



East Contra Costa County Habitat Conservancy Science and Research Grant Program Request for Proposals

Overview

The East Contra Costa County Habitat Conservancy (Conservancy) is a joint exercise of powers authority formed by Contra Costa County and the Cities of Brentwood, Clayton, Oakley, and Pittsburg to implement the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan). The HCP/NCCP provides a framework to protect natural resources in eastern Contra Costa County, while streamlining the environmental permitting process for impacts on endangered species. The Plan also provides comprehensive species, wetlands, and ecosystem conservation and contributes to the recovery of endangered species in northern California. The complete Plan can be downloaded from www.cocohcp.org.

The heart of the conservation strategy is a system of new preserves linked to existing protected areas to form a network of protected lands in eastern Contra Costa County. In addition to supporting ecosystem processes, habitat, and species, the preserves will also support other uses such as recreation, grazing, and crop production, as long as these uses are compatible with the biological goals and objectives of the HCP/NCCP. The conservation strategy is designed to achieve the biological goals and objectives established for each natural community and the covered species that each community supports (Chapter 2 of the HCP/NCCP). Goals are broad, guiding principles based on the conservation needs of the resources. Biological objectives are expressed as conservation targets or actions. Objectives are measurable and achievable within a given time frame; they clearly state a desired result and will collectively achieve the biological goal (HCP/NCCP Table 5-1, Attachment A). Because the biological outcome of many management actions is uncertain, the Plan's monitoring and adaptive management program is based on scientific principles that guide continual refinement of conservation efforts to achieve the biological goals and objectives of the Plan.

Under this Science and Research Grant Program (Grant Program), the Conservancy may fund research that endeavors to illuminate, and where possible to resolve, uncertainties associated with adaptive management of natural communities and covered species. Research selected for funding will aid in achieving the biological goals and objectives of the Plan and inform management actions and/or contribute to the general understanding of a covered species. Such research will generally relate to the following:

- Efficacy of natural community enhancement/creation/restoration techniques,
- Refining ecological requirements of covered species,
- Response of covered species and natural communities to implementation of management actions within the Preserve System, or

- Strategies to conduct management or monitoring actions that support and/or lead to better management of natural communities or covered species.

Additional Information Provided

- Attachment A: Excerpt from Chapter 5, Table 5-1: Natural Community-level and Additional Species specific Biological Goals and Objectives
- Attachment B: Excerpt from Chapter 7, Table 7-2: Potential Research Projects (Note: these were ideas set forth in the plan prior to implementation. Other research topics that inform land and species management actions are encouraged).
- Attachment C: Current Land Acquisition Map
- KMZ data (can be used in google earth) for the current land acquisitions is available upon request. Please email Maureen Parkes at Maureen.Parkes@dcd.cccounty.us to request the file.

Eligibility

The Conservancy seeks project proposals across all scientific disciplines that advance the Plan's conservation strategy (HCP/NCCP Chapter 5), monitoring and adaptive management program (HCP/NCCP Chapter 7), and/or informs successful compliance with the biological goals and objectives of the HCP/NCCP (HCP/NCCP Table 5-1, Attachment A). Potential research projects identified by the HCP/NCCP are included in HCP/NCCP Table 7-2 (Attachment B). The outreach and education activities specified in the Plan may also be funded as a part of this Grant Program.

Projects must be located within the HCP/NCCP's Inventory Area. Projects may be proposed by a governmental agency, academic institution, consulting firm, non-profit, or other professional scientific entity, or a partnership between such organizations. The applicant must be able to enter into a contract with the Conservancy and meet insurance and tax reporting requirements. The applicant must also be able to satisfy insurance requirements for the East Bay Regional Park District encroachment permit.

Grant Program Terms and Conditions

Grant Term

The maximum term of the grant agreement will be 2 years unless otherwise agreed to by all parties to the agreement.

Access Authorization

Prior to commencing work under this grant, individuals working on the grant must coordinate with the Conservancy to ensure proper access authorization is established. This will involve coordination with the Conservancy and the East Bay Regional Park District and their staff.

Budget

In general, the Conservancy is unlikely to fund proposals that request over \$10,000 (not including matching funds). The Conservancy may make exceptions on a case-by-case basis. There is a budget of up to \$15,000 for this round of awards. The Conservancy may choose not to award all of the allocated funds or expand the funds if budget allows. Note that overhead cost may not exceed 5% of the requested funds.

