

**CALFED CONSERVATION STRATEGY**  
**SPECIES REVIEW WORKSHOP**  
*February 10, 1999*

# **CALFED CONSERVATION STRATEGY WORKSHOP**

## **GOALS, PRESCRIPTION, AND CONSERVATION MEASURES FOR SPECIES ASSOCIATED WITH WETLAND AND AGRICULTURAL HABITATS**

### **WORKSHOP PACKET**

### The CALFED Conservation Strategy Workshop Package

- **Section I** presents guidelines for use in review and development of species goals, species prescriptions to achieve species goals, and conservation measures to achieve species prescriptions.
- **Section II** presents the definitions of the three types of Conservation Strategy species goals (i.e., "R", "r", and "m").
- **Section III** presents the wetland and agricultural species with proposed "R" or "r" goals and the habitat types with which they are associated.
- **Section IV** presents the wetland and agricultural species with proposed "m" goals and the habitat types with which they are associated.
- **Section V** presents descriptions of habitat types addressed in the Conservation Strategy.
- **Section VI** presents species targets (i.e., prescriptions) that are proposed in the Ecosystem Restoration Program (ERP).
- **Section VII** presents a summary of existing habitat acreages by CALFED Region and ERP ecological management unit and a summary of ERP proposed habitat restoration and enhancement actions.
- **Section VIII** presents a summary of CALFED program targets and the CALFED regions where they would be implemented.
- **Section IX** presents maps of CALFED regions and the Ecosystem Restoration Program (ERP) focus study area, including ecological management zones.
- **Section X** describes locations of potential new surface storage and groundwater storage sites that may be could be proposed by CALFED.
- **Section XI** presents forms for providing recommended changes to species goals currently proposed in the Conservation Strategy and a checklist for reporting species goals that have been reviewed.
- **Section XII** presents forms for recommending species prescriptions for achieving

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species goals and a checklist for reporting species you have developed prescriptions for and for which you considered and determined additional prescriptions are not needed.

- **Section XIII** presents forms for recommending additional conservation measures for achieving species prescriptions and compensating for potential CALFED impacts, and a checklist for reporting species for which you have reviewed or developed conservation measures.
- **Section XVI** presents all Conservation Strategy species with proposed “R” or “r” goals and the habitat types with which they are associated.
- **Section XV** presents all Conservation Strategy species with proposed “m” goals and the habitat types with which they are associated.
- **Section XVI** presents all species that are included in the Conservation Strategy.
- **Section XVII** presents species that were considered, but not included in the Conservation Strategy.

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**SECTION I:**

**GUIDELINES FOR REVIEW AND  
DEVELOPMENT OF SPECIES GOALS,  
PRESCRIPTIONS, AND CONSERVATION  
MEASURES**

## GUIDELINES FOR PREPARATION OF CONSERVATION STRATEGY SPECIES GOALS, PRESCRIPTIONS, AND CONSERVATION MEASURES

This workshop packet presents information for use in reviewing proposed Conservation Strategy species goals, developing species prescriptions to achieve species goals, reviewing species conservation measures currently proposed in the Conservation Strategy, and for recommending additional conservation measures that may be required to achieve species prescriptions. This information is intended for use in today's workshop and for your use in developing and submitting recommendations after the workshop.

If you have questions about conducting your review after the workshop, please call:

Pete Rawlings or Paul Cylinder (Jones & Stokes Associates): 916/737-3000

Mike Fris (U.S. Fish and Wildlife Service): 916/979-2710

Jeff Single (Department of Fish and Game): 559/243-4014

Marti Kie (CALFED): 916/654-4558

### Submittal of Review Forms

- We must have all of your recommendation forms, checklist, and other comments you may have to the Conservation Strategy returned by **February 10, 1999** to ensure that your recommendations will be considered in the Conservation Strategy (see "**Species Goals, Prescription, and Conservation Measures Recommendations**" below).
- Please return your hardcopy recommendation forms and your species checklist by mail or fax to:

Pete Rawlings  
Jones & Stokes Associates  
2600 "V" St.  
Sacramento, CA 95818-1914

fax: 916/737-3030

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- If you wish to submit recommendation forms and a list of the species for which you reviewed goals electronically, please e-mail to:

peter@jsanet.com

### **General**

- The legal status and scientific names of all species proposed to be included in the Conservation Strategy is presented in Section XVI.
- You are being requested to review and/or develop species goals, prescriptions, and conservation measures only for Conservation Strategy species that are associated with wetland and agricultural habitats. These species and proposed Conservation Strategy goals are presented in Sections III and IV. A complete list of Conservation Strategy species and proposed species goals are presented in Sections XIV and XV if you wish to review and provide recommends for goals proposed for Conservation Strategy species that are associated with habitat types that will be addressed in other workshops.
- Although you are being requested only to review and/or develop recommendations for species goals, prescriptions, and conservation measures, we encourage you to also to provide corrections to any information we are providing that you feel may be incorrect or incomplete.
- As background to the Conservation Strategy, species that were considered, but not included in the Conservation Strategy are shown in Section XVII.

### **Species Goals**

The following section presents information for use in reviewing proposed Conservation Strategy species goals.

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## Criteria for Establishing Species Goals

Species for which “R” goals are established generally meet the following criteria:

- management of the species can be addressed within CALFED’s mission;
- the year-long or seasonal range of a species is entirely or nearly entirely within the legal Delta and/or Suisun Marsh and Bay (i.e., the Delta Basin and Suisun Marsh and San Francisco Bay ERP ecological management zones [see Section VI]);
- CALFED could be reasonably expected to undertake all or almost all of the actions necessary to recover the species (e.g., a sufficient proportion of a species range is located within the CALFED solution area to allow recovery of the species); and
- the species are listed, proposed, or candidates for listing under the California and/or federal Endangered Species Acts, or the species is in sufficient decline that special attention to its restoration needs is appropriate.

Species for which “r” goals are established generally meet the following criteria:

- management of the species can be addressed within CALFED’s mission;
- CALFED actions would affect only a limited portion of the species range and/or CALFED actions would only have limited effects on the species;
- CALFED could be reasonably expected to undertake actions to contribute to the recovery of the species, but not be expected to implement all actions that may be needed to fully recover the species; and
- the species are listed, proposed, or candidates for listing under the California and/or federal Endangered Species Acts, or the species is in sufficient decline that special attention to its restoration needs is appropriate.

Species for which “m” goals are established generally meet the following criteria:

- management of the species is not addressed within CALFED’s mission (species is primarily found outside the Delta or Suisun Marsh) and

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- CALFED could not reasonably be expected to undertake recovery actions, but mitigation and other conservation actions may be necessary to ensure the species is not adversely affected by CALFED program actions

### **Species Goals Review Background**

- Review Section II to familiarize yourself with the definitions and intent of species goals.
- You will be reviewing goals proposed only for Conservation Strategy species that are associated with wetland and agricultural habitats. These species and proposed goals are presented in Sections III and IV.
- A key determinant in establishing a species goal is the area of overlap between a species range and where CALFED actions will be implemented. Generally, with the exception of some proposed new surface storage facilities, most CALFED actions that would affect species will occur within the ERP focus study area (Section IX). Most actions proposed for the Sacramento River and San Joaquin River Regions (Section IX) will be implemented within the floodplains of the Sacramento River, the San Joaquin River and their major tributaries.

### **Species Prescriptions**

The following section presents information for use in developing species prescriptions for achieving species goals.

#### **Definition**

The Conservation Strategy uses the term "prescription" to mean a defined and measurable species target that, if met, would achieve a species goal. Species prescriptions, for example, could be stated that a minimum number of populations of a species or a minimum amount of a species habitat(s) must be maintained to meet the species goal.

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## Background

- You will be developing prescriptions only for Conservation Strategy species with "R" or "r" goals that are associated with wetland and agricultural habitats. These species and proposed Conservation Strategy goals are presented in Section III. Species with an "m" goal (Section VI) are provided for reference in the event, through the Conservation Strategy review process, some species goals are elevated from "m" to "R" or "r".
- Population targets that have been proposed in the ERP for Conservation Strategy species are presented in Section VI. ERP targets are provided as background information. You may recommend alternate prescriptions for these species if you feel the proposed ERP targets are not sufficient to achieve species goals.
- A summary of existing habitat acreages and ERP habitat restoration and enhancement targets (Section VII) is provided to assist you in determining the possible need for additional habitat area to achieve a species goal. Ecological management zones referred to in the acreage tables are shown in Section IX.

## Formulation of Species Prescriptions

The following are examples of how species prescriptions may be formulated. Prescription statements should describe a measurable species target and, where appropriate, the applicable geographic area.

### Example 1

Increase the area of species "X" foraging habitat by 50% and nesting habitat by 20% throughout species "X" range in the CALFED solution area, and increase the area of rearing habitat by 10% throughout species "X" range in the CALFED solution area, with at least 50% of the increase in the Sacramento River Ecological Management Zone.

### Example 2

Establish and maintain 5 additional self-sustaining populations of species "X" in the Delta Region.

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### Example 3

Increase the existing numbers of species "X" by 30% and sustain the increase for 5 consecutive years.

### Example 4

Acquire and protect through purchase or conservation easement 75% of remaining habitat areas occupied by species "X" in the San Joaquin River Region.

## Species Conservation Measures

### Background

- You will be reviewing and developing conservation measures for all Conservation Strategy species associated with wetland and agricultural habitats (Sections III and IV).
- Please review summaries of intended targets for each CALFED program (Section VIII). These summary targets (primarily the ERP habitat targets) should be reviewed and used as the platform from which conservation measures related to restoring/enhancing habitat are formulated (e.g., if ERP habitat targets would achieve species prescriptions, then there **would not** be a need to formulate conservation measures for restoring additional habitat).
- A summary of existing habitat acreages and ERP habitat restoration and enhancement targets (Section VII) is provided to assist you in determining the possible need for additional habitat area to achieve a species prescription beyond that proposed in the ERP. Ecological management zones referred to in the acreage tables are shown in Section IX.
- Please review maps showing potential new surface and groundwater storage sites (Section X). This information may assist you in determining the need for conservation measures for species with limited distribution (e.g., if a plant species is within or near the footprint of a proposed facility, your conservation measures would likely be different than if the plant did not occur near a facility).

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## Formulation of Conservation Measures

The following are examples of how species conservation measures may be formulated. Conservation measures are actions designed to compensate for potential program impacts, to achieve species prescriptions, and to identify research or monitoring needs related to determining if recommended conservation measures are effective.

1. Ensure that 20% of saline emergent wetland habitat to be restored under the ERP is dominated by cordgrass to provide sufficient habitat area for the clapper rail.
2. Capture *species "X"* from occupied habitat areas near suitable restored habitat areas and relocate them to restored habitat areas to establish additional populations necessary to recover the species.
3. Purchase land or acquire easements sufficient to protect (*number of or locations of*) *populations of species "X"*.
4. Increase the available forage on agricultural lands in *ecological management zone "X"* to ensure sufficient forage is available to allow breeding populations of *species "X"* in *ecological management zone "X"* to naturally expand.

Other measures similar to item 5, as appropriate, that remove stressors thought to be limiting the natural expansion of populations.

5. Conduct surveys to better determine the present range, distribution, and status of *species "X"* if additional conservation measures may be necessary to achieve recovery.
6. Research the feasibility of successfully relocating populations of *plant species "X"* from the potential (*name*) reservoir site and reestablishing populations elsewhere in or near the site.

### Species Goals, Prescription, and Conservation Measures Recommendations

- We request that recommendations for species goals, prescriptions, and conservation measures be provided on the recommendations forms provided in Sections XI, XII, and XIII, respectively, or, if you wish, in an electronic form (WordPerfect or Word only).
- If you provide recommendations on hardcopy forms, please write legibly.
- To enable us to track development of the Conservation Strategy, please provide all of the information requested on the forms.
- Because the Conservation Strategy is a part of a legal process, please be sure to provide your rationale and any supporting documentation for your recommendations.
- Please fill out the Evaluation Species Checklists for species goals, prescriptions, and conservation measures (Sections XI, XII, and XIII, respectively) on completion of your review. The checklists are to help us ensure that all Conservation Strategy species associated with wetland and agricultural habitats are reviewed. These checklists will document the species for which you reviewed proposed goals and considered the need for prescriptions and conservation measures, but for which you made no recommendations.

**SECTION II:**  
**SPECIES GOALS DEFINITIONS**

### Definitions of "R", "r", and "m" Goals

**Recovery ("R"):** For those species designated "R," the CALFED Program has established a goal to recover the species within the CALFED ERP Ecological Zones. A goal of "Recovery" was generally assigned to those species whose range is entirely or nearly entirely within the area affected by the CALFED Program and for which CALFED could reasonably be expected to undertake all or most of the actions necessary to recover the species. The term recover generally means the decline of a species is arrested or reversed, threats to the species are neutralized, and thus, the species' long-term survival in nature is assured. In the case of most species listed under the Federal ESA, recovery is equivalent, *at a minimum*, to the requirements of delisting. For certain species, such as anadromous fish, with threats outside the geographic scope or purview of the CALFED Program, CALFED may not be capable of completely recovering the species, but will implement all necessary recovery actions within the ERP Ecological Zones. For other species, CALFED may choose a goal that aims to achieve more than would be required for delisting (e.g., restoration of a species and/or its habitat to a level beyond delisting requirements). The effort required to achieve the goal of "Recovery" may be highly variable between species. In sum, a goal of "Recovery" implies that CALFED will undertake all actions within the ERP Ecological Zones and program scope necessary to recover the species.

**Contribute to Recovery ("r"):** For those species designated "r," the CALFED Program will make specific contributions toward the recovery of the species. The goal "Contribute to Recovery" was generally assigned to those species for which CALFED Program actions affect only a limited portion of the species range and/or CALFED Program actions have limited effects on the species. In the case of a species with a recovery plan, this may mean implementing some of the measures identified in the plan. For species without a recovery plan, this would mean implementing specific measures that would benefit the species. In sum, a goal of contributing to a species' recovery implies that CALFED will undertake *some* of the actions within its geographic and program scope necessary to recover the species.

