure viable populations of this species). Conservation Strategy specifies seeding or transplanting adults from large occurrences to suitable unoccupied rock outcrops in existing occurrences. Limiting factors to occurrence expansion, including life stage and microsite needs, will be determined through targeted research. Livestock will be experimentally excluded to determine occurrence response.	**Temporary:** N/A	
Conditions on Covered Activities: Development guidelines will ensure that impacts on Santa Clara Valley dudleya from covered activities are minimized (Condition 20). Plant surveys will be required during the appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with Santa Clara Valley dudleya (**Table 3-6**; **Figure 3-10**). Occurrences to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques, and a new separate occurrence will be established in suitable habitat (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled within reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13). If serpentine cannot be avoided, minimization measures described in Condition 13 will be followed.			
Net effects: Up to 11 known will be affected by covered activities. The Reserve System will protect 55 known occurrences in permit area (LAND-P2). This will result in 57 occurrences protected and managed in Type 1 open space. Management will enhance habitat quality for this species, and targeted studies will be conducted on factors limiting the extent of current occurrences in order to increase each occurrence to at least 2,000 individuals (STUDIES-5, 16). As part of Recovery Plan implementation, a permanent conservation seed bank will be established in the National Collection of Endangered Plants. All known occurrences in the Reserve System will be represented in a permanent conservation seed bank unless collection would pose a threat to the occurrence's continued existence (STUDIES-12). The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Fragrant fritillary (*Fritillaria liliacea*)/(–/–/1B)			
Status in California: 59 known occurrences. Species is endemic to western central California, ranging from Sonoma and Solano Counties south to Monterey County.	**Land Acquisition:** 3 occurrences acquired for Reserve System. 1 known occurrence added to Reserve System from existing open space. 23,000 acres modeled habitat acquired for Reserve System. 4,000 acres modeled habitat added to Reserve System from existing open space. 3 unprotected occurrences will be targeted for acquisition. Two occurrences will be protected along Coyote Ridge southeast of Metcalf Canyon and northeast of Morgan Hill. The third occurrence will be located outside of Metcalf Canyon, preferably east of the valley. A fourth occurrence in Calero County Park will be incorporated into the Reserve System as Type 1 open space. The protected land will include a 500-foot buffer around each occurrence to reduce external influences and allow expansion of the occurrence if biologically feasible and appropriate.	**Permanent:** 1 known occurrence; 550 acres of modeled primary habitat (6%). 2,729 acres of modeled secondary habitat (2%). 3,279acres total (2%).	Determine or estimate the number of individuals in known occurrences of covered plants and whether undiscovered occurrences occur on Reserve System acquisitions. Evaluate species response to management and habitat enhancement (e.g., grazing regimes) and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., fires, livestock grazing) to occurrences as needed.
Status in Permit Area: 8 of 59 known occurrences; 165,455 acres modeled habitat. 0 occurrences currently protected in Type 1 open space; 16,371 acres of modeled habitat currently protected in Type 1 open space (primary and secondary habitat). 35 occurrences have size estimates, for a total of 16,383 individuals.	**Enhancement, Restoration, and Creation:** Conservation Strategy specifies identification of factors limiting occurrence expansion, factors affecting establishment and maintenance of new occurrences, life stage and specific microsite needs, and effects of land management on occurrence establishment and survival.	**Temporary:** 59 acres of modeled primary habitat (<1%). 655 acres of modeled secondary habitat (<1%). 714 acres total (<1%).	
Conditions on Covered Activities: Development guidelines will ensure that impacts from covered activities are minimized. Plant surveys will be required during the appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with fragrant fritillary (**Table 3-6**; **Figure 3-10**). Occurrences to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques and a new separate occurrence will be established in suitable habitat [not mentioned above] (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled in reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13). If serpentine cannot be avoided, minimization measures described in Condition 13 will be followed.			
Net effects: Up to 1 known occurrence and 3,993 acres (2%) of modeled habitat will be affected by covered activities. The Reserve System will protect a minimum of 27,000 acres of modeled habitat, including four known occurrences (LAND-P8). This will result in a 226% increase of lands managed as species habitat, protection and management of a total of 4 occurrences, and 26% of modeled habitat as Type 1 open space. Targeted studies will identify factors limiting occurrence expansion and test the effects of livestock grazing (STUDIES-5, 16). All known occurrences in the Reserve System will be represented in a permanent conservation seed bank unless collection would pose a threat to the occurrence's continued existence (STUDIES-12). The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Loma Prieta hoita (*Hoita strobilina*)/(–/–/1B)			