Matching Funds

The Conservancy has limited funds. It is anticipated that funding provided by the Conservancy will be matched or supplemented by other entities to increase the level of research and to achieve results that integrate broader issues in the research community. Projects providing 25% or more of the project cost as matching or supplemental funds may be awarded more points than those that provide less than 25% matching funds. Matching fund sources may include contributions derived from other available funding sources, program fees, and/or the value of third-party in-kind services (e.g., volunteer and staff services, pro-bono professional services).

Schedule and Reporting

Each proposal must include a project schedule detailing approximate dates of task(s) completion with milestones. If selected, during implementation applicant will be required to provide an update via email to the Conservancy of project progress at least once every 6 months. An alternative schedule may be proposed to align with project milestones. A final report, including identified deliverables, with a possible presentation to the Conservancy's Public Advisory Committee, will be due at project completion.

Submittal Instruction and Review Process

Before submitting the proposal, check all calculations and ensure that all required items listed below are addressed. Inaccuracies and omissions will be grounds for rejection. All proposals will become part of the Conservancy's official public records and will be available for public review.

Proposal Submittal Requirements

Narratives should be formatted in 12 point typed font and minimum margins of 1 inch. While there is no restriction on page length, applicants should convey the purpose of the proposal as succinctly as appropriate to convey the necessary information. All proposals must:

1. Identify the organization, contact information (phone, email, mailing address), and individuals who will be implementing the proposal. Include qualifications of organization and key staff or volunteers.
2. Provide a complete project description including: necessary activities, and duration of activities. If the project is associated with a specific location, please include a map.
3. Include information on how the project advances the Plan's conservation strategy, supports the land and species management, and/or informs successful compliance with the biological goals and objectives of the HCP/NCCP.

4. Include a budget that includes the requested amount of funding and the proposed use of the funds. If the project includes distinct tasks, the budget should list each separate task for which funds are being requested.
5. Provide relevant information on any matching funds.
6. List any local, state or federal permit clearances that have been acquired and/or are needed, where applicable. If a recovery permit(s) pursuant to Section 10(a)(1)(a) of the ESA is required to complete the research, identify the individual(s) with that qualification.
7. Include a project schedule detailing approximate dates of task(s) completion with milestones and deliverables.
8. Proposals must be submitted **electronically as a PDF** to Maureen Parkes at Maureen.Parkes@dcd.cccounty.us by **November 2, 2016 at 5 p.m.**

Criteria for Decision-Making

Proposals will be evaluated on the following criteria, with points awarded up to the following maximum points per criteria:

- Organizational Capacity and Relevant Experience – 10 points
- Evidence project supports the conservation strategy and/or biological goals and objectives of the Habitat Plan – 30 points
- Project addresses a data/information gap in land and species management practices in the Preserve System – 25 points
- Budget Narrative and Financial Management/ Percentage of Project Cost Provided by Applicant's Matching Funds – 20 points
- Project readiness – Extent that the organization has completed initial planning and permitting requirements and approvals – 15 points

Schedule

The Conservancy will accept research proposals until Thursday, November 3, 2016 at 5 p.m. The Conservancy will consider applications at the November 10th Public Advisory Committee meeting and consider final decisions on the proposals at the December 9th Conservancy Governing Board meeting. Work may begin on research projects as early as January 1, 2017 if all administrative paperwork (contracts, insurance, permits, EBRPD scientific research permit, etc.) are complete. These dates are subject to change.

All meetings are open to the public. Agendas for these meetings are available on the Conservancy's website. Depending on the proposals received or the funding available, the Conservancy may choose to fund multiple proposals. The Conservancy may also choose to fund no proposals.