**Maintain ("m"):** For those species designated "m," the CALFED Program will undertake actions to maintain the species (this category is less rigorous than Contribute to Recovery). The goal "Maintain" was generally assigned to species expected to be minimally affected by CALFED actions. For this category, CALFED will ensure that any adverse effects to the species are addressed commensurate with the level of effect on the species; thus, actions may not actually contribute to the recovery of the species, but would be expected, *at a minimum*, to not contribute to the need to list an unlisted species or degrade the status of an already listed species. CALFED will also maximize beneficial effects on these species to the extent practicable.

**Table 1. CALFED Conservation Measures for Species with Different Goals in Different Locations**

CALFED Scope	Species Goal		
	"R"	"r"	"m"
Problem Area (Delta and Suisun Marsh)	Implement all recovery plan measures.	Implement all recovery plan measures.	Avoid, minimize, compensate, and conserve as appropriate and commensurate with Program effects.
Solution Area (14 Ecological Management Zones)	Implement all recovery plan measures.	Implement some recovery plan measures.	Avoid, minimize, compensate, and conserve as appropriate and commensurate with Program effects.

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**SECTION III:**

**SPECIES ASSOCIATED WITH WETLAND AND  
AGRICULTURAL HABITATS WITH  
PROPOSED "R" AND "r" GOALS**

Evaluation Species Associated with Wetland and Agricultural NCCP Habitats  
with Proposed "R" and "r" Species Goals

Evaluation Species	Proposed Species Goal		NCCP Habitat Type <sup>1</sup>																		
	"R"	"r"	Wetland and Agricultural Habitats							Aquatic Habitats				Upland and Riparian Habitats							
			SE	TF E	NF PE	NS W	MS W	UC	SF A	TP A	VR A	M RA	L	VF R	MR	G	ID S	US	VF W	MW F	
Salt marsh harvest mouse		X	X																		
San Pablo California vole		X	X					X													
Suisun ornate shrew	X		X																		
California clapper rail		X	X																		
Greater sandhill crane		X			X	X	X	X	X									X			
California black rail		X	X	X	X																
Swainson's hawk		X				X	X	X	X								X		X	X	
Alameda song sparrow		X	X																		
Saltmarsh common yellowthroat		X	X																		
San Pablo song sparrow		X	X																		
Suisun song sparrow	X		X	X																	
Western least bittern		X			X																
Giant garter snake		X		X	X	X	X		X												
Central Valley steelhead Evolutionarily Significant Unit (ESU)	X		X	X							X	X	X								
Delta smelt	X		X	X							X										
Winter-run chinook salmon	X		X	X							X	X	X								
Sacramento splittail	X		X	X							X	X									
Central Valley fall-run chinook salmon	X		X	X							X	X	X								
Central Valley spring-run chinook salmon	X		X	X							X	X	X								
Sacramento perch		X	X	X	X						X	X		X							
Longfin smelt	X		X	X							X										
Green sturgeon	X			X							X	X									
Delta green ground beetle		X				X															
Crampton's tuctoria		X				X															
Soft bird's-beak	X		X																		
Suisun thistle	X		X																		

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Evaluation Species	Proposed Species Goal		NCCP Habitat Type <sup>1</sup>																	
			Wetland and Agricultural Habitats							Aquatic Habitats				Upland and Riparian Habitats						
	"R"	"r"	SE	TF E	NF PE	NS W	MS W	UC	SF A	TP A	VR A	M RA	L	VF R	MR	G	ID S	US	VF W	MW F
Mason's lilaeopsis	X		X	X																
Alkali milkvetch		X				X														
Bristly sedge		X			X															
Delta mudwort		X	X	X																
Delta tule pea		X	X	X																
Suisun Marsh aster	X		X	X																

<sup>1</sup>TPA = Tidal perennial aquatic  
VRA = Valley riverine aquatic  
MRA = Montane riverine aquatic  
L = Lacustrine  
SE = Saline emergent

TFE = Tidal freshwater emergent  
NFPE = Nontidal freshwater permanent emergent  
NSW = Natural seasonal wetlands  
MSW = Managed seasonal wetlands  
VFR = Valley/foothill riparian

MR = Montane riparian  
G = Grassland  
IDS = Inland dune scrub  
US = Upland scrub  
VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
UC = Upland cropland  
SFA = Seasonally flooded agriculture

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**SECTION IV:**  
**SPECIES ASSOCIATED WITH WETLAND AND**  
**AGRICULTURAL HABITATS WITH**  
**PROPOSED “m” GOALS**

Evaluation Species Associated with Wetland and Agricultural Habitats with Proposed "m" Species Goals

Evaluation Species	NCCP Habitat Types <sup>1</sup>																	
	Wetland and Agricultural Habitats						Aquatic Habitats					Riparian and Upland Habitats						
	SE	TFE	NFPE	NSW	MSW	UC	SFA	TPA	VR	MRA	L	VFR	MR	G	IDS	US	VFW	MWF
<b>Mammals</b>																		
San Joaquin kit fox						X								X				
<b>Birds</b>																		
Western snowy plover					X			X										
American peregrine falcon	X	X	X	X	X			X			X							
Bald eagle					X			X	X	X	X	X	X					X
Aleutian Canada goose	X	X	X		X	X	X	X			X							
White-tailed kite	X	X	X	X	X	X	X					X		X				
Mountain plover						X								X				
Grasshopper sparrow						X								X				
Tricolored blackbird			X	X	X	X	X							X				
Short-eared owl	X	X	X	X	X		X							X				
Western burrowing owl						X								X		X		
California gull	X	X	X	X	X	X	X	X			X							
Black tern			X		X		X											

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 VFR = Valley/foothill riparian

MR = Montane riparian  
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 IDS = Inland dune scrub  
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 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

Evaluation Species	NCCP Habitat Types <sup>1</sup>																	
	Wetland and Agricultural Habitats							Aquatic Habitats					Riparian and Upland Habitats					
	SE	TFE	NFPE	NSW	MSW	UC	SFA	TPA	VR	MRA	L	VFR	MR	G	IDS	US	VFW	MWF
Long-billed curlew	X		X	X	X	X	X	X						X				
Northern harrier	X	X	X	X	X	X	X							X				
White-faced ibis		X	X		X	X	X											
Black-crowned night heron (rookery)			X									X	X					
Snowy egret (rookery)			X									X	X					
<b>Reptiles</b>																		
Western pond turtle			X						X	X	X	X						
<b>Amphibians</b>																		
California red-legged frog			X	X	X				X	X	X	X	X	X				
California tiger salamander				X							X			X				
Foothill yellow-legged frog									X	X		X	X					
Western spadefoot				X														
<b>Fish</b>																		
Central Coast steelhead Evolutionarily Significant Unit (ESU)	X	X						X	X	X								
Tidewater goby	X	X						X										
<b>Invertebrates</b>																		

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 G = Grassland  
 IDS = Inland dune scrub  
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MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types <sup>1</sup>																		
	Wetland and Agricultural Habitats							Aquatic Habitats					Riparian and Upland Habitats						
	SE	TFE	NFPE	NSW	MSW	UC	SFA	TPA	VR	MRA	L	VFR	MR	G	IDS	US	VFW	MWF	
Conservancy fairy shrimp				X															
Longhorn fairy shrimp				X															
Vernal pool fairy shrimp				X															
Vernal pool tadpole shrimp				X	X														
<b>Plants</b>																			
Butte County meadowfoam				X															
California seablite	X																		
Calistoga popcornflower			X	X									X						
Colusa grass				X															
Contra Costa goldfields				X															
Few-flowered navarretia				X															
Greene's tuctoria				X															
Hairy orcutt grass				X															
Hoover's spurge				X															
Kenwood Marsh checkerbloom			X																
Loch Lomond button-celery				X															
Many-flowered navarretia				X															

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 NSW = Natural seasonal wetlands  
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MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types <sup>1</sup>																	
	Wetland and Agricultural Habitats							Aquatic Habitats					Riparian and Upland Habitats					
	SE	TFE	NFPE	NSW	MSW	UC	SFA	TPA	VR	MRA	L	VFR	MR	G	IDS	US	VFW	MWF
Napa blue grass			X															
Palmate-bracted bird's-beak				X														
Pitkin Marsh lily			X															
Sacramento orcutt grass				X														
San Joaquin Valley orcutt grass				X														
San Joaquin woollythreads				X										X				
Sebastopol meadowfoam				X														
Showy Indian clover				X										X				
Slender orcutt grass				X	X													
Sonoma alopecurus			X									X						
Sonoma sunshine				X														
Succulent owl's-clover				X														
White sedge			X															
Boggs Lake hedge-hyssop				X														
California vervain												X					X	
Chinese Camp brodiaea				X														
North Coast semaphore grass			X	X														X

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Evaluation Species	NCCP Habitat Types <sup>1</sup>																		
	Wetland and Agricultural Habitats							Aquatic Habitats					Riparian and Upland Habitats						
	SE	TFE	NFPE	NSW	MSW	UC	SFA	TPA	VR	MRA	L	VFR	MR	G	IDS	US	VFW	MWF	
Ahart's dwarf rush				X															
Brittlescale				X									X						
California beaked-rush			X															X	
Eel-grass pondweed			X					X	X	X									
Ferris' milkvetch				X									X						
Four-angled spikerush			X																
Hispid bird's-beak			X	X															
Legenere			X	X															
Lesser saltscale				X									X						
Lost Hills crownscale				X									X						
Mad-dog skullcap			X	X														X	
Marsh checkerbloom			X									X							
Pincushion navaretia				X															
Point Reyes bird's-beak	X																		
Red Hills ragwort																		X	
Red-flowered lotus													X					X	
Rose-mallow			X																
San Joaquin spearscale				X									X						
Sanford's arrowhead			X																

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture



**SECTION V:**

**DESCRIPTION OF  
NCCP HABITAT TYPES**

### NCCP Habitat Type Descriptions

NCCP Habitat Type	Habitat Description
Tidal perennial aquatic	Tidal perennial aquatic habitat is defined as deep water (greater than 3 meters in depth from mean low low tide) aquatic, shallow (less than or equal to 3 meters in depth from mean low low tide) aquatic, and unvegetated intertidal (i.e., tideflats) zones of estuarine bays, river channels, and sloughs.
Lacustrine	Lacustrine habitat is defined as permanent bodies of water that do not support emergent vegetation and are not subject to tidal exchange, including lakes, ponds, oxbows, gravel pits, and flooded islands.
Saline emergent	Saline emergent habitat is defined to include portions of San Francisco, San Pablo, and Suisun Bays and the Delta that support emergent wetland plant species that are tolerant of saline or brackish conditions within the intertidal zone or on lands that historically were subject to tidal exchange (i.e., diked wetlands).
Tidal freshwater emergent	Tidal freshwater emergent habitat is defined to include portions of the intertidal zones of the Delta that support emergent wetland plant species that are not tolerant of saline or brackish conditions.
Nontidal freshwater permanent emergent	Nontidal freshwater permanent emergent habitat is defined to include permanent (natural and managed) wetlands, including meadows, dominated by wetland plant species that are not tolerant of saline or brackish conditions.

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Natural seasonal wetland	Natural seasonal wetland habitat is defined to include vernal pools and other non-managed seasonal wetlands with natural hydrology that are dominated by herbaceous vegetation and annually pond surface water or maintain saturated soils at the ground surface for a portion of the year of sufficient duration to support facultative or obligate wetland plant species.
Managed seasonal wetland	Managed seasonal wetland habitat is defined to include wetlands dominated by native or non-native herbaceous plants, excluding croplands farmed for profit (e.g., corn and rice), that are flooded and drained by land managers during specific periods to enhance habitat values for specific wildlife species. Ditches and drains associated with managed seasonal wetlands are included in this habitat type.
Valley riverine aquatic	Valley riverine aquatic habitat is defined to include the water column of flowing streams and rivers in low-gradient channel reaches below approximately 300 feet in elevation that are not tidally influenced, including associated shaded riverine aquatic, pool, riffle, run, and unvegetated channel substrate (including seasonally exposed channel bed) habitat features, and sloughs, backwaters, overflow channels, and flood bypasses hydrologically connected to stream and river channels.

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Montane riverine aquatic	Montane riverine aquatic habitat is defined to include the water column of flowing streams and rivers above approximately 300 feet in elevation, including associated shaded riverine aquatic, pool, riffle, run, and unvegetated channel substrate (including seasonally exposed channel bed) habitat features, and sloughs, backwaters, and overflow channels hydrologically connected to stream and river channels.
Valley/foothill riparian	Valley/foothill riparian habitat is defined to include all successional stages of woody vegetation generally dominated by willow, Fremont cottonwood, valley oak, or sycamore within the active and historical floodplains of low-gradient reaches of streams and rivers generally below 300 feet in elevation.
Montane riparian	Montane riparian habitat is defined to include all successional stages of woody vegetation such as willow, black cottonwood, white alder, birch, and dogwood within the active floodplains of moderate to high gradient reaches of streams and rivers generally above 300 feet in elevation.
Grassland	Grassland habitat is defined to include upland vegetation communities dominated by introduced and native annual and perennial grasses, including unirrigated and irrigated pasture lands.
Inland dune scrub	Inland dune scrub habitat consists of vegetated stabilized sand dunes associated with river and estuarine systems.
Upland scrub	Upland scrub habitat is defined to include habitat areas that are dominated by shrubs characteristic of coastal scrub and chaparral communities.

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Valley/foothill woodland and forest	Valley/foothill woodland and forest habitat is defined to include non-riparian forest, woodland, and savanna below 300 feet in elevation. These vegetation communities are commonly dominated by valley oak, blue oak, interior live oak, coast live oak, and/or foothill pine.
Montane woodland and forest	Montane woodland and forest habitat is defined to include non-riparian forest and woodland above 300 feet in elevation. These vegetation communities are commonly dominated by pine, fir, cedar, and/or black oak.
Upland cropland	Upland cropland habitat is defined to include agricultural lands farmed for grain, field, truck, and other crops that are not seasonally flooded.
Seasonally flooded agriculture	Seasonally flooded agriculture habitat is defined to include agricultural lands farmed for grain, field, truck, rice, and other crops that require seasonal flooding for durations of a least 1 week as a management practice (e.g., pest control and irrigation) or are purposefully flooded seasonally to enhance habitat values for specific wildlife species (e.g., duck clubs). Agricultural ditches and drains associated with maintaining seasonally flooded agriculture are included in this habitat type.