Status in California: 26 known occurrences. Endemic to California, species occurs primarily in the Santa Cruz Mountains of Santa Clara and Santa Cruz Counties. The species also occurs in the Diablo Range in Santa Clara, Alameda, and Contra Costa Counties. Data are insufficient to determine global and regional status.	**Land Acquisition:** 1 known occurrence acquired for Reserve System. 3 known occurrences added to Reserve System from existing open space. 10,000 acres modeled habitat acquired for Reserve System. 4,100 acres modeled habitat added to Reserve System from existing open space. Targeted acquisition includes an occurrence on the east side of the Santa Clara Valley, just east of US 101, south of Motorcycle Park. Three additional occurrences will be added to the Reserve System as Type 1 open space through the incorporation of Santa Teresa, Almaden Quicksilver, and Calero County Parks. All occurrences will protect a biologically appropriate buffer around known occurrence to reduce external influences and allow for occurrence expansion.	**Permanent:** No known occurrences; 2,117 acres of modeled primary habitat (2% 266 acres of modeled secondary habitat (1%). 2,383 acres total (2%).	Determine or estimate the number of individuals in known occurrences of covered plants and whether undiscovered occurrences occur on Reserve System acquisitions. Evaluate species response to management and habitat enhancement (e.g., grazing regimes) and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., feral pig rooting) to occurrences as needed.
Status in Permit Area: 14 of 26 known occurrences; 121,871 acres of modeled habitat. 1 occurrence currently protected in Type 1 open space. 17,276 acres of modeled habitat currently protected in Type 1 open space (primary and secondary habitat).	**Enhancement, Restoration, and Creation:** Conservation Strategy specifies identifying factors limiting the expansion of known occurrences, life stage and specific microsite needs, and effects of land management on occurrence establishment and survival.	**Temporary:** 413 acres of modeled primary habitat (<1%). 60 acres of modeled secondary habitat (<1%). 473 acres (<1%).	
Conditions on Covered Activities: Development guidelines will ensure that impacts from covered activities are minimized (Condition 20). Plant surveys will be required during the appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with Loma Prieta hoita (**Table 3-6**; **Figure 3-10**). Occurrences to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques and a new separate occurrence will be established in suitable habitat (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled in reserves to benefit the species (Condition 9).			
Net effects: No known occurrences and up to 2,856 acres (2%) of modeled habitat will be affected by covered activities. The Reserve System will protect a minimum of 14,100 acres of modeled habitat, including four known occurrence (LAND-P12). This will result in an 82% increase of lands managed as species habitat, a total of 5 managed occurrences in Type 1 open space, and 26% of modeled habitat protected as Type 1 open space. Targeted studies will identify factors limiting occurrence expansion (STUDIES-5). All known occurrences in the Reserve System will be represented in a permanent conservation seed bank unless collection would pose a threat to the occurrence's continued existence (STUDIES-12). The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Smooth lessingia (*Lessingia micradenia* var. *glabrata*)/(–/–/1B)			
Status in California: 39 known occurrences. Species is endemic to Santa Clara County on the eastern slopes of the Santa Cruz Mountains and the hills adjacent to the Santa Clara Valley. Data are insufficient to determine global and regional status; however, all documented occurrences are presumed to be extant.	**Land Acquisition:** 7 known or new occurrences acquired for Reserve System, 5 known occurrences added to Reserve System from existing open space. 12 new occurrences (if discovered) acquired for Reserve System. 4,000 acres modeled habitat acquired for Reserve System. 1,100 acres modeled habitat added to Reserve System from existing open space. Targeted acquisition are located on the west side of US 101 in the Santa Cruz Mountains foothills, on serpentine areas between Tulare Hill and Mount Madonna County Park. Two additional occurrences will be added to the Reserve System as Type 1 open space from Calero and Mount Madonna County Parks. All occurrences will be protected by a 500-foot buffer around occurrences to reduce external influences and allow for occurrence expansion.	**Permanent:** 6 known occurrences; 550 acres of modeled primary habitat (5%).	Determine or estimate the number of individuals in known occurrences of covered plants and whether undiscovered occurrences occur on Reserve System acquisitions. Evaluate species response to management and habitat enhancement (e.g., grazing regimes) and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., fires, livestock grazing) to occurrences as needed.
Status in Permit Area: 39 of 39 known occurrences; 10,491 acres modeled habitat. 3 occurrences currently protected in Type 1 open space; 1,268 acres of modeled habitat currently protected in Type 1 open space. 16 of the 33 known occurrences have size estimates totaling 95,213.	**Enhancement, Restoration, and Creation:** Up to 12 occurrences created, in lieu of acquisition, if acquisition of naturally-occurring occurrences is infeasible. Increase the size of each occurrence to at least 2,000 individuals. Conservation Strategy specifies targeted research to identify limiting factors to occurrence expansion, including life stage and microsite needs, and effects of land management on occurrence establishment and survival. Livestock will be experimentally excluded to determine occurrence response. Success criteria will be developed by the Implementing Entity and approved by USFWS and CDFG prior to occurrence creation.	**Temporary:** 68 acres of modeled primary habitat (<1%).	