Attachments

A: HCP/NCCP Table 5-1. Natural Community-level and Additional Species-specific Biological Goals and Objectives and Associated Conservation Measures

B: HCP/NCCP Table 7-2. Potential Research Projects

C: Map of Conservancy Preserve System

Table 5-1. Natural Community-level and Additional Species-specific Biological Goals and Objectives and Associated Conservation Measures

Covered Species Expected to Benefit from Wetlands (and other Aquatic) Biological Goals and Objectives:		
<p>Tricolored blackbird California red-legged frog California tiger salamander Giant garter snake Western pond turtle Vernal pool fairy shrimp</p>	<p>Vernal pool tadpole shrimp Longhorn fairy shrimp Midvalley fairy shrimp Adobe navarretia Brittlescale [Grassland]</p>	<p>Notes:</p> <ul style="list-style-type: none"> Goals and objectives are organized by natural community type. Community-level goals and objectives that support multiple covered species are presented first within each section. Species-specific goals and objectives are developed and presented only when the community-level goals do not adequately address the species' needs. Habitat shown in brackets is the habitat with which the species is primarily associated; any specific Biological Goals and Objectives pertaining to this species are addressed in their primary habitat.
Wetlands (and other Aquatic) Biological Goals and Objectives	Conservation Measures	
<p>Goal 1: Preserve wetlands and ponds in the inventory area</p> <p>Objective 1.1. Acquire perennial wetlands at a ratio of 1:1 of wetted acres (estimated to be 75 wetted acres with the maximum urban development area) and protect as part of the Preserve System</p> <p>Objective 1.2. Acquire seasonal wetlands at a ratio of 3:1 of wetted acres (estimated to be 177 acres of seasonal wetland complex with the maximum urban development area) and protect as part of the Preserve System</p> <p>Objective 1.3. Acquire alkali wetlands at a ratio of 3:1 of wetted acres (estimated to be 96 acres of alkali wetland complex with the maximum urban development area) and protect as part of the Preserve System in Zones 2, 5, and 6</p> <p>Objective 1.4. Acquire ponds at a ratio of 2:1 of wetted acres (estimated to be 16 wetted acres with the maximum urban development area) and protect as part of the Preserve System</p> <p>Objective 1.5. Acquire at least seven of the 13 ponds in Subzone 2c to provide suitable breeding habitat for tricolored blackbird, California tiger salamander, California red-legged frog, and/or western pond turtle</p> <p>Objective 1.6. Acquire slough/channel at a ratio of 0.5:1 of wetted acres (estimated to be 36 wetted acres with the maximum urban development area) and protect as part of the Preserve System</p> <p>Objective 1.7. Acquire aquatic (open water) at a ratio of 1:1 of wetted acres (estimated to be 17 wetted acres with the maximum urban development area) and protect as part of the Preserve System</p> <p>Objective 1.8. Preserve and maintain contiguous wetland-upland complexes</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p> <p>Conservation Measure 1.3. Prepare and Implement Agricultural Management Plans for Cultivated Agricultural Lands</p>	

Wetlands (and other Aquatic) Biological Goals and Objectives	Conservation Measures
<p>Goal 2: Maintain and enhance hydrogeomorphic and ecological function of wetlands and ponds to promote covered species, native biological diversity, and habitat heterogeneity</p> <p>Objective 2.1. Maintain or increase native emergent vegetation where appropriate</p> <p>Objective 2.2. Reduce sediment deposition and transport where appropriate</p> <p>Objective 2.3. Maintain or increase wetland and pond capacity and water duration as appropriate.</p> <p>Objective 2.4. Maintain or increase flows to and connectivity among wetlands and wetland complexes as appropriate</p> <p>Objective 2.5. Eliminate or reduce non-native animals</p> <p>Objective 2.6. Eliminate or reduce exotic plants</p> <p>Objective 2.7. Maintain or enhance upland habitat in close proximity to wetlands and ponds to support the life-history requirements of wetland-dependent covered species</p>	<p>Conservation Measure 1.2. Prepare and Implement an Exotic Plant Control Program for the Preserve System</p> <p>Conservation Measure 1.3. Prepare and Implement Management Plans for Cultivated Agricultural Lands</p> <p>Conservation Measure 2.2. Manage Wetlands and Ponds</p>
<p>Goal 3: Restore wetlands and create ponds in Preserve System to compensate for permanent loss of these habitats</p> <p>Objective 3.1. Restore perennial wetlands in-kind at a ratio of 1:1 of wetted acres (estimated to be 75 wetted acres with the maximum urban development area)</p> <p>Objective 3.2. Restore alkali wetlands in-kind at a ratio of 2:1 of wetted acres (estimated to be 64 acres of alkali wetland complex with the maximum urban development area)</p> <p>Objective 3.3. Restore seasonal wetlands in-kind at a ratio of 2:1 of wetted acres (estimated to be 118 acres of seasonal wetland complex with the maximum urban development area)</p> <p>Objective 3.4. Create ponds in-kind at a ratio of 1:1 (estimated to be 8 acres with the maximum urban development area) to support California tiger salamander, California red-legged, and/or western pond turtle</p> <p>Objective 3.5. Compensate for loss of slough/channel by either restoring slough/channel at a ratio of 1:1 where feasible or restoring riparian woodland/scrub in Zone 6 at a ratio of 0.5:1</p> <p>Objective 3.6. Compensate for loss of aquatic (open water) by creating ponds at a ratio of 0.5:1 (estimated to be 9 acres of ponds with the maximum urban development area) to support California tiger salamander, California red-legged, and/or western pond turtle</p> <p>Objective 3.7. Compensate for loss of aquatic (open water) by creating ponds at a ratio of 0.5:1 (estimated to be 9 acres of ponds with the maximum urban development area) to support California tiger salamander, California red-legged, and/or western pond turtle</p>	<p>Conservation Measure 2.3. Restore Wetlands and Create Ponds</p>