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**SECTION VI:**  
**ECOSYSTEM RESTORATION PROGRAM**  
**SPECIES TARGETS**

**Ecosystem Restoration Program Targets for Conservation Strategy Species**

Evaluation Species	Proposed Goal			Ecosystem Restoration Program Prescription
	"R"	"r"	"m"	
<b>Mammals</b>				
Salt marsh harvest mouse		X		Increase the existing population by 100%.
Suisun ornate shrew	X			Identify the remaining populations of Suisun ornate shrew and develop a conservation plan to stop the decline of this species.
San Pablo California vole		X		Determine the distribution and taxonomic status of the vole while maintaining existing salt marsh habitat know to contain populations.
San Joaquin Valley woodrat		X		Increase the population sizes along the San Joaquin River in Stanislaus, Merced, and San Joaquin Counties to the point where the woodrat will no longer be regarded as threatened.
Riparian brush rabbit		X		Increase the population of riparian brush rabbits by 200 percent over current estimates so that a census of the riparian brush rabbit population would be two times higher than the current estimate of 213 to 312 individuals.
<b>Birds</b>				

California clapper rail		X	Restore sufficient saltmarsh habitat to connect and combine separated saltmarsh habitat areas that support California clapper rail populations. This will enlarge protected areas and reduce intermarsh distances.
California black rail		X	Enhance and restore tidal marshes and adjacent perennial grassland habitats in the Delta.
Suisun song sparrow	X		Increase the population of breeding pairs of Suisun song sparrow between 70 and 100 percent compared to existing population estimates of 6,000.
Alameda song sparrow		X	Connect fragmented habitat to increase gene flow between populations. Conduct genetic studies as well as juvenile dispersal studies to determine effective management of the species.
California yellow warbler		X	Maintain breeding populations at present levels and develop restoration projects that will benefit migrating individuals.
Western least bittern		X	Develop wintering habitat for least bitterns by creating "no disturbance" refuges along the central corridor of the Central Valley and Delta for all shore and wading birds.
Least Bell's Vireo		X	Recover least Bell's vireo populations to the point where it can be removed from state and federal endangered species lists.
Swainson's hawk		X	Restore nesting density to nine nesting pairs per 100 square miles; improve foraging habitat on Delta land; and increase riparian forest and oak woodlands.
Little willow flycatcher		X	Establish enough self-sustaining populations of little willow flycatcher so that the species can be removed from the state list of endangered species.

Greater sandhill crane		X		Establish two new suitable roosting habitat areas in the Delta; enhance foraging habitat on agricultural lands; restore perennial grasslands in the East Delta Ecological Management Unit, and restore seasonally managed nontidal marshes in the East Delta Ecological Management Unit.
Western yellow-billed cuckoo		X		Improve riparian forest habitat in the Delta.
Bank swallow		X		Protect existing nesting colonies and the ecological processes that contribute to the formation and maintenance of vertical stream banks.
<b>Reptiles</b>				
Giant garter snake		X		Maintain present populations with no further declines in size by ensuring that waterways known to being used by giant garter snakes have water in them year round.
Western pond turtle			X	Determine the status and habitat requirements of pond turtles throughout the region and develop a conservation strategy in concert with habitat protection measures.
<b>Amphibians</b>				
Western spadefoot			X	Identify and protect remaining spadefoot toad populations in the Bay-Delta watershed.
California red-legged frog			X	Create viable, self-sustaining populations of red-legged frog while enhancing existing and restored aquatic habitats for other native species.

California tiger salamander			X	Increase populations of amphibians particularly tiger salamanders and spadefoot toads by increasing natural flood plains, stream meander, seasonal pools, and perennial grasslands.
<b>Fish</b>				
Delta smelt	X			Meet Delta Native Fishes Recovery Plan goals which include recovery goals tied to the fall midwater trawl survey and distribution of catch in various trawl survey zones.
Longfin smelt	X			Meet the goals of the Delta Native Fishes Recovery Plan which include recovery goals tied to the fall midwater trawl survey and the distribution of catch in various zones of the trawl survey, and catch goals in the Suisun Marsh trawl survey.
Green sturgeon	X			Meet the goals of the Delta Native Fishes Recovery Plan which includes 2,000 green sturgeon greater than 100 centimeters long as measured in the DFG mark-recapture program for estimating sturgeon abundance.
Sacramento splittail	X			Meet the goals of the Native Fishes Recovery Plan (USFWS 1996), which include recovery goals tied to the fall midwater trawl survey and the distribution of catch in various zones of the trawl survey.
Winter-run chinook salmon	X			Meet the goals of the Winter-Run Chinook Salmon Recovery Plan and the Anadromous Fish Restoration Program.
Central Valley spring-run chinook salmon (Sacramento population only)	X			Maintain the average cohort replacement rate of Sacramento spring-run chinook salmon above 1.0 while the stock is rebuilding. Then maintain a replacement rate equal to or greater than 1.0 when the stock reaches restoration goal levels set by the regulatory agencies.

Central Valley fall-run chinook salmon (Sacramento late-fall-run population only)	X			Maintain the average cohort replacement rate of Sacramento late-fall-run chinook salmon above 1.0 while the stock is rebuilding. Then maintain a replacement rate equal to or greater than 1.0 when the stock reaches restoration goal levels set by the regulatory agencies.
Central Valley fall-run chinook salmon (Sacramento population only)	X			Maintain the average cohort replacement rate of Sacramento fall-run chinook salmon above 1.0 while the stock is rebuilding. Then maintain a replacement rate equal to or greater than 1.0 when the stock reaches restoration goal levels set by the regulatory agencies.
Central Valley steelhead ESU	X			Maintain the average cohort replacement rate of steelhead trout above 1.0 while the stock is rebuilding and then maintain a replacement rate equal to or greater than 1.0 when the stock reaches restoration goal levels set by the regulatory agencies.
Sacramento perch		X		Meet the goals of the Native Fishes Recovery Plan (USFWS 1996), which include improving habitat of native fishes and restoring the population of Sacramento perch.
<b>Invertebrates</b>				
Valley elderberry longhorn beetle	X			Protect known occupied habitat and suitable habitat within the suspected historical range of the valley elderberry longhorn beetle from loss or degradation.
Delta green ground beetle		X		Expand the existing population of Delta green ground beetle and establish additional populations to remove it from the Federal threatened species list.
Lange's metalmark			X	Create multiple populations of Lange's metalmark butterfly within the Antioch Dunes region.

California freshwater shrimp			X	Maintain California freshwater shrimp population abundance and distribution consistent with the recovery plan.
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**SECTION VII:**

**EXISTING HABITAT ACREAGES AND ERP  
HABITAT RESTORATION AND ENHANCEMENT  
TARGETS**

**Habitat Area for Ecological Management Zones and Units based on the California Central Valley Wetlands and Riparian GIS (Version 1.0)**

**Aquatic and Wetland Habitats**

Region	Management Zone	Management Unit	Aquatic	Saline emergent	Seasonal wetland	Freshwater permanent emergent wetland	Area Covered by Data (%)
Delta	Delta	CENTRAL AND WEST DELTA	32,586	39	548	5,089	100
		EAST DELTA	3,457	0	642	1,140	100
		SOUTH DELTA	5,670	0	415	624	100
		NORTH DELTA	10,993	2	4,645	4,650	100
		TOTAL	52,706	41	6,250	11,503	100
Bay	Suisun Marsh/SF Bay	SUISUN BAY	41,418	34,373	12,871	3,144	70
		NAPA RIVER	12,109	4,832	453	1,075	36
		PETALUMA RIVER	1,945	4,358	159	359	83
		SAN PABLO BAY	70,973	2,105	1	6	100
		SONOMA CREEK	853	1,532	315	205	39
		TOTAL	127,298	47,200	13,799	4,789	59
		Sacramento River	Sacramento River	SACRAMENTO RIVER	13,041	0	1,998
American River	2,171			0	1,893	1,013	92
MORRISON CREEK WATERSHED	755			0	446	131	100
Butte Basin	ANTELOPE CREEK						0
	BUTTE CREEK		6	0	2	6	4
	BUTTE SINK		2,673	0	12,122	6,756	84
	DEER CREEK						0
	MILL CREEK						0
	PAYNES CREEK						0
	PINE/ROCK/BIG CHICO CREEKS						0
Colusa Basin	ELDER CREEK		513	0	18	37	11
	SOUTH COLUSA BASIN		3,478	0	14,350	3,942	81
	STONY CREEK		1,069	0	293	100	68
	THOMES CREEK		1,063	0	47	70	41
Cottonwood Creek Basin	LOWER COTTONWOOD CREEK						0
	UPPER COTTONWOOD CREEK						0
Feater River/Sutter Basin	BEAR RIVER		645	0	976	594	100
	FEATHER RIVER		7,542	0	674	2,058	100
	HONCUT CREEK		372	0	789	312	52
	SUTTER BASIN		1,426	0	2,840	1,408	100
	YUBA RIVER		1,675	0	90	218	24
North Sacramento Valley Basin	BEAR CREEK						0
	BATTLE CREEK						0
	CLEAR CREEK						0
	COW CREEK						0
	NORTH SACRAMENTO VALLEY						0
	YOLO BASIN						0
Yolo Basin	CACHE CREEK		1,785	0	1,669	640	79
	PUTAH CREEK		165	0	90	188	91
	YOLO BASIN		534	0	907	141	94
Total			38,911	0	39,206	19,525	48
San Joaquin River	San Joaquin River		SAN JOAQUIN RIVER BASIN	5,212	0	1,754	2,799
		CHOWCHILLA/FRESNO RIVERS	3,958	0	1,849	1,714	78
	East San Joaquin Basin	EAST SAN JOAQUIN BASIN					0
		MERCED RIVER	1,567	0	205	545	71
		STANISLAUS RIVER	983	0	324	492	77
		TUOLUMNE RIVER	7,796	0	451	566	80
		CONSUMNES RIVER	1,894	0	1,536	783	29
		EASTSIDE DELTA LOWLANDS FAN	3,764	0	1,382	396	77
	East Side Delta Tributaries	LOWER WEST SAN JOAQUIN BASIN	13,746	0	31,870	9,893	83
		UPPER WEST SAN JOAQUIN BASIN	785	0	100	40	9
	West San Joaquin Basin						
	Total		34,494	0	37,719	14,427	57

**Notes:**

Source: California Department of Fish and Game (1997)  
 based on 1993 Landsat Thematic Mapper imagery  
 blank cells indicate lack of data

Habitat Area for Ecological Management Zones and Units based on the California Central Valley Wetlands and Riparian GIS (Version 1.0)

Riparian and Upland Habitats

Region	Management Zone	Management Unit	Valley/ foothill riparian	Upland woodland and scrub	Grassland	Area Covered by Data (%)
Delta	Delta	CENTRAL AND WEST DELTA	1,032	246	33,658	100
		EAST DELTA	639	2,232	10,963	100
		SOUTH DELTA	870	261	40,274	100
		NORTH DELTA	1,379	1,614	42,359	100
		TOTAL	3,919	4,353	127,254	100
Bay	Suisun Marsh/SF Bay	SUISUN BAY	276	1,105	69,501	70
		NAPA RIVER	931	5,498	27,933	36
		PETALUMA RIVER	347	5,840	51,893	83
		SAN PABLO BAY	2	57	46	100
		SONOMA CREEK	359	1,390	20,863	39
		TOTAL	1,916	13,890	170,237	59
Sacramento River	Sacramento River	SACRAMENTO RIVER	15,314	362	20,406	92
		American River	3,485	25,657	113,970	92
		MORRISON CREEK WATERSHED	468	6,284	80,541	100
	Butte Basin	ANTELOPE CREEK				0
		BUTTE CREEK	16	270	5,553	4
		BUTTE SINK	5,057	13,985	105,593	84
		DEER CREEK				0
		MILL CREEK				0
		PAYNES CREEK				0
		PINE/ROCK/BIG CHICO CREEKS				0
	Colusa Basin	ELDER CREEK	278	448	8,344	11
		SOUTH COLUSA BASIN	638	1,968	127,767	81
		STONY CREEK	160	222	8,205	68
		THOMES CREEK	1,004	832	35,764	41
	Cottonwood Creek Basin	LOWER COTTONWOOD CREEK				0
		UPPER COTTONWOOD CREEK				0
	Feater River/Sutter Basin	BEAR RIVER	1,217	1,527	45,351	100
		FEATHER RIVER	6,798	332	21,102	100
		HONCUT CREEK	786	9,627	38,043	52
		SUTTER BASIN	573	8,306	31,994	100
		YUBA RIVER	404	2,541	20,911	24
	North Sacramento Valley Basin	BEAR CREEK				0
		BATTLE CREEK				0
		CLEAR CREEK				0
		COW CREEK				0
		NORTH SACRAMENTO VALLEY				0
	Yolo Basin	CACHE CREEK	406	1,081	27,365	79
PUTAH CREEK		198	1,448	13,327	91	
YOLO BASIN		535	1,051	74,427	94	
Total		37,337	75,941	778,666	48	
San Joaquin River	San Joaquin River	SAN JOAQUIN RIVER BASIN	3,758	135	40,750	87
		East San Joaquin Basin	611	1,453	223,637	78
	East Side Delta Tributaries	EAST SAN JOAQUIN BASIN				0
		MERCED RIVER	1,851	294	68,945	71
		STANISLAUS RIVER	2,235	440	27,944	77
		TUOLUMNE RIVER	2,266	1,695	95,826	80
		CONSUMNES RIVER	3,415	4,235	169,574	29
	West San Joaquin Basin	EASTSIDE DELTA LOWLANDS FAN	2,662	3,861	204,161	77
		LOWER WEST SAN JOAQUIN BASIN	594	587	156,688	83
		UPPER WEST SAN JOAQUIN BASIN	8	71	49,952	9
	Total		13,643	12,636	996,727	57

Notes:

Source: California Department of Fish and Game (1997)  
based on 1993 Landsat Thematic Mapper imagery  
blank cells indicate lack of data

**Habitat Area for Ecological Management Zones and Units based on the California Central Valley Wetlands and Riparian GIS (Version 1.0)**