Conditions on Covered Activities: Development guidelines will ensure that impacts from covered activities are minimized (Condition 20). Plant surveys will be required during the appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with smooth lessingia (**Table 3-6**; **Figure 3-10**). Occurrences to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques and a new separate occurrence will be established in suitable habitat (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled in reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13). If serpentine cannot be avoided, minimization measures described in Condition 13 will be followed.			
Net effects: Up to 6 known occurrences and 618 acres (6%) of modeled habitat will be affected by covered activities. The Reserve System will protect a minimum of 5,100 acres of modeled habitat, including 12 known occurrences (LAND-P7). At least 12 new occurrences will be found and acquired or established in suitable unoccupied habitat. This will result in a 427% increase of lands managed as species habitat, protection and management of 27 occurrences in Type 1 open space, and protection of a total of 61% of modeled habitat as Type 1 open space. Targeted studies will be conducted to identify factors limiting the extent of current occurrences and to test the effects of livestock grazing on occurrences (STUDIES-5, 14, 16). As part of Recovery Plan implementation, a permanent conservation seed bank will be established in the National Collection of Endangered Plants. All known occurrences in the Reserve System will be represented unless collection would pose a threat to the occurrence's continued existence (STUDIES-12). The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*)/(FE/1B)			
Status in California: 11 known occurrences. Species is endemic to Santa Clara County, CA, with its range extending approximately 20 miles from San José south to Anderson Lake. Species is reported to be declining throughout its limited California range.	**Land Acquisition:** 3 known occurrences acquired for Reserve System. 10 new occurrences, if found, acquired for Reserve System. 3,200 acres modeled habitat acquired for Reserve System. 1,000 acres modeled habitat added to Reserve System from existing open space. Acquire additional land on north side of Tulare Hill for reintroduction site. The protected land will include a buffer of 150 meters (500 feet), if feasible, around each occurrence to reduce external influences and allow expansion of the occurrence. 68 occurrences of an unidentified jewelflower on Coyote Ridge near Metcalf Canyon will likely be protected in the Reserve System. Due to the proximity of known occurrences, some are likely to be Metcalf Canyon jewelflower.	**Permanent:** 2 known occurrences; 550 acres of modeled primary habitat (7%).	Conduct baseline occurrence surveys in all suitable habitat to evaluate known occurrences and document new occurrences. Evaluate species response to management and habitat enhancement (e.g., grazing regimes) annually and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., fires, livestock grazing) to occurrences as needed.
Status in Permit Area: 10 of 11 known occurrences; 8,105 acres modeled habitat. 1 occurrence currently protected in Type 1 open space; 984 acres of modeled habitat currently protected in Type 1 open space.	**Enhancement, Restoration, and Creation:** Up to 10 new occurrences created, in lieu of acquisition, if acquisition of naturally-occurring occurrences is infeasible. Increase each occurrence to at least 2,000 individuals (number will be adjusted as necessary pending research carried out during Plan implementation to assure viable populations of this species). Conservation Strategy specifies targeting Tulare Hill on west side of valley for occurrence creation. Targeted research will be conducted to identify limiting factors in expansion of extant occurrences, appropriate and viable propagation or planting techniques, and seed sampling and harvest techniques, as well as to determine suitable locations and methods for occurrence establishment. Success criteria will be developed by the Implementing Entity and approved by USFWS and CDFG prior to occurrence creation.	**Temporary:** 62 acres of modeled primary habitat (<1%).	
Conditions on Covered Activities: Development guidelines will ensure that impacts from covered activities are minimized (Condition 20). Plant surveys will be required during the appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with Metcalf Canyon jewelflower (**Table 3-6**; **Figure 3-10**). Occurrences to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques, and a new separate occurrence will be established in suitable habitat (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled within reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13). If serpentine cannot be avoided, minimization measures described in Condition 13 will be followed.			