Wetlands (and other Aquatic) Biological Goals and Objectives	Conservation Measures
<p>Goal 4: Restore wetlands and create ponds in the Preserve System to contribute to recovery of covered species</p> <p>Objective 4.1. Restore 10 wetted acres of perennial wetlands</p> <p>Objective 4.2. Restore 5 wetted acres of alkali wetlands</p> <p>Objective 4.3. Restore 20 wetted acres of seasonal wetlands</p> <p>Objective 4.4. Create 8 acres of ponds to support California tiger salamander, California red-legged, and/or western pond turtle</p>	<p>Conservation Measure 2.3. Restore Wetlands and Create Ponds</p>
<p>Goal 5: Enhance habitat for tricolored blackbird in the Preserve System</p> <p>Objective 5.1. Restore perennial wetlands so that at least 25% will provide breeding habitat</p> <p>Objective 5.2. Restore perennial wetlands to provide breeding habitat at least 1 mile from black-crowned night heron colonies and within flight distance of blackbird foraging habitat</p>	<p>Conservation Measure 2.2. Manage Wetlands and Ponds</p> <p>Conservation Measure 2.3. Restore Wetlands and Create Ponds</p> <p>Conservation Measure 3.2. Minimize Predation on Tricolored Blackbird Colonies</p>
<p>Goal 6: Compensate for temporary and permanent loss of giant garter snake habitat</p> <p>Objective 6.1. Replace suitable upland and aquatic habitat at a ratio of 1:1 to 3:1 according to USFWS guidelines</p> <p>Objective 6.2. Emphasize the restoration of suitable habitat for giant garter snake on Dutch Slough</p>	<p>Conservation Measure 3.6. Compensate for Loss of Giant Garter Snake Habitat</p>
<p>Goal 7: Maintain or increase the population and distribution of western pond turtle</p> <p>Objective 7.1. Increase number and distribution of basking sites and underwater refugia in ponds</p>	<p>Conservation Measure 3.7. Enhance Habitat for Western Pond Turtle</p>
<p>Goal 8: Compensate for loss of occupied covered shrimp habitat</p> <p>Objective 8.1. Preserve occupied habitat within the Preserve System at a ratio of 3:1 or dedicate an equivalent number of mitigation bank credits</p> <p>Objective 8.2. Restore suitable habitat within the Preserve System at a ratio of 2:1 or dedicate an equivalent number of mitigation bank credits</p>	<p>Conservation Measure 3.8. Compensate for Loss of Occupied Covered Shrimp Habitat</p>
<p>Goal 9: Protect populations of adobe navarretia within wetlands</p> <p>Objective 9.1. Identify, protect, and maintain populations of adobe navarretia in the inventory area</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>

Covered Species Expected to Benefit from Grassland Biological Goals and Objectives