**Agricultural Habitats**

Region	Management Zone	Management Unit	Flooded agriculture	Upland cropland	Orchards and vineyards	Developed and disturbed	Area Covered by Data (%)	
Delta	Delta	CENTRAL AND WEST DELTA	18,686	94,787	4,216	18,933	100	
		EAST DELTA	6,312	58,633	3,232	11,972	100	
		SOUTH DELTA	2,070	97,988	7,116	20,746	100	
		<u>NORTH DELTA</u>	<u>14,969</u>	<u>118,331</u>	<u>8,961</u>	<u>29,468</u>	<u>100</u>	
		<u>TOTAL</u>	<u>42,038</u>	<u>369,739</u>	<u>23,525</u>	<u>81,118</u>	<u>100</u>	
Bay	Suisun Marsh/SF Bay	SUISUN BAY	87	1,413	4,638	28,333	70	
		NAPA RIVER	29	2,432	22,575	18,889	36	
		PETALUMA RIVER	19	3,824	87	9,267	83	
		SAN PABLO BAY	0	0	0	232	100	
		<u>SONOMA CREEK</u>	<u>146</u>	<u>4,915</u>	<u>5,250</u>	<u>6,023</u>	<u>39</u>	
		<u>TOTAL</u>	<u>281</u>	<u>12,583</u>	<u>32,550</u>	<u>62,744</u>	<u>59</u>	
		Sacramento River	Sacramento River	SACRAMENTO RIVER	27,992	54,271	43,048	38,394
American River	63,294			18,642	857	65,538	92	
MORRISON CREEK WATERSHED	175			12,059	807	36,534	100	
Butte Basin	ANTELOPE CREEK						0	
	BUTTE CREEK		0	0	2	231	4	
	BUTTE SINK		139,411	58,263	47,397	32,948	84	
	DEER CREEK						0	
	MILL CREEK						0	
	PAYNES CREEK						0	
	PINE/ROCK/BIG CHICO CREEKS						0	
Colusa Basin	ELDER CREEK		84	6,610	3,124	4,934	11	
	SOUTH COLUSA BASIN		188,440	169,672	14,960	125,155	81	
	STONY CREEK		1,340	20,350	7,465	9,411	68	
	THOMES CREEK		280	14,550	13,866	9,166	41	
Cottonwood Creek Basin	LOWER COTTONWOOD CREEK						0	
	UPPER COTTONWOOD CREEK						0	
Feater River/Sutter Basin	BEAR RIVER		19,930	16,669	9,598	10,516	100	
	FEATHER RIVER		6,175	18,850	17,947	12,688	100	
	HONCUT CREEK		25,131	8,096	3,784	6,735	52	
	SUTTER BASIN		91,193	50,108	16,398	25,859	100	
	YUBA RIVER		972	3,126	3,390	6,125	24	
North Sacramento Valley Basin	BEAR CREEK						0	
	BATTLE CREEK						0	
	CLEAR CREEK						0	
	COW CREEK						0	
	NORTH SACRAMENTO VALLEY						0	
Yolo Basin	CACHE CREEK		26,487	56,049	3,893	43,501	79	
	PUTAH CREEK		4,953	28,119	2,928	23,366	91	
	<u>YOLO BASIN</u>		<u>8,037</u>	<u>24,482</u>	<u>2,511</u>	<u>41,293</u>	<u>94</u>	
	<u>TOTAL</u>		<u>603,895</u>	<u>559,916</u>	<u>191,974</u>	<u>492,394</u>	<u>48</u>	
San Joaquin River	San Joaquin River		SAN JOAQUIN RIVER BASIN	3,483	47,742	17,635	16,886	87
			East San Joaquin Basin	17,291	132,002	151,010	127,911	78
			EAST SAN JOAQUIN BASIN					0
	MERCED RIVER	MERCED RIVER	702	43,371	72,034	38,926	71	
		STANISLAUS RIVER	259	22,555	42,941	17,848	77	
		TUOLUMNE RIVER	1,602	76,955	84,773	65,010	80	
		CONSUMNES RIVER	559	37,662	8,976	10,046	29	
		EASTSIDE DELTA LOWLANDS FAN	6,133	116,893	94,308	51,829	77	
	West San Joaquin Basin	LOWER WEST SAN JOAQUIN BASIN	39,901	175,730	33,218	93,889	83	
		<u>UPPER WEST SAN JOAQUIN BASIN</u>	<u>21</u>	<u>4,818</u>	<u>2,609</u>	<u>10,308</u>	<u>9</u>	
		<u>TOTAL</u>	<u>66,466</u>	<u>609,988</u>	<u>489,869</u>	<u>415,767</u>	<u>57</u>	

**Notes:**

Source: California Department of Fish and Game (1997)  
 based on 1993 Landsat Thematic Mapper imagery  
 blank cells indicate lack of data

Summary of Ecosystem Restoration Program Habitat Restoration and Enhancement Targets

Habitat Type or Feature	Habitat Subtype	Region									
		Delta		Bay		Sacramento River		San Joaquin River		Total	
		Restored	Enhanced	Restored	Enhanced	Restored	Enhanced	Restored	Enhanced	Restored	Enhanced
Tidal perennial aquatic	Shallow-water	7,500 A	0	1,500 A	0	0				9,000 A	
Saline emergent		0	0	7,500-12,000 A	0	0	0	0	0	0	7,500-12,000 A
Tidal sloughs	Tidal perennial aquatic Valley/foot hill riparian Tidal freshwater emergent Saline emergent	75-160 M	0	15-30 M	0	0	0	0	0	90-190 M	0

Notes: A = acres M = Miles of channel.

\* Values are estimated.

\*\*Estimated to be 10% of seasonal wetland acres in the American River Basin Ecological Management Zone.

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**CALFED CONSERVATION STRATEGY  
SPECIES REVIEW WORKSHOP  
February 3, 1999**

Habitat	Type or Feature	Habitat Subtype	Delta		Bay	Sacramento River		San Joaquin River		Total
			Restored	Enhanced		Restored	Enhanced	Restored	Enhanced	
Channel	Islands	Valley/foot hill riparian	200 A		0	0	0	0	0	200 A
Tidal	freshwater emergent		30,000-45,000 A	0	0	0	0	0	0	30,000-45,000 A
Lacustrine	Deep water		1,600 A	0	0	0	0	0	0	1,600 A
Natural seasonal wetlands	Vernal pools		100 A*	0	0	0	0	0	0	200 A*

Notes: A = acres M = Miles of channel.

\* Values are estimated.

\*\* Estimated to be 10% of seasonal wetland acres in the American River Basin Ecological Management Zone.

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**CALFED CONSERVATION STRATEGY**  
**SPECIES REVIEW WORKSHOP**  
 February 3, 1999

Habitat Type or Feature	Habitat Subtype	Region									
		Delta		Bay		Sacramento River		San Joaquin River		Total	
		Restored	Enhanced	Restored	Enhanced	Restored	Enhanced	Restored	Enhanced	Restored	Enhanced
Riparian	Valley/foot hill Montane	43-75 M 500 A	500 A	40-60 M	0	150 M	8,000-14,000 A	50 M	2,740-3,240 A	283-335 M 500 A	11,240-17,740 A
Grassland	Perennial Annual	4,000-6,000 A	0	4,000 A	0 500-1,000 A	0	4,400 A**	0	0	8,000-10,000 A	4,900-5,400 A
Inland dune scrub		0	50-100 A	0	0	0	0	0	0	0	50-100 A
Agricultural	Seasonally flooded agriculture Upland cropland	0	40000	0	0	0	298,643 A	0	3,000-4,000 A	0	341,643-377,643 A

Notes: A = acres M = Miles of channel.

\* Values are estimated.

\*\*Estimated to be 10% of seasonal wetland acres in the American River Basin Ecological Management Zone.

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**Comparison of Existing Habitat Area and ERP Target Habitat Area for the Delta Ecological Management Zone**

Existing Habitat Area (acres)	Central and West Delta	East Delta	North Delta	South Delta	Total
Aquatic	32,586	3,457	10,993	5,670	52,706
Saline emergent	39	0	2	0	41
Seasonal wetland	548	642	4,645	415	6,250
Freshwater permanent emergent wetland	5,089	1,140	4,650	624	11,503
Valley/foothill riparian	1,032	639	1,379	870	3,919
Upland woodland and scrub	246	2,232	1,614	261	4,353
Grassland	33,658	10,963	42,359	40,274	127,254
Upland cropland	113,474	64,945	133,299	100,059	411,777
Orchards and vineyards	4,216	3,232	8,961	7,116	23,525
Developed and disturbed	18,933	11,972	29,468	20,746	81,118
<b>Total</b>	<b>209,819</b>	<b>99,223</b>	<b>237,370</b>	<b>176,034</b>	<b>722,446</b>

Target Additional Area (acres)	Central and West Delta	East Delta	North Delta	South Delta	Total
Aquatic	3,100	1,500	2,500	2,500	9,600
Saline emergent	12,401	7,097	14,567	10,935	45,000 *
Seasonal wetland	8,000	6,000	4,000	12,000	30,000
Freshwater permanent emergent wetland	10,000	3,000	3,000	4,000	20,000
Valley/foothill riparian	0	200	700	400	1,300 **, ****
Upland woodland and scrub					***
Grassland					***
Upland cropland					
Orchards and vineyards					
Developed and disturbed					
<b>Total</b>	<b>33,501</b>	<b>17,797</b>	<b>24,767</b>	<b>29,835</b>	<b>105,900 ****</b>

Area after ERP (acres)	Central and West Delta	East Delta	North Delta	South Delta	Total
Aquatic	35,686	4,957	13,493	8,170	62,306
Saline emergent	12,440	7,097	14,569	10,935	45,041
Seasonal wetland	8,548	6,642	8,645	12,415	36,250
Freshwater permanent emergent wetland	15,089	4,140	7,650	4,624	31,503
Valley/foothill riparian	1,032	839	2,079	1,270	5,219
Upland woodland and scrub	246	2,232	1,614	261	4,353
Grassland	33,658	10,963	42,359	40,274	127,254
Upland cropland	79,973	47,148	108,532	70,224	305,877
Orchards and vineyards	4,216	3,232	8,961	7,116	23,525
Developed and disturbed	18,933	11,972	29,468	20,746	81,118
<b>Total</b>	<b>209,819</b>	<b>99,223</b>	<b>237,370</b>	<b>176,034</b>	<b>722,446</b>

**Notes:**

- \* Tidal fresh emergent wetland assumed to be allocated proportional to size of Management Unit
- \*\* Based on conversion of linear target and assumed widths
- \*\*\* Perennial grassland is assumed to be restored from annual grassland
- \*\*\*\* Upper limit of acreage estimate

**SECTION VIII:**  
**SUMMARY OF**  
**CALFED PROGRAM TARGETS**

Summary of CALFED Program Targets by Region

Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
<b>Ecosystem Restoration Program</b>				
E1. Provide for more natural river flows and Bay-Delta freshwater inflow peaks in fall, winter, and spring of all but critical years.	X	X	X	X
E2. Improvement in the supply of sediment to rivers and streams necessary for providing spawning gravels and rehabilitation of related ecological processes (e.g., stream meander) and floodplain habitats (e.g., riparian habitats).			X	X
E3. Maintenance of stream temperatures necessary to maintain anadromous fishes through management of reservoir releases or structural solutions (i.e., does not include the effect of restoration of riparian vegetation on maintaining stream temperatures).			X	
E4. Provide more natural Delta hydraulic conditions (internal flow and velocity patterns) by altering channel configurations (e.g., setback levees) and physical barriers to channel flow.	X			
E5a. Restoration of up to 7,500 acres of tidal shallow-water habitat.	X			
E5b. Restoration of up to 1,500 acres of tidal shallow-water habitat.		X		
E6. Restoration and maintenance of riverine aquatic habitats.			X	X
E7. Restoration of 7,500–12,000 acres of tidal saline emergent wetland.		X		
E8. Restoration of 30,000 to 45,000 acres of tidal fresh emergent wetland.	X			

Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
E9. Maintenance of existing and restoration of up to 200 acres of channel islands and associated habitats.	X			
E10a. Restoration of 75-160 miles of tidal sloughs.	X			
E10b. Restoration of 15-30 miles of tidal sloughs.		X		
E11. Restoration of up to 17,000 acres of nontidal freshwater emergent wetland.	X			
E12. Restoration of up to 1,600 acres of nontidal deep open-water habitat adjacent to existing and restored wetlands.		X		
E13a. Enhancement of up to 4,000 acres of existing and restoration and management of up to 28,000 acres of seasonal wetlands for wildlife.	X			
E13b. Enhancement and management of up to 58,000 acres of existing seasonal wetlands for wildlife.		X		
E13c. Enhancement and management of up to 46,890 acres of existing seasonal wetlands for wildlife.			X	
E13d. Enhancement and management of existing seasonal wetlands in the Eastside Delta Tributaries Ecological Zone for wildlife.				X
E14a. Protection, enhancement, and restoration of vernal pools for the delta green ground beetle.	X			
E14b. Protection and enhancement of up to 100 acres of vernal pools and 500-1,000 acres of surrounding lands.		X		

Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
E15a. Restoration of 43–75 miles of riparian habitat along channels, restoration of riparian habitat in association with setback levees, restoration and management of 500 acres of riparian woodland, protection of 500 acres of existing riparian forest, and reduction of current invasive riparian plants by 50%.	X			
E15b. Restoration of 40–60 miles of riparian habitat along channels and reduction of populations of invasive non-native riparian plants by 50%.		X		
E15c. Protection and enhancement of 8,000–14,000 acres of riparian habitat in meander zones along the Sacramento River and its tributaries; restoration of up to 150 miles of riparian habitat along tributaries channels; protection, enhancement, and restoration of riparian habitat and shaded riverine aquatic (SRA) cover along other reaches of the Sacramento River and its tributaries; and reduction of populations of non-native invasive plants.			X	
E15d. Protection and enhancement of 2,740–3,240 acres of riparian habitat in meander zones along San Joaquin River tributaries; restoration of up to 50 miles of riparian habitat along the San Joaquin River; protection, enhancement, and restoration of riparian habitat and SRA cover along other reaches of the San Joaquin River and its tributaries; and reduction of populations of non-native invasive plants along the northern tributaries to the San Joaquin River.				X
E16a. Restoration of 4,000–6,000 acres of perennial grassland.	X			
E16b. Restoration of up to 4,000 acres of perennial grassland.		X		
E16c. Restoration of perennial grassland associated with existing or restored wetlands in the American River basin.			X	

Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
E17. Protection and enhancement of 50–100 acres of inland dune scrub.	X			
E18a. Cooperative management of 40,000–75,000 acres of agricultural lands to enhance habitat values for waterfowl and other associated species.	X			
E18b. Cooperative management of up to 298,643 acres of agricultural lands to enhance habitat values for waterfowl and other associated species.			X	
E18c. Protect and manage 3,000–4,000 acres of agricultural lands for wintering greater sandhill cranes.				X
E19. Restoration of flood refuge habitat areas for wildlife along levees and other lands adjacent to existing and restored habitat areas.	X			
E20. Reduction in the adverse effects of dredging on estuarine aquatic habitats.	X			
E21. Reduction in the probability of introduction and establishment of non-native aquatic species into the Bay-Delta.	X	X		
E22. Reduction in the adverse effects of diversions on fish.	X	X	X	X
E23. Improvement in passage of anadromous fish to and from spawning areas and reduction in levels of fish straying as a result of reducing the effects of structural impediments to fish movement.			X	X
E24. Reduction in levels of predation on juvenile anadromous fish.	X	X	X	X
E25. Reduction in the adverse effects of harvest on fish and wildlife populations.	X	X	X	X

Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
E26. Improved management of fish hatcheries to better maintain the genetic integrity of wild stocks of anadromous fishes.			X	X
E27a. Reduction in the concentrations and loadings of contaminants in the aquatic environment by 25%–50%.	X			
E27b. Reduction in the concentrations and loadings of contaminants in the aquatic environment.			X	X
E28. Reduction in the adverse effects of boat wakes on shoreline habitats and wildlife in sensitive habitat areas.	X	X		
E29. Enhancement of habitat conditions for the riparian brush rabbit in occupied habitat areas at and near Caswell State Park on the Stanislaus River.				X
E30. Enhancement of habitat conditions for the Suisun song sparrow in occupied habitat areas.		X		
<b>Levee System Integrity Program</b>				
L1. Improvement and maintenance of Delta levees.	X			
L2. Reduction in the risk to levee stability from subsidence.	X			
L3. Improvement and maintenance of Suisun Marsh levees.		X		
<b>Water Quality Program</b>				
Q1. Reduction of oxygen-depleting substances in the aquatic environment.	X		X	X

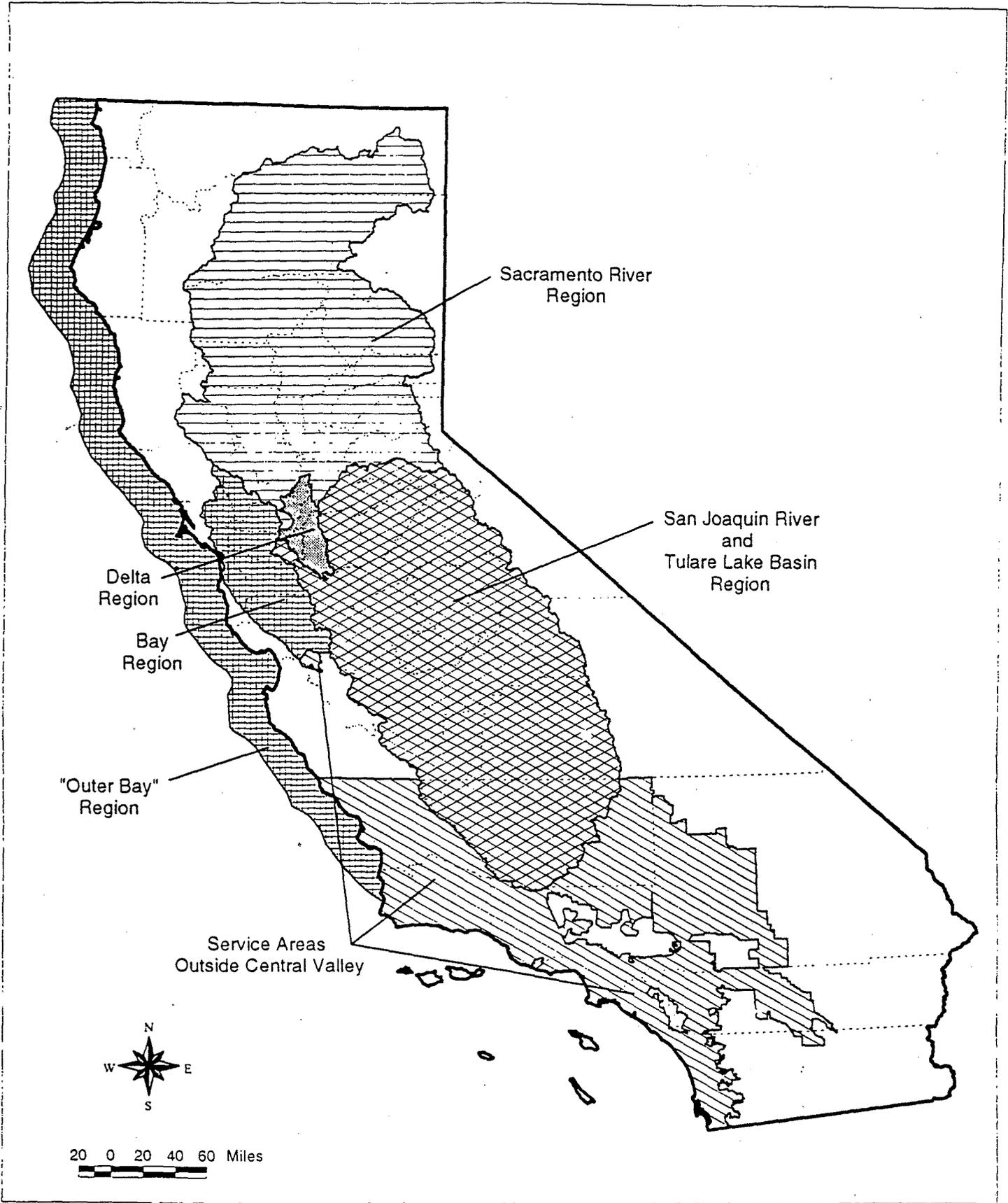
Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
Q2. Maintain pathogen loadings or below mandated levels and reduce levels of total organic carbon, bromide, and total dissolved solids to increase the availability of water for beneficial uses.	X	X	X	X
Q3. Reduction of mercury loadings in water and sediment.			X	
Q4. Reduction of pesticide loadings in the aquatic environment.	X	X	X	X
Q5. Management of salinity levels in the aquatic environment to improve water quality.				X
Q6. Reduction in selenium concentrations and loadings to the aquatic environment.				X
Q7. Reduction of cadmium, copper, and zinc loadings to levels which do not adversely effect Bay-Delta species or beneficial uses of water.	X	X	X	X
Q8. Reduction of sediment loadings to levels which do not adversely effect beneficial uses of surface water.		X		X
<b>Water Use Efficiency Program</b>				
W1. Support implementation of water management techniques that increase the effectiveness of water use management and efficiency for agricultural uses.	X	X	X	X
W2. Support implementation of measures that increase agricultural production per unit of water used, protect water quality, or increase environmental benefits while meeting agricultural needs.	X	X	X	X

Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
W3. Provide planning and technical assistance, financing assistance, and assurances for development and implementation of water management plans and best management practices to urban water agencies.	X	X	X	X
W4. Support development and implementation of water recycling projects.	X	X	X	X
<b>Water Transfer Program</b>				
T1. Implement a framework of actions, policies, and processes that will facilitate transfers and the further development of a statewide water transfer market.	X	X	X	X
<b>Watershed Management Program</b>				
M1. Fund and implement watershed restoration, maintenance, conservation, and monitoring activities.	X	X	X	X
<b>Conveyance Facilities</b>				
C1. Construct and operate modifications to existing south Delta conveyance features.	X			
C2. Construct and operate modifications to existing north Delta conveyance features.	X			
C3. Construct and operate an isolated conveyance facility from the Sacramento River along the eastern side of the Delta to Clifton Court Forebay.	X			
<b>Storage Facilities</b>				
S1. Construct and operate enlarged or new surface storage facilities.	X		X	X

Program Targets	Applicable CALFED Regions			
	Delta	Bay	Sacramento River	San Joaquin River
S2. Construct and operate new groundwater storage facilities.			X	X
<b>Conveyance and Storage Operations</b>				
01. Implement operating criteria needed to improve water management for beneficial uses.	X		X	X
02. Implement an Environmental Water Account to provide operational flexibility to achieve environmental benefits.	X		X	X

**SECTION IX:**

**CALFED REGIONS AND THE  
ECOSYSTEM RESTORATION PROGRAM FOCUS  
STUDY AREA**



CALFED Regions

# Ecological Management Zones

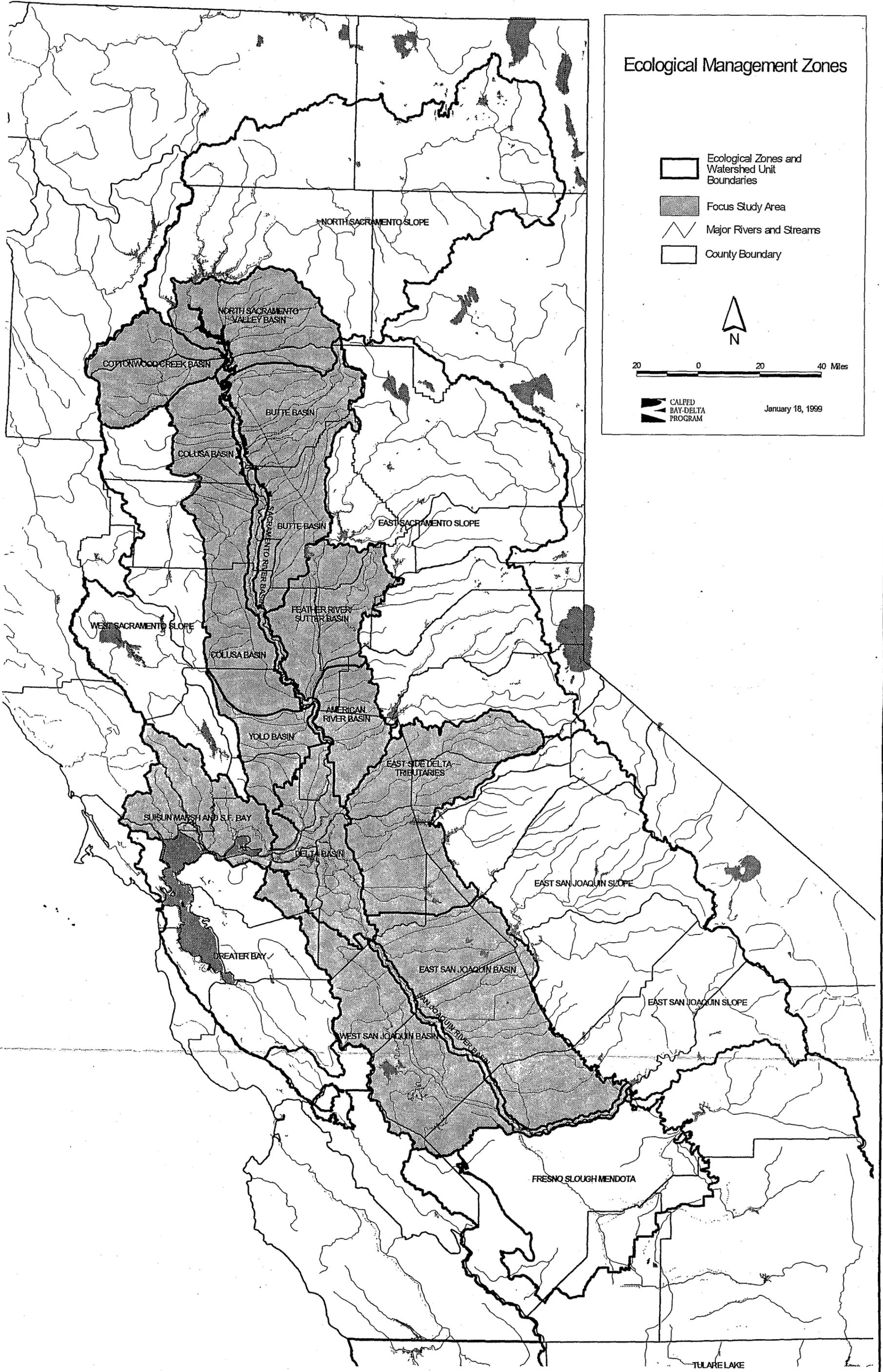
- Ecological Zones and Watershed Unit Boundaries
- Focus Study Area
- Major Rivers and Streams
- County Boundary