Net effects: Up to 2 known occurrences and 612 acres (8%) of modeled habitat will be affected by covered activities. The Reserve System will protect 4,200 acres of modeled habitat, including 3 of 10 known occurrences that are currently unprotected in the permit area. At least 10 new occurrences will be found and acquired and/or created in suitable unoccupied habitat (LAND-P3, P4). This will result in a 427% increase of lands managed as species habitat, protection of a total of 4 known occurrences in Type 1 open space and 10 newly discovered and/or created occurrences, and protection of 64% of modeled habitat as Type 1 open space. Conservation Strategy implementation will increase the total number of extant occurrences to 21 in California, including 14 occurrences protected in Type 1 open space. Management will enhance habitat quality for this species, and targeted studies will be conducted on factors limiting the extent of current occurrences (STUDIES 5, 14, 15, 17). As part of Recovery Plan implementation, a permanent conservation seed bank will be established in the National Collection of Endangered Plants. All known occurrences in the Reserve System will be represented unless collection would pose a threat to the occurrence's continued existence (STUDIES-12).The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]
Most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*)/(–/–/1B)			
Status in California: 86 known occurrences. Species is endemic to California, found in the northern South Coast Ranges of Contra Costa, Alameda, and Santa Clara Counties. Species is reported to be declining throughout its limited California range.	**Land Acquisition:** 9 known occurrences acquired for Reserve System. 8 known occurrences added to the Reserve System from existing open space. 4,000 acres modeled habitat acquired for Reserve System. 1,700 acres modeled habitat added to Reserve System from existing open space. Target areas include suitable habitat and occurrences along Coyote Ridge, in Santa Teresa Hills, west of Chesbro Reservoir, near Morgan Hill and in the southern end of the permit area in the Santa Cruz Mountain foothills. Eight occurrences will be added to the Reserve System from Alamaden Quicksilver, Calero, and Santa Teresa County Parks as Type 1 open space. All occurrences will be buffered by 150 meters (500 feet) to reduce external influences and allow expansion of the occurrence. 68 occurrences of an unidentified jewelflower on Coyote Ridge near Metcalf Canyon will likely be acquired for Reserve System. Due to the proximity of known occurrences, some are likely to be most beautiful jewelflower.	**Permanent:** 6 known occurrences; 550 acres of modeled primary habitat (4%).	Determine or estimate the number of individuals in known occurrences of covered plants and whether undiscovered occurrences occur on Reserve System acquisitions. Evaluate species response to management and habitat enhancement (e.g., grazing regimes) and after significant events that may have strong effects on occurrence size (e.g., fire, severe weather). Target research to identify factors that limit occurrence expansion. Monitor potential threats (e.g., fires, livestock grazing) to occurrences as needed.
Status in Permit Area: 39 of 86 known occurrences; 14,362 acres modeled habitat. 3 occurrences currently protected in Type 1 open space; 1,500 acres of modeled habitat currently protected in Type 1 open space (primary and secondary habitat).	**Enhancement, Restoration, and Creation:** Increase each occurrence to at least 2,000 individuals (number will be adjusted as necessary pending research carried out during Plan implementation to assure viable populations of this species). Conservation Strategy specifies investigation of species reproductive biology and demography. Targeted research will identify factors limiting occurrence expansion, life stage and specific microsite needs, and effects of land management on occurrence establishment and survival.	**Temporary:** 92 acres of modeled primary habitat (<1%).	
Conditions on Covered Activities: Development guidelines will ensure that impacts from covered activities are minimized (Condition 20). Plant surveys will be required during the appropriate season period (**Table 6-10**) if the project site occurs in an area mapped as land cover associated with most beautiful jewelflower (**Table 3-6**; **Figure 3-10**). Occurrences to be removed by covered activities will be salvaged to the extent possible using appropriate plant salvage techniques and a new separate occurrence will be established in suitable habitat (Condition 19). The condition of each covered plant occurrence will be documented to ensure that occurrences are protected within the Reserve System are in as good or better condition than those lost to covered activities. Exotic plants and recreational use will be controlled in reserves to benefit the species (Condition 9). Covered activities will avoid serpentine land cover types whenever feasible during project planning (Condition 13). If serpentine cannot be avoided, minimization measures described in Condition 13 will be followed.			
Net effects: Up to 6 known occurrences and 642 acres (4%) of modeled primary habitat will be affected by covered activities. The Reserve System will protect a minimum of 5,700 acres of modeled habitat, including 17 known occurrences (LAND-P5). This will result in a 380% increase of lands managed as species habitat and protection of a total of 20 occurrences as Type 1 open space, and a total of 50% of modeled habitat protected as Type 1 open space. Targeted studies will identify factors limiting the extent of current occurrences and suitable propagation or planting techniques for new occurrence establishment (STUDIES-5, 14, 17). As part of Recovery Plan implementation, a permanent conservation seed bank will be established in the National Collection of Endangered Plants of all known occurrence is Reserve System (STUDIES-12).The Plan is likely to benefit the species in the Reserve System and throughout its range through habitat acquisition/enhancement/restoration, occurrence augmentation, and avoidance and minimization of direct impacts on the species.			