San Joaquin kit fox	Recurved larkspur
Townsend’s big-eared bat	Round-leaved filaree
Western burrowing owl	Showy madia [Oak woodland]
Golden eagle	Swainson’s hawk [Streams and Riparian woodland/scrub]
Silvery legless lizard	Tricolored blackbird [Wetlands]
Big tarplant	Alameda whipsnake [Chaparral/scrub]
San Joaquin spearscale	Western pond turtle [Wetlands]
Brittlescale	California tiger salamander [Wetlands]
	California red-legged frog [Wetlands]

Grassland Biological Goals and Objectives

Conservation Measures

Goal 10: Preserve sufficient habitat in the inventory area to maintain viable populations of grassland-dependent covered species

- Objective 10.1.** Preserve 13,000 acres of annual grassland and 900 acres of alkali grassland
- Objective 10.2.** Protect native grassland alliances within the Preserve System

Conservation Measure 1.1. Acquire Lands for Preserve System

Goal 11: Enhance grassland to promote native biological diversity and habitat heterogeneity

- Objective 11.1.** Increase the relative cover of native grasses and forbs in native grassland vegetation alliances and other grassland types
- Objective 11.2.** Increase structural diversity by creating and maintaining a mosaic of grassland types and conditions
- Objective 11.3.** Reduce the biomass, cover, and extent of exotic plants (i.e., non-native invasive plants) in the Preserve System

Conservation Measure 1.4. Prepare and Implement an Exotic Plant Control Program for the Preserve System

Conservation Measure 2.4. Manage Grassland

Goal 12: Increase availability of burrows within grassland for San Joaquin kit fox, California tiger salamander, California red-legged frog, and western burrowing owl

- Objective 12.1.** Increase the number and distribution of California ground squirrel burrows

Conservation Measure 2.5. Manage Natural Burrow Availability and Prey Base in Grasslands

Grassland Biological Goals and Objectives	Conservation Measures										
<p>Goal 17: Protect in the Preserve System at least 11 unprotected occurrences of grassland-dependent covered plants</p> <p>Objective 17.1. Protect populations of covered plants that are at least as large and as healthy* as populations lost to covered activities</p> <p>Objective 17.2. Protect at least two occurrences of brittlescale outside currently protected public lands</p> <p>Objective 17.3. Protect at least three occurrences of big tarplant outside currently protected public lands</p> <p>Objective 17.4. Protect at least two occurrences of recurved larkspur outside currently protected public lands</p> <p>Objective 17.5. Protect at least two occurrences of round-leaved filaree outside currently protected public lands</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>										
<p>Goal 18: Enhance populations of grassland-dependent covered plants</p> <p>Objective 18.1. Increase population size and distribution of grassland-dependent covered plants, where feasible and biologically desirable</p>	<p>Conservation Measure 3.9. Conduct Experimental Management to Enhance Covered Plant Populations</p>										
<p>Covered Species Expected to Benefit from Oak Woodland Biological Goals and Objectives:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Showy madia</td> <td style="width: 50%;">California tiger salamander [Wetlands]</td> </tr> <tr> <td>San Joaquin kit fox [Grassland]</td> <td>Western pond turtle [Wetlands]</td> </tr> <tr> <td>Golden eagle [Grassland]</td> <td>Mt. Diablo fairy lantern [Chaparral/scrub]</td> </tr> <tr> <td>Silvery legless lizard [Grassland]</td> <td>Diablo helianthella [Chaparral/scrub]</td> </tr> <tr> <td>California red-legged frog [Wetlands]</td> <td>Brewer's dwarf flax [Chaparral/scrub]</td> </tr> </table>		Showy madia	California tiger salamander [Wetlands]	San Joaquin kit fox [Grassland]	Western pond turtle [Wetlands]	Golden eagle [Grassland]	Mt. Diablo fairy lantern [Chaparral/scrub]	Silvery legless lizard [Grassland]	Diablo helianthella [Chaparral/scrub]	California red-legged frog [Wetlands]	Brewer's dwarf flax [Chaparral/scrub]
Showy madia	California tiger salamander [Wetlands]										
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California red-legged frog [Wetlands]	Brewer's dwarf flax [Chaparral/scrub]										
Oak Woodland Biological Goals and Objectives	Conservation Measures										
<p>Goal 19: Preserve oak woodland and oak savanna in the inventory area.</p> <p>Objective 19.1. Protect 900 acres of oak woodland and oak savanna</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>										
<p>Goal 20: Maintain the current canopy coverage of oaks and other native overstory trees within oak woodland and oak savanna land-cover types</p> <p>Objective 20.1. Ensure tree recruitment and age structure are adequate to replace lost trees and maintain canopy coverage</p> <p>Objective 20.2. Reduce competition between tree seedlings and other plants to enhance survival rates of tree seedlings and saplings</p>	<p>Conservation Measure 1.4. Prepare and Implement an Exotic Plant Control Program for the Preserve System</p> <p>Conservation Measure 2.6. Manage Oak Woodland and Oak Savanna</p>										