20 0 20 40 Miles



January 18, 1999



**SECTION X:**

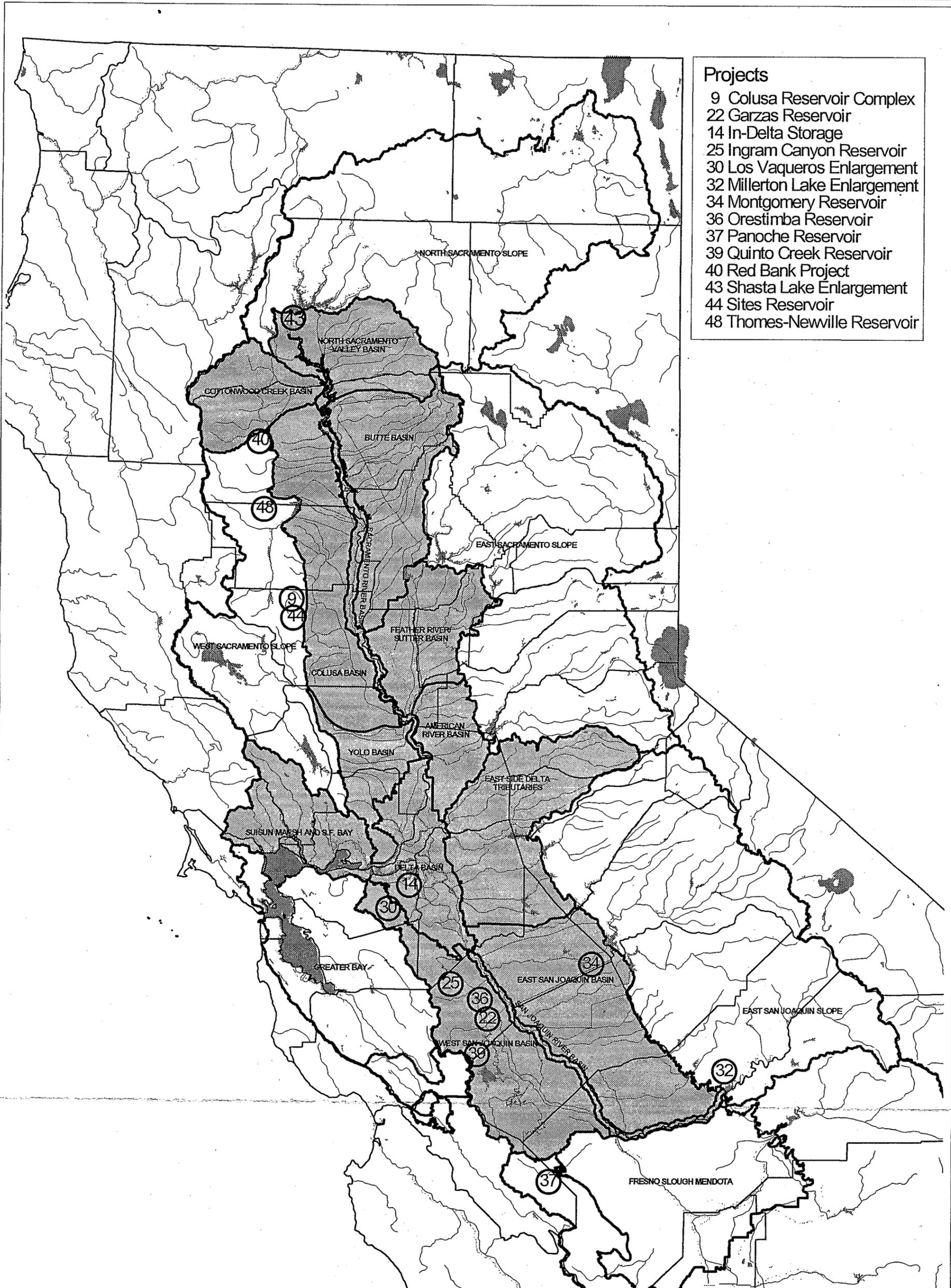
**POTENTIAL CALFED SURFACE STORAGE AND  
GROUNDWATER STORAGE SITES**

**Reservoir Sites Retained for Additional CALFED Consideration  
(Retained for Future Evaluation and Screening)**

<b>Project</b>	<b>Location</b>	<b>Type</b>	<b>Gross Storage Capacity</b>
Colusa Reservoir Complex (Site 9)	Colusa/Glenn Counties Funks Creek	Off-Stream Storage	3,300 TAF
Garzas Reservoir (Site 22)	Stanislaus County Garzas Creek	Off-Stream Storage	139 to 1,754 TAF
In-Delta Storage (Site 14)	Sacramento/San Joaquin Delta	Island Storage in the Delta	230 TAF
Ingram Canyon (Site 25)	Stanislaus County Ingram Creek	Off-Stream Storage	333 to 1,201 TAF
Los Vaqueros Enlargement (Site 30)	Contra Costa County Kellogg Creek	Off-Stream Storage	Additional 965 TAF
Millerton Lake Enlargement (Site 32)	Fresno County San Joaquin River	On-Stream Storage	Additional 720 TAF
Montgomery Reservoir (Site 34)	Stanislaus County Dry Creek	Off-Stream Storage	240 TAF
Orestimba Reservoir (Site 36)	Stanislaus County Orestimba Creek	Off-Stream Storage	380 to 1,140 TAF
Panoche Reservoir (Site 37)	Fresno County Silver Creek	Off-Stream Storage	160 to 3,100 TAF
Quinto Creek Reservoir (Site 39)	Merced/Stanislaus County Quinto Creek	Off-Stream Storage	332 to 381 TAF
Red Bank Project (Dippingvat- Schoenfield Project) (Site 40)	Tehama County S.F. Cottonwood Creek	Off-Stream Storage - Schoenfield Reservoir	Schoenfield-250 TAF
Shasta Lake Enlargement (6.5- foot raise of existing dam) (Site 43)	Shasta County Sacramento River	On-Stream Storage	Additional 290 TAF
Sites Reservoir (Site 44)	Colusa and Glenn Counties Funks & Stone Corral Cks	Off-Stream Storage	1,200 to 1,900 TAF
Thomes-Newville Reservoir (Site 48)	Glenn County Thomes & Stoney Creek	Off-Stream Storage	1,840 - 3,080 TAF

Of course, the relationship of water supply benefits to groundwater and surface storage volume is highly dependent on operating assumptions. Much more detailed information about specific locations of new storage, potential allocation of storage benefits, and operational goals and constraints would be necessary to determine an optimal volume of storage from a water supply perspective. In addition, long-term effective groundwater management throughout California will be essential to a range of CALFED Programs, including water transfers, groundwater

# Reservoir Sites under Consideration by CALFED



- Projects**
- 9 Colusa Reservoir Complex
  - 22 Garzas Reservoir
  - 14 In-Delta Storage
  - 25 Ingram Canyon Reservoir
  - 30 Los Vaqueros Enlargement
  - 32 Millerton Lake Enlargement
  - 34 Montgomery Reservoir
  - 36 Orestimba Reservoir
  - 37 Panoche Reservoir
  - 39 Quinto Creek Reservoir
  - 40 Red Bank Project
  - 43 Shasta Lake Enlargement
  - 44 Sites Reservoir
  - 48 Thomes-Newville Reservoir

## Ecological Management Zones

- Ecological Management Zones and Watershed Unit Boundaries
- Focus Study Area
- Major Rivers and Streams
- County Boundary



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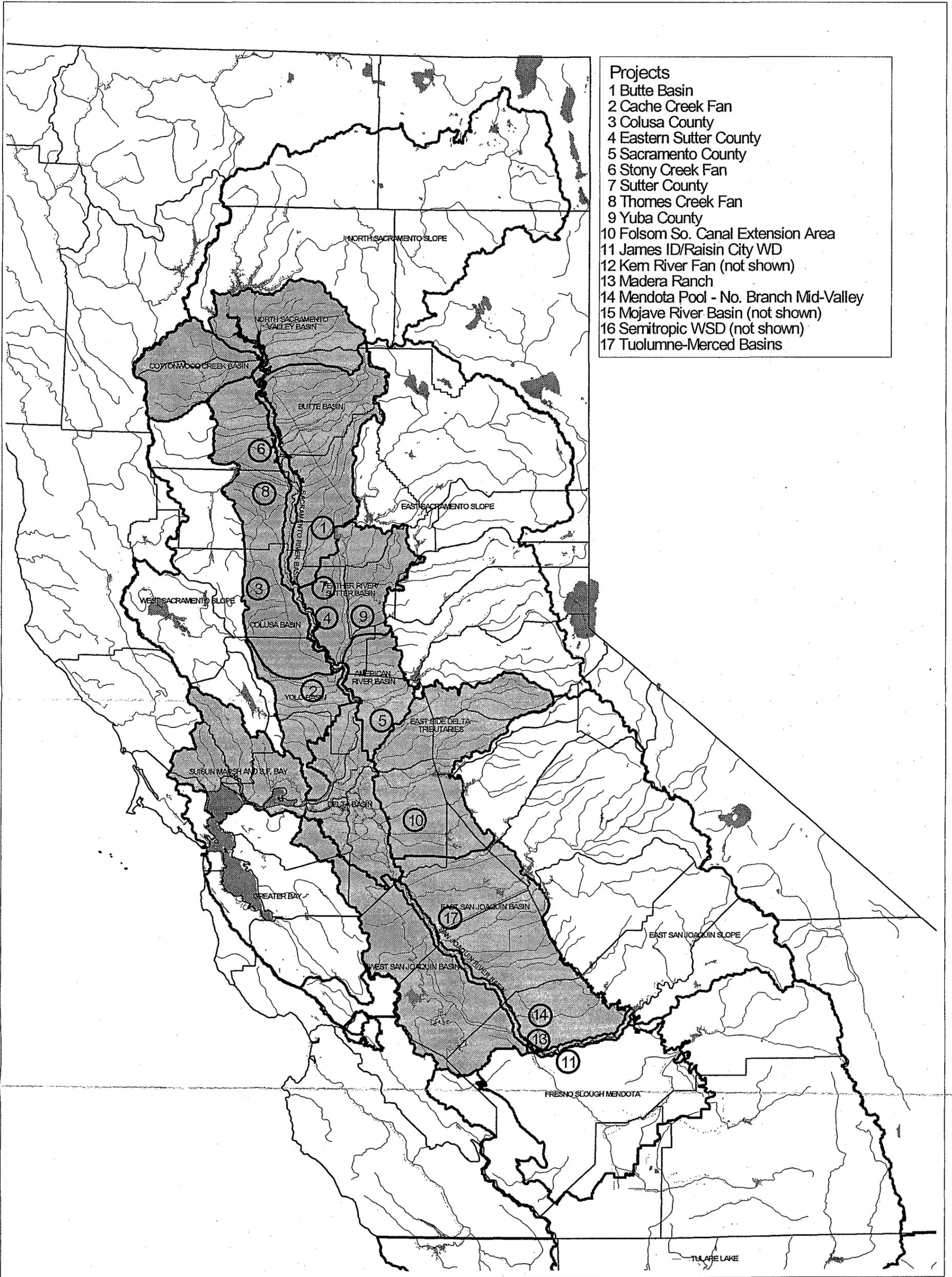
January 21, 1999



## Groundwater Storage Preliminary Component Inventory

Component	Location	Map Location
<b>Groundwater Storage North of Delta</b>		
Butte Basin	Butte County	1
Cache Creek Fan	Yolo County	2
Colusa County	Arbuckle area	3
Eastern Sutter County	Sutter County east of Feather River	4
Sacramento County	Sacramento County south of American River	5
Stony Creek Fan	Glenn County Stony Creek	6
Sutter County	South of Sutter Buttes	7
Thomes Creek Fan	Tehama County Thomes Creek	8
Yuba County	Yuba County - south of the Yuba River	9
<b>Groundwater Storage South of Delta</b>		
Stockton East	San Joaquin County	10
James ID/Raisin City WD, Mid-Valley Canal Reaches 1-3	Central Fresno County	11
Kern River Fan	Kern County	12
Madera Ranch	Madera County	13
Mendota Pool - No. Branch Mid-Valley	Madera County	14
Mojave River Basins	San Bernardino	15
Semitropic WSD	Kern County	16

# Groundwater Storage Components under Consideration by CALFED



- Projects**
- 1 Butte Basin
  - 2 Cache Creek Fan
  - 3 Colusa County
  - 4 Eastern Sutter County
  - 5 Sacramento County
  - 6 Stony Creek Fan
  - 7 Sutter County
  - 8 Thomes Creek Fan
  - 9 Yuba County
  - 10 Folsom So. Canal Extension Area
  - 11 James ID/Raisin City WD
  - 12 Kem River Fan (not shown)
  - 13 Madera Ranch
  - 14 Mendota Pool - No. Branch Mid-Valley
  - 15 Mojave River Basin (not shown)
  - 16 Semitropic WSD (not shown)
  - 17 Tuolumne-Merced Basins

## Ecological Management Zones

-  Ecological Management Zones and Watershed Unit Boundaries
-  Focus Study Area
-  Major Rivers and Streams
-  County Boundary



20 0 20 40 Miles

January 21, 1999



**SECTION XI:**  
**SPECIES GOAL REVIEW CHECKLIST AND**  
**RECOMMENDATION FORMS**

**SPECIES GOAL RECOMMENDATIONS**

Species Name: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewer Name(s) and Affiliation: \_\_\_\_\_

Proposed CALFED Goal (circle one): R r m

<b>Recommended Change to Proposed CALFED Species Goal (enter "R", "r", or "m"):</b>
<b>Rationale and Documentation for Recommending a Change to the Proposed CALFED Species Goal:</b>

**Evaluation Species Goals Checklist:**  
**Please Check the Species for Which You have Reviewed Goals**

Check Here	Evaluation Species	Check Here	Evaluation Species
	<b>Mammals</b>		<b>Plants</b>
	Salt marsh harvest mouse		Suisun thistle
	San Pablo California vole		Mason's lilaeopsis
	Suisun ornate shrew		Alkali milkvetch
	San Joaquin kit fox		Bristly sedge
	<b>Birds</b>		Delta mudwort
	California clapper rail		Delta tule pea
	Greater sandhill crane		Suisun Marsh aster
	California black rail		Butte County meadowfoam
	Swainson's hawk		California seablite
	Alameda song sparrow		Calistoga popcornflower
	Saltmarsh common yellowthroat		Colusa grass
	San Pablo song sparrow		Contra Costa goldfields
	Suisun song sparrow		Few-flowered navarretia
	Western snowy plover		Greene's tuctoria
	American peregrine falcon		Hairy orcutt grass
	Bald eagle		Hoover's spurge
	Aleutian Canada goose		Kenwood Marsh checkerbloom
	White-tailed kite		Loch Lomond button-celery
	Mountain plover		Many-flowered navarretia
	Grasshopper sparrow		Napa blue grass
	Tricolored blackbird		Palmate-bracted bird's-beak
	Short-eared owl		Pitkin Marsh lily
	Western burrowing owl		Sacramento orcutt grass
	California gull		San Joaquin Valley orcutt grass
	Black tern		San Joaquin woollythreads
	Long-billed curlew		Sebastopol meadowfoam
	Northern harrier		Showy Indian clover
	White-faced ibis		Slender orcutt grass
	Black-crowned night heron (rookery)		Sonoma alopecurus
	Snowy egret (rookery)		Sonoma sunshine
	<b>Reptiles</b>		Succulent owl's-clover
	Giant garter snake		White sedge
	Western pond turtle		Boggs Lake hedge-hyssop
	<b>Amphibians</b>		California vervain