Species/Status (Federal/State/CNPS)[1]	Acquisition[2], Enhancement, Restoration, and Creation	Impacts[3,4]	Monitoring[5]

[1] Status

Federal

E Federally Listed as Endangered

T Federally Listed as Threatened

MBTA Migratory Bird Treaty Act

State

E State Listed as Endangered

T State Listed as Threatened

SR State Listed as Rare

CSC California Special Concern Species

FP Fully Protected

California Native Plant Society

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

[2] All land acquired as part of Reserve System will be protected as Type 1 open space. This includes land added to the Reserve System from existing open space. For many covered plant species, additional impacts are allowed under certain circumstances if additional occurrences are discovered during the permit term. See Table 5-16 for details on occurrence acquisition requirements if additional occurrences are discovered and impacts require additional protection. [3] Habitat was only modeled within the permit area. When models were developed, impacts are provided in terms of percent of modeled habitat. See Section 5.3.1 and plant species-specific conservation strategy discussions (Sections 5.4.12–5.4.21) for details for plant acquisition requirements (i.e., condition, location, timing).

[4] It is expected that new occurrences of many of the covered plants will be discovered both within the impact areas and the Reserve System. In many cases, it is warranted to allow additional impacts to covered plants beyond the occurrences known at this time, as long as new occurrences are found and protected in the Reserve System before the impacts occur. A summary of number of known occurrences required in the permit area, increased take limit, and required number of occurrences protected in the Reserve System is provided in **Table 5-16**.

[5] For complete suggested monitoring tasks, see Chapter7, Section 7.3.3.