Oak Woodland Biological Goals and Objectives	Conservation Measures						
<p>Goal 21: Enhance oak woodland and oak savanna to promote biological diversity and habitat heterogeneity</p> <p>Objective 21.1. Increase the proportion of native species in oak woodland and oak savanna understories</p> <p>Objective 21.2. Leave in place snags, dead trees, and downed wood</p>	<p>Conservation Measure 2.6. Manage Oak Woodland and Oak Savanna</p>						
<p>Goal 22: Restore oak savanna to compensate for its loss from covered activities</p> <p>Objective 22.1. Replace oak savanna vegetation alliances (in kind) that are lost to covered activities at a ratio of 1:1</p> <p>Objective 22.2 Establish within 50 years of initiating restoration a sufficient number of blue or valley oak trees to provide a percent tree canopy cover equal to or up to 10% greater than the percent canopy cover in oak savanna stands removed by covered activities</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p> <p>Conservation Measure 2.7. Compensate for loss of Oak Savanna</p>						
<p>Goal 23: Protect populations of showy madia within oak woodland and grassland.</p> <p>Objective 23.1. Identify and maintain or increase populations of showy madia in the inventory area</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p> <p>Conservation Measure 3.9. Conduct Experimental Management to Enhance Covered Plant Populations</p>						
<p>Covered Species Expected to Benefit from Chaparral/Scrub Biological Goals and Objectives</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Alameda whipsnake</td> <td style="width: 50%;">Diablo helianthella</td> </tr> <tr> <td>Mount Diablo manzanita</td> <td>Brewer’s dwarf flax</td> </tr> <tr> <td>Mount Diablo fairy lantern</td> <td></td> </tr> </table>		Alameda whipsnake	Diablo helianthella	Mount Diablo manzanita	Brewer’s dwarf flax	Mount Diablo fairy lantern	
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Mount Diablo manzanita	Brewer’s dwarf flax						
Mount Diablo fairy lantern							
Chaparral/Scrub Biological Goals and Objectives	Conservation Measures						
<p>Goal 24: Preserve chaparral/scrub in the inventory area</p> <p>Objective 24.1. Protect 550 acres of chaparral/scrub that support a diversity of native plant alliances including chaparral, California sage scrub, and black sage scrub</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>						
<p>Goal 25: Enhance chaparral/scrub to promote native biological diversity and habitat heterogeneity</p> <p>Objective 25.1. Maintain or mimic the natural fire regime</p> <p>Objective 25.2. Maintain a mosaic of stand ages and species composition across the landscape</p> <p>Objective 25.3. Promote canopy gaps within chaparral/scrub patches</p>	<p>Conservation Measure 2.8. Manage Chaparral/Scrub</p>						