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**CALFED CONSERVATION STRATEGY**  
**SPECIES REVIEW WORKSHOP**  
 February 10, 1999

Check Here	Evaluation Species	Check Here	Evaluation Species
	California red-legged frog		Chinese Camp brodiaea
	California tiger salamander		North Coast semaphore grass
	Foothill yellow-legged frog		Ahart's dwarf rush
	Western spadefoot		Brittlescale
	<b>Fish</b>		California beaked-rush
	Central Valley steelhead Evolutionarily		Eel-grass pondweed
	Delta smelt		Ferris' milkvetch
	Winter-run chinook salmon		Four-angled spikerush
	Sacramento splittail		Hispid bird's-beak
	Central Valley fall-run chinook salmon		Legenere
	Central Valley spring-run chinook salmon		Lesser saltscale
	Sacramento perch		Lost Hills crownscale
	Longfin smelt		Mad-dog skullcap
	Green sturgeon		Marsh checkerbloom
	Central Coast steelhead Evolutionarily		Pincushion navarretia
	Tidewater goby		Point Reyes bird's-beak
	<b>Invertebrates</b>		Red Hills ragwort
	Delta green ground beetle		Red-flowered lotus
	Conservancy fairy shrimp		Rose-mallow
	Longhorn fairy shrimp		San Joaquin spearscale
	Vernal pool fairy shrimp		Sanford's arrowhead
	Vernal pool tadpole shrimp		Slough thistle
	<b>Plants</b>		Spiny-sepaled button-celery
	Crampton's tuctoria		Henderson's bent grass
	Soft bird's-beak		Marin knotweed

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**SECTION XII:**

**SPECIES PRESCRIPTION CHECKLIST AND  
RECOMMENDATION FORMS**



**Evaluation Species Prescription Checklist:**  
 Please Check the Species for Which You have Developed Species Prescriptions

Check Here	Evaluation Species	Check Here	Evaluation Species
	<b>Mammals</b>		<b>Plants</b>
	Salt marsh harvest mouse		Suisun thistle
	San Pablo California vole		Mason's lilaopsis
	Suisun ornate shrew		Alkali milkvetch
	San Joaquin kit fox		Bristly sedge
	<b>Birds</b>		Delta mudwort
	California clapper rail		Delta tule pea
	Greater sandhill crane		Suisun Marsh aster
	California black rail		Butte County meadowfoam
	Swainson's hawk		California seablite
	Alameda song sparrow		Calistoga popcornflower
	Saltmarsh common yellowthroat		Colusa grass
	San Pablo song sparrow		Contra Costa goldfields
	Suisun song sparrow		Few-flowered navarretia
	Western snowy plover		Greene's tuctoria
	American peregrine falcon		Hairy orcutt grass
	Bald eagle		Hoover's spurge
	Aleutian Canada goose		Kenwood Marsh checkerbloom
	White-tailed kite		Loch Lomond button-celery
	Mountain plover		Many-flowered navarretia
	Grasshopper sparrow		Napa blue grass
	Tricolored blackbird		Palmate-bracted bird's-beak
	Short-eared owl		Pitkin Marsh lily
	Western burrowing owl		Sacramento orcutt grass
	California gull		San Joaquin Valley orcutt grass
	Black tern		San Joaquin woolythreads
	Long-billed curlew		Sebastopol meadowfoam
	Northern harrier		Showy Indian clover
	White-faced ibis		Slender orcutt grass
	Black-crowned night heron (rookery)		Sonoma alopecurus
	Snowy egret (rookery)		Sonoma sunshine
	<b>Reptiles</b>		Succulent owl's-clover
	Giant garter snake		White sedge
	Western pond turtle		Boggs Lake hedge-hyssop
	<b>Amphibians</b>		California vervain

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**CALFED CONSERVATION STRATEGY**  
**SPECIES REVIEW WORKSHOP**  
*February 10, 1999*

Check Here	Evaluation Species	Check Here	Evaluation Species
	California red-legged frog		Chinese Camp brodiaea
	California tiger salamander		North Coast semaphore grass
	Foothill yellow-legged frog		Ahart's dwarf rush
	Western spadefoot		Brittlescale
	<b>Fish</b>		California beaked-rush
	Central Valley steelhead Evolutionarily		Eel-grass pondweed
	Delta smelt		Ferris' milkvetch
	Winter-run chinook salmon		Four-angled spikerush
	Sacramento splittail		Hispid bird's-beak
	Central Valley fall-run chinook salmon		Legenere
	Central Valley spring-run chinook salmon		Lesser saltscale
	Sacramento perch		Lost Hills crownscale
	Longfin smelt		Mad-dog skullcap
	Green sturgeon		Marsh checkerbloom
	Central Coast steelhead Evolutionarily		Pincushion navarretia
	Tidewater goby		Point Reyes bird's-beak
	<b>Invertebrates</b>		Red Hills ragwort
	Delta green ground beetle		Red-flowered lotus
	Conservancy fairy shrimp		Rose-mallow
	Longhorn fairy shrimp		San Joaquin spearscale
	Vernal pool fairy shrimp		Sanford's arrowhead
	Vernal pool tadpole shrimp		Slough thistle
	<b>Plants</b>		Spiny-sepaed button-celery
	Crampton's tuctoria		Henderson's bent grass
	Soft bird's-beak		Marin knotweed

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**SECTION XIII:**

**SPECIES CONSERVATION MEASURES  
CHECKLIST AND RECOMMENDATION FORMS**

**SPECIES CONSERVATION MEASURE RECOMMENDATIONS FOR  
ACHIEVING SPECIES PRESCRIPTIONS**

Species Name: \_\_\_\_\_ Date: \_\_\_\_\_

Preparer Name and Affiliation: \_\_\_\_\_

Applicable NCCP Habitat Types: \_\_\_\_\_

Recommended Additional Conservation Measure
Rationale and Documentation

**Evaluation Species Conservation Measures Review Checklist:**  
**Please Check the Species for Which You have Reviewed Conservation Measures**

Check Here	Evaluation Species	Check Here	Evaluation Species
	<b>Mammals</b>		<b>Plants</b>
	Salt marsh harvest mouse		Suisun thistle
	San Pablo California vole		Mason's lilaeopsis
	Suisun ornate shrew		Alkali milkvetch
	San Joaquin kit fox		Bristly sedge
	<b>Birds</b>		Delta mudwort
	California clapper rail		Delta tule pea
	Greater sandhill crane		Suisun Marsh aster
	California black rail		Butte County meadowfoam
	Swainson's hawk		California seablite
	Alameda song sparrow		Calistoga popcornflower
	Saltmarsh common yellowthroat		Colusa grass
	San Pablo song sparrow		Contra Costa goldfields
	Suisun song sparrow		Few-flowered navaretia
	Western snowy plover		Greene's tuctoria
	American peregrine falcon		Hairy orcutt grass
	Bald eagle		Hoover's spurge
	Aleutian Canada goose		Kenwood Marsh checkerbloom
	White-tailed kite		Loch Lomond button-celery
	Mountain plover		Many-flowered navaretia
	Grasshopper sparrow		Napa blue grass
	Tricolored blackbird		Palmate-bracted bird's-beak
	Short-eared owl		Pitkin Marsh lily
	Western burrowing owl		Sacramento orcutt grass
	California gull		San Joaquin Valley orcutt grass
	Black tern		San Joaquin woolythreads
	Long-billed curlew		Sebastopol meadowfoam
	Northern harrier		Showy Indian clover
	White-faced ibis		Slender orcutt grass
	Black-crowned night heron (rookery)		Sonoma alopecurus
	Snowy egret (rookery)		Sonoma sunshine
	<b>Reptiles</b>		Succulent owl's-clover
	Giant garter snake		White sedge
	Western pond turtle		Boggs Lake hedge-hyssop
	<b>Amphibians</b>		California vervain

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**CALFED CONSERVATION STRATEGY**  
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Check Here	Evaluation Species	Check Here	Evaluation Species
	California red-legged frog		Chinese Camp brodiaea
	California tiger salamander		North Coast semaphore grass
	Foothill yellow-legged frog		Ahart's dwarf rush
	Western spadefoot		Brittlescale
	<b>Fish</b>		California beaked-rush
	Central Valley steelhead Evolutionarily		Eel-grass pondweed
	Delta smelt		Ferris' milkvetch
	Winter-run chinook salmon		Four-angled spikerush
	Sacramento splittail		Hispid bird's-beak
	Central Valley fall-run chinook salmon		Legenere
	Central Valley spring-run chinook salmon		Lesser saltscale
	Sacramento perch		Lost Hills crownscale
	Longfin smelt		Mad-dog skullcap
	Green sturgeon		Marsh checkerbloom
	Central Coast steelhead Evolutionarily		Pincushion navarretia
	Tidewater goby		Point Reyes bird's-beak
	<b>Invertebrates</b>		Red Hills ragwort
	Delta green ground beetle		Red-flowered lotus
	Conservancy fairy shrimp		Rose-mallow
	Longhorn fairy shrimp		San Joaquin spearscale
	Vernal pool fairy shrimp		Sanford's arrowhead
	Vernal pool tadpole shrimp		Slough thistle
	<b>Plants</b>		Spiny-sepaled button-celery
	Crampton's tuctoria		Henderson's bent grass
	Soft bird's-beak		Marin knotweed

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**SECTION XIV:**

**SPECIES WITH PROPOSED "R" AND "r" GOALS  
BY NCCP HABITAT TYPE**

Proposed "R" and "r" Evaluation Species Associated with NCCP Habitat Types

Evaluation Species	NCCP Habitat Type <sup>1</sup>																	
	Riparian and Upland Habitats						Aquatic Habitats				Wetland and Agricultural Habitats							
	VF R	M R	G	ID S	US	VF W	M WF	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	MS W	UC	SF A
<b>Mammals</b>																		
Salt marsh harvest mouse												X						
Riparian brush rabbit	X																	
San Pablo California vole												X				X		
San Joaquin Valley woodrat	X																	
Suisun ornate shrew												X						
<b>Birds</b>																		
Least Bell's vireo	X	X																
California clapper rail												X						
Little willow flycatcher	X	X																
Bank swallow	X								X									
Western yellow-billed cuckoo	X																	
Greater sandhill crane			X											X	X	X	X	X
California black rail												X	X	X				
Swainson's hawk	X		X		X	X									X	X	X	X

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Type <sup>1</sup>																	
	Riparian and Upland Habitats						Aquatic Habitats				Wetland and Agricultural Habitats							
	VF R	M R	G	ID S	US	VF W	M WF	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	MS W	UC	SF A
Alameda song sparrow												X						
California yellow warbler	X	X																
Saltmarsh common yellowthroat												X						
San Pablo song sparrow												X						
Suisun song sparrow												X	X					
Western least bittern														X				
<b>Reptiles</b>																		
Giant garter snake													X	X	X	X		X
<b>Fish</b>																		
Central Valley steelhead Evolutionarily Significant Unit (ESU)								X	X	X		X	X					
Delta smelt								X				X	X					
Winter-run chinook salmon								X	X	X		X	X					
Sacramento splittail								X	X			X	X					
Central Valley fall-run chinook								X	X	X		X	X					
Central Valley spring-run chinook salmon								X	X	X		X	X					

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFW = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Type <sup>1</sup>																	
	Riparian and Upland Habitats						Aquatic Habitats				Wetland and Agricultural Habitats							
	VF R	M R	G	ID S	US	VF W	M WF	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	MS W	UC	SF A
Hardhead									X	X								
Sacramento perch								X	X		X	X	X					
Longfin smelt								X				X	X					
Green sturgeon								X	X				X					
<b>Invertebrates</b>																		
Valley elderberry longhorn beetle	X	X																
Delta green ground beetle															X			
<b>Plants</b>																		
Crampton's tuctoria															X			
Soft bird's-beak												X						
Suisun thistle												X						
Delta coyote-thistle	X																	
Mason's lilaeopsis												X	X					
Alkali milkvetch															X			
Bristly sedge														X				
Delta mudwort												X	X					
Delta tule pea												X	X					

<sup>1</sup>TPA = Tidal perennial aquatic  
VRA = Valley riverine aquatic  
MRA = Montane riverine aquatic  
L = Lacustrine  
SE = Saline emergent

TFE = Tidal freshwater emergent  
NFPE = Nontidal freshwater permanent emergent  
NSW = Natural seasonal wetlands  
MSW = Managed seasonal wetlands  
VFR = Valley/foothill riparian

MR = Montane riparian  
G = Grassland  
IDS = Inland dune scrub  
US = Upland scrub  
VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
UC = Upland cropland  
SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Type <sup>1</sup>																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	ID S	US	VF W	M WF	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	MS W	UC	SF A
Northern California black walnut (native stands)	X																	
Suisun Marsh aster												X	X					

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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**SECTION XV:**

**SPECIES WITH PROPOSED "m" GOALS BY  
NCCP HABITAT TYPE**

Evaluation Species Associated with NCCP Habitats with Proposed "m" Species Goals

Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	ID S	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
<b>Mammals</b>																		
San Joaquin kit fox			X														X	
Giant kangaroo rat			X															
Ringtail	X	X			X	X	X											
Nelson's antelope ground squirrel			X															
Greater western mastiff-bat	X	X	X		X	X	X											
<b>Birds</b>																		
Northern spotted owl							X											
California least tern								X										
Western snowy plover								X								X		
American peregrine falcon								X			X	X	X	X	X			
Bald eagle	X	X					X	X	X	X						X		
California condor			X		X	X												
Aleutian Canada goose								X			X	X	X	X		X	X	X
California brown pelican								X										

'TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	ID S	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
White-tailed kite	X		X									X	X	X	X	X	X	X
Golden eagle	X		X		X	X												
Mountain plover			X														X	
Grasshopper sparrow			X														X	
Tricolored blackbird			X											X	X	X	X	X
Yellow-breasted chat	X	X																
Long-eared owl	X	X				X												
Short-eared owl			X									X	X	X	X	X		X
Western burrowing owl			X		X												X	
California gull								X			X	X	X	X	X	X	X	X
Black tern														X		X		X
Long-billed curlew			X					X				X		X	X	X	X	X
Cooper's hawk	X	X				X	X											
Northern harrier			X									X	X	X	X	X	X	X
Osprey	X	X				X	X	X	X	X	X							
White-faced ibis													X	X		X	X	X
Double-crested cormorant (rookery)	X	X																