Chaparral/Scrub Biological Goals and Objectives	Conservation Measures				
<p>Goal 26: Contribute substantially to the recovery of Alameda whipsnake in the inventory area by protecting and enhancing chaparral/scrub</p> <p>Objective 26.1. Preserve an average of 70% of currently unprotected core and perimeter whipsnake habitat in Subzones 2a, 2b, 2c, 3a, and Zone 4</p> <p>Objective 26.2. Preserve whipsnake movement habitat between patches of core whipsnake habitat, including the linkage in Zone 2 and Subzone 3a between Black Diamond Mines Regional Preserve and Mount Diablo State Park</p> <p>Objective 26.3. Maintain diverse canopy-coverage stages</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p> <p>Conservation Measure 2.8. Manage Chaparral/Scrub</p>				
<p>Goal 27: Protect in the Preserve System at least eight occurrences of chaparral-dependent covered plants</p> <p>Objective 27.1. Protect populations of covered plants that are at least as large and as healthy* as populations lost to covered activities</p> <p>Objective 27.2. Protect at least two occurrences of Mt. Diablo manzanita outside currently protected public lands</p> <p>Objective 27.3. Protect at least two occurrences of Diablo helianthella outside currently protected public lands</p> <p>Objective 27.4. Protect at least three occurrences of Brewer’s dwarf flax outside currently protected public lands</p> <p>Objective 27.5. Protect at least one occurrence of Mount Diablo fairy lantern outside currently protected public lands</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>				
<p>Covered Species Expected to Benefit from Streams and Riparian Woodland/Scrub Biological Goals and Objectives</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Swainson’s hawk</td> <td style="width: 50%;">Western pond turtle [Wetlands]</td> </tr> <tr> <td>Foothill yellow-legged frog</td> <td>California red-legged frog [Wetlands]</td> </tr> </table>		Swainson’s hawk	Western pond turtle [Wetlands]	Foothill yellow-legged frog	California red-legged frog [Wetlands]
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Streams and Riparian Woodland/Scrub Biological Goals and Objectives	Conservation Measures				
<p>Goal 28: Preserve streams and riparian woodland /scrub in the inventory area</p> <p>Objective 28.1. Protect a minimum of 5 linear miles of stream to compensate for permanent loss of habitat</p> <p>Objective 28.2. Acquire riparian/scrub at a ratio of 2:1 (estimated to be 70 acres for maximum urban development area) and protect as part of the Preserve System</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>				

Streams and Riparian Woodland/Scrub Biological Goals and Objectives	Conservation Measures
<p>Goal 29: Enhance riparian woodland/scrub to promote native biological diversity and habitat heterogeneity</p> <p>Objective 29.1. Maintain or increase the cover, width, and connectivity of existing riparian vegetation consistent with current stream and habitat function</p> <p>Objective 29.2. Reduce the biomass, cover, and extent of exotic plants in the Preserve System</p>	<p>Conservation Measure 1.4. Prepare and Implement an Exotic Plant Control Program for the Preserve System</p> <p>Conservation Measure 2.9. Manage Streams and Riparian Woodland/Scrub</p> <p>Conservation Measure 2.10. Restore Streams and Riparian Woodland/Scrub to Compensate for Habitat Loss and to Increase Biodiversity</p>
<p>Goal 30: Maintain and enhance instream aquatic habitat for covered species and native fish</p> <p>Objective 30.1. Promote the natural disturbance regime (e.g., flooding, sediment deposition, and scour)</p> <p>Objective 30.2. Reduce water temperature and temperature variation</p> <p>Objective 30.3. Increase inputs of organic matter where appropriate</p> <p>Objective 30.4. Reduce sediment input and downstream sediment transport and deposition, where appropriate</p> <p>Objective 30.5. Maintain and enhance instream structural diversity, where appropriate</p> <p>Objective 30.6. Improve stream flow and connectivity for native aquatic wildlife</p> <p>Objective 30.7. Control or reduce non-native animals including bullfrogs and fish</p>	<p>Conservation Measure 2.9. Manage Streams and Riparian Woodland/Scrub</p> <p>Conservation Measure 2.10. Restore Streams and Riparian Woodland/Scrub to Compensate for Habitat Loss and to Increase Biodiversity</p>
<p>Goal 31: Restore streams and riparian woodland/scrub</p> <p>Objective 31.1. Restore at least 20 acres of riparian woodland/scrub in addition to that required above as compensation for habitat loss</p> <p>Objective 31.2. Replace riparian woodland/scrub at a ratio of 1:1 in the Preserve System to compensate for its loss from covered activities (estimated to be 30 acres with maximum urban development area)</p> <p>Objective 31.3. Restore species richness and diversity, vegetative cover, wildlife habitat function and hydrologic function</p> <p>Goal 32: Maintain or increase population size and distribution of Swainson’s hawk in the inventory area</p> <p>Objective 32.1. Acquire land in the Preserve System that includes occupied nests and suitable nest sites</p> <p>Objective 32.2. Acquire at least 3,750 acres of modeled suitable foraging habitat for Swainson’s Hawk near Kellogg Creek, near Marsh Creek, adjacent to Dutch Slough, or in suitable grassland areas</p>	<p>Conservation Measure 2.9. Manage Streams and Riparian Woodland/Scrub</p> <p>Conservation Measure 2.10. Restore Streams and Riparian Woodland/Scrub to Compensate for Habitat Loss and to Increase Biodiversity</p> <p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>

Streams and Riparian Woodland/Scrub Biological Goals and Objectives	Conservation Measures
<p>Goal 33: Protect, maintain, or increase populations of foothill yellow-legged frog</p> <p>Objective 33.1. Acquire land in Zone 4 along the upper reaches of Marsh Creek where high-quality breeding and dispersal habitat for foothill yellow-legged frog exists</p>	<p>Conservation Measure 1.1. Acquire Lands for Preserve System</p>

* Healthy populations of plants are defined by physical condition, age structure, reproductive success, diversity and availability of suitable habitat, long-term observation of population.

Table 7-2. Potential Research Projects

Conservation Measure (Chapter 5 of the Plan)	Potential Research Projects
<p>2.2 Manage Wetlands and Ponds</p>	<ul style="list-style-type: none"> • Determine the effectiveness of small checkdams in arresting stream-channel erosion in seasonal alkali wetlands. • Use experimental-management techniques to test different creation/restoration methods (i.e., use pre- and post-treatment monitoring, replication, controls). • Conduct pilot project to determine the relative benefit to California red-legged frog, California tiger salamander, and western pond turtle of different pond treatments such as access/exclusion by livestock, vegetated/unvegetated banks, and pond depth and duration.
<p>2.4 Manage Grassland</p>	<ul style="list-style-type: none"> • Develop a pilot project to determine the feasibility of grassland enhancement on a large scale: investigate the effect of management actions on native grassland species. • Develop projects that test the effect of different grazing practices (e.g., grazing intensity, duration, season, type of livestock) on the maintenance and regeneration of native grasses and forbs. If possible, combine grazing treatments with other management techniques such as prescribed burns and hand seeding to detect interactions among management treatments.
<p>2.5 Manage Natural Burrow Availability and Prey Base in Grasslands</p>	<ul style="list-style-type: none"> • Develop a pilot project of management methods to increase prey for covered grassland species. Consider using methods already developed and applied to the Los Vaqueros Watershed to monitor ground squirrel population density as an indicator of habitat quality for San Joaquin kit fox.
<p>2.6 Manage Oak Woodland and Oak Savanna</p>	<ul style="list-style-type: none"> • Test alternative methods of oak plantings, irrigation, and herbivory protection to maximize sapling survival.
<p>2.10 Restore Streams and Riparian Woodland/Scrub to Compensate for Habitat Loss and Increase Biodiversity</p>	<ul style="list-style-type: none"> • Initiate a pilot project to develop restoration measures for individual sites or stream reaches based on specific geomorphic, hydraulic, and hydrologic conditions; extent and quality of existing habitats (e.g., percent native vegetation and presence/absence of exotic wildlife such as bullfrogs or cowbirds); existing wildlife use; and the potential for adverse effects (e.g., disturbance and/or removal of existing wetland habitat).

Conservation Measure (Chapter 5 of the Plan)	Potential Research Projects
3.1 Protect and Enhance Roosting Habitat for Townsend's Western Big-eared Bat	<ul style="list-style-type: none"> • Develop a pilot project to evaluate the suitability of artificial hibernacula for use by Townsend's big-eared bat.
3.4 Temporarily Create Artificial Burrows in Grasslands to Attract and Retain Burrowing Owls	<ul style="list-style-type: none"> • Determine the most effective artificial-burrow designs and placement strategies for attracting burrowing owls and ensuring reproductive success of owls that use artificial burrows.
3.5 Install Temporary Artificial Perches to Attract and Retain Burrowing Owl	<ul style="list-style-type: none"> • Determine the effectiveness of artificial perch sites in attracting use by burrowing owls and the most effective perch designs and placement strategies (e.g., height above ground level, location relative to available burrows).
3.10 Plant Salvage when Impacts are Unavoidable	<ul style="list-style-type: none"> • Use pilot projects to develop methods for salvaging and propagating covered-plant species from impact sites and for reestablishing salvaged plants at new locations to establish new populations.

East Contra Costa County Habitat Conservancy Preserve System Lands as of 07/31/2016