<sup>1</sup>TPA = Tidal perennial aquatic  
VRA = Valley riverine aquatic  
MRA = Montane riverine aquatic  
L = Lacustrine  
SE = Saline emergent

TFE = Tidal freshwater emergent  
NFPE = Nontidal freshwater permanent emergent  
NSW = Natural seasonal wetlands  
MSW = Managed seasonal wetlands  
VFR = Valley/foothill riparian

MR = Montane riparian  
G = Grassland  
IDS = Inland dune scrub  
US = Upland scrub  
VWF = Valley/foothill woodland

MWF = Montane woodland and forest  
UC = Upland cropland  
SFA = Seasonally flooded agriculture

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D-053754

Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	IDS	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
Black-crowned night heron (rookery)	X	X												X				
Great blue heron (rookery)	X	X																
Great egret (rookery)	X	X																
Snowy egret (rookery)	X	X											X					
<b>Reptiles</b>																		
Alameda whipsnake	X		X		X	X												
Blunt-nosed leopard lizard			X															
San Joaquin whipsnake			X		X	X												
Western pond turtle	X								X	X	X			X				
<b>Amphibians</b>																		
California red-legged frog	X	X	X						X	X	X			X	X	X		
Limestone salamander					X	X												
California tiger salamander			X								X			X				
Foothill yellow-legged frog	X	X							X	X								
Western spadefoot														X				
<b>Fish</b>																		
Central Coast steelhead Evolutionarily Significant Unit (ESU)								X	X	X		X	X					

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types																		
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats							
	VF R	M R	G	ID S	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A	
Tidewater goby								X				X	X						
<b>Invertebrates</b>																			
Callippe silverspot			X																
Lange's metalmark				X															
California freshwater shrimp									X										
Conservancy fairy shrimp														X					
Longhorn fairy shrimp														X					
Vernal pool fairy shrimp														X					
Vernal pool tadpole shrimp														X	X				
Monarch butterfly (roost)						X													
<b>Plants</b>																			
Antioch Dunes evening-primrose				X															
Butte County meadowfoam															X				
California seablite												X							
Calistoga popcornflower			X										X	X					
Clara Hunt's milkvetch			X			X													
Colusa grass															X				

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	IDS	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
Contra Costa goldfields															X			
Contra Costa wallflower				X														
El Dorado bedstraw					X	X												
Few-flowered navarretia															X			
Greene's tuctoria															X			
Hairy orcutt grass															X			
Hartweg's golden sunburst			X			X												
Hoover's eriastrum			X															
Hoover's spurge															X			
Kenwood Marsh checkerbloom														X				
Large-flowered fiddleneck			X			X												
Layne's ragwort					X	X												
Loch Lomond button-celery															X			
Many-flowered navarretia															X			
Marin western flax			X		X													
Napa blue grass														X				
Pallid manzanita					X													

<sup>1</sup>TPA = Tidal perennial aquatic  
VRA = Valley riverine aquatic  
MRA = Montane riverine aquatic  
L = Lacustrine  
SE = Saline emergent

TFE = Tidal freshwater emergent  
NFPE = Nontidal freshwater permanent emergent  
NSW = Natural seasonal wetlands  
MSW = Managed seasonal wetlands  
VFR = Valley/foothill riparian

MR = Montane riparian  
G = Grassland  
IDS = Inland dune scrub  
US = Upland scrub  
VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
UC = Upland cropland  
SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	ID S	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
Palmate-bracted bird's-beak															X			
Pine Hill ceanothus					X	X												
Pine Hill flannelbush					X	X												
Pitkin Marsh lily														X				
Sacramento orcutt grass															X			
San Benito evening-primrose					X	X												
San Joaquin adobe sunburst			X															
San Joaquin Valley orcutt grass															X			
San Joaquin woollythreads			X												X			
Sebastopol meadowfoam															X			
Showy Indian clover			X												X			
Slender orcutt grass															X	X		
Sonoma alopecurus	X													X				
Sonoma spineflower			X															
Sonoma sunshine															X			
Stebbins' morning-glory					X	X												
Succulent owl's-clover															X			

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	ID S	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
Tiburon Indian paintbrush			X															
Tiburon jewelflower			X															
Tiburon Mariposa lily			X															
White sedge														X				
White-rayed pentachaeta			X															
Baker's larkspur					X													
Baker's manzanita					X													
Boggs Lake hedge-hyssop															X			
California vervain	X					X												
Chinese Camp brodiaea															X			
Indian Valley brodiaea			X		X		X											
Ione buckwheat					X													
Irish Hill buckwheat					X													
Marin checkerbloom			X		X													
Mason's ceanothus					X													
Mt. Diablo bird's-beak					X													
North Coast semaphore grass							X							X	X			
Rock samble			X		X		X											

TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	ID S	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
Santa Cruz tarplant			X															
Yellow larkspur			X		X													
Ione manzanita						X												
Rawhide Hill onion						X												
Ahart's dwarf rush															X			
Arbutua Ranch jewelflower			X		X													
Ben Lomond buckwheat					X	X												
Big tarplant			X															
Brittlescale			X												X			
California beaked-rush							X							X				
Congdon's lomatium					X	X												
Congdon's tarplant			X															
Contra Costa manzanita					X													
Diablo helianthella			X															
Diamond-petaled California poppy			X															
Bel-grass pondweed									X	X	X			X				
Ferris' milkvetch			X												X			
Four-angled spikerush														X				
Heartscale			X		X													

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
 MRA = Montane riverine aquatic  
 L = Lacustrine  
 SE = Saline emergent

TFE = Tidal freshwater emergent  
 NFPE = Nontidal freshwater permanent emergent  
 NSW = Natural seasonal wetlands  
 MSW = Managed seasonal wetlands  
 VFR = Valley/foothill riparian

MR = Montane riparian  
 G = Grassland  
 IDS = Inland dune scrub  
 US = Upland scrub  
 VFW = Valley/foothill woodland

MWF = Montane woodland and forest  
 UC = Upland cropland  
 SFA = Seasonally flooded agriculture

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Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	ID S	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
Heckard's peppergrass			X															
Hispid bird's-beak														X	X			
Hospital Canyon larkspur					X	X												
Legenere														X	X			
Lesser saltscare			X												X			
Lost Hills crownscale			X												X			
Mad-dog skullcap							X							X	X			
Mariposa clarkia	X					X												
Marsh checkerbloom	X													X				
Merced phacelia			X															
Mt. Diablo jewelflower			X		X													
Mt. Diablo manzanita					X													
Mt. Hamilton coreopsis						X												
Mt. Hamilton jewelflower					X	X												
Napa western flax					X													
Panoche peppergrass			X															
Pincushion navarretia															X			
Point Reyes bird's-beak												X						
Red Hills ragwort						X												

<sup>1</sup>TPA = Tidal perennial aquatic  
 VRA = Valley riverine aquatic  
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**CALFED CONSERVATION STRATEGY  
SPECIES REVIEW WORKSHOP  
February 3, 1999**

Evaluation Species	NCCP Habitat Types																	
	Riparian and Upland Habitats							Aquatic Habitats				Wetland and Agricultural Habitats						
	VF R	M R	G	IDS	US	VF W	M W F	TP A	VR A	M RA	L	SE	TF E	NF PE	NS W	M S W	UC	SF A
Red-flowered lotus			X			X												
Rose-mallow														X				
San Joaquin spearscale			X												X			
Sanford's arrowhead														X				
Saw-toothed lewisia		X					X											
Shaggyhair lupine					X	X												
Sharsmith's harebell					X													
Showy madia			X			X												
Slough thistle	X												X	X	X			
Spiny-sepaled button-celery			X												X			
Henderson's bent grass			X												X			
Marin knotweed												X						
San Antonio Hills monardella					X	X												

<sup>1</sup>TPA = Tidal perennial aquatic  
VRA = Valley riverine aquatic  
MRA = Montane riverine aquatic  
L = Lacustrine  
SE = Saline emergent

TFE = Tidal freshwater emergent  
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NSW = Natural seasonal wetlands  
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VFR = Valley/foothill riparian

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IDS = Inland dune scrub  
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MWF = Montane woodland and forest  
UC = Upland cropland  
SFA = Seasonally flooded agriculture

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**SECTION XVI:**

**SPECIES TO BE INCLUDED IN THE CALFED  
CONSERVATION STRATEGY**

## Draft List of Species to Be Included in the CALFED Conservation Strategy January 22, 1999

### Criteria for Inclusion on this List

This is a list of special-status species known to occur or with potential to occur in the Ecosystem Restoration Program's (ERP's) 14 Ecological Zones and that are proposed to be included in the Conservation Strategy. The list was developed using the criteria described below.

#### Special-Status Species

Special-status species are any species having some form of endangerment or concern status.

Special-status species are species that are:

- federally listed as threatened or endangered under the Endangered Species Act (ESA);
- California listed as threatened or endangered under the California Endangered Species Act (CESA);
- proposed for federal listing under the ESA;
- California candidates under the CESA;
- federal candidates under the ESA;
- California fully protected species or specified birds;
- California species of special concern (CSC);
- California Native Plant Society (CNPS) List 1A, List 1B, List 2, or List 3; or
- other species of concern to CALFED.

The determination that a species has the potential to occur in the ERP Ecological Zones is based on the species' known range and the presence of suitable habitat within ERP Ecological Zones.

#### Species Addressed by the Conservation Strategy

Criteria for selection of species to be covered in the Conservation Strategy were:

- the species is federally or California listed as rare, threatened, or endangered,
- the species is a California fully protected species, or
- the species could become federally or California listed as threatened or endangered during the term of CALFED implementation, and
- the species could be affected by CALFED actions.

Species considered to have the potential to become federally or California listed as threatened or endangered during the term of CALFED implementation are those that are:

- proposed for federal listing,
- California candidates,
- federal candidates,
- California species of special concern (each species considered individually for inclusion - see Decision Criteria),
- specified birds (each species considered individually for inclusion - see Decision Criteria),
- CNPS List 1 and List 2 (each species considered individually for inclusion - see Decision Criteria), or
- Other species of concern (each species considered individually for inclusion - see Decision Criteria).

CSC, specified birds, CNPS Lists 1-3, and other species of concern are included if CALFED actions could affect a substantial portion of the species' range or important habitat or if the species is rare or its distribution is limited.

### Notes:

Species Type <sup>1</sup>	Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			Potential Effects of CALFED Actions on Species <sup>4</sup>			
				Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	Decision Criteria <sup>5</sup>
<b>Federally Listed as Endangered or Threatened</b>										
M	m	San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E	CT	-	X			L
M	m	Giant kangaroo rat	<i>Dipodomys ingens</i>	E	CE	-		X2		L
M	r	Salt marsh harvest mouse	<i>Reithrodontomys raviventris</i>	E	CE/FP	-	X			L
B	r	Least Bell's vireo	<i>Vireo bellii pusillus</i>	E	E	-	X			L
B	m	Northern spotted owl	<i>Strix occidentalis caurina</i>	T	CSC	-		X2		L
B		Northern spotted owl critical habitat	<i>Strix occidentalis caurina critical habitat</i>							

Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			Actions on Species <sup>4</sup>			
				Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	Decision Criteria <sup>5</sup>
B	m	California least tern	<i>Sterna antillarum browni</i>	E	CT/FP	-	X			L
B	m	Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	T	-	-	X			L
B	r	California clapper rail	<i>Rallus longirostris obsoletus</i>	E	CE/FP	-	X			L
B	m	American peregrine falcon	<i>Falco peregrinus anatum</i>	E	CE/FP	-	X			L
B		American peregrine falcon critical habitat	<i>Falco peregrinus anatum critical habitat</i>							
B	m	Bald eagle	<i>Haliaeetus leucocephalus</i>	T/PR	CE/FP	-	X			L
B	m	California condor	<i>Gymnogyps californianus</i>	E	CE/FP	-		X1		L
B	m	Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	T	-	-	X			L
B	m	California brown pelican	<i>Pelecanus occidentalis californicus</i>	E	CE/FP	-		X1		L
R	m	Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	T	CT	-	X			L
R	r	Giant garter snake	<i>Thamnophis gigas</i>	T	CT	-	X			L
R	m	Blunt-nosed leopard lizard	<i>Gambelia silus</i>	E	CE/FP	-	X			L
A	m	California red-legged frog	<i>Rana aurora draytonii</i>	T	CSC	-	X			L
A	m	Limestone salamander	<i>Hydromantes brunus</i>	T	-	-		X2		L
F	R	Delta smelt	<i>Hypomesus transpacificus</i>	T	CT	-	X			L
F		Delta smelt critical habitat	<i>Hypomesus transpacificus critical habitat</i>							
F		Central Coast Steelhead Evolutionary Significant Unit (ESU)	<i>Oncorhynchus mykiss</i>	T	-	-				L
F	R	Central Valley Steelhead Evolutionarily Significant Unit (ESU)	<i>Oncorhynchus mykiss (cv)</i>	T	-	-	X			L
F	R	Winter-run chinook salmon	<i>Oncorhynchus tshawytscha (wr)</i>	E	CE	-	X			L
F		Winter-run chinook salmon critical habitat	<i>Oncorhynchus tshawytscha critical habitat</i>							
F	m	Tidewater goby	<i>Eucyclogobius newberryi</i>	E	CSC	-			X	L
I	m	Callippe silverspot	<i>Speyeria callippe callippe</i>	E	-	-	X			L
I	m	Lange's metalmark	<i>Apodemia mormo langei</i>	E	-	-	X			L
I	R	Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	T	-	-	X			L
I		Valley elderberry longhorn beetle critical habitat	<i>Desmocerus californicus dimorphus critical habitat</i>							
I	r	Delta green ground beetle	<i>Elaphrus viridis</i>	T	-	-	X			L

Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			Potential Effects of CALFED Actions on Species <sup>4</sup>			Decision Criteria <sup>5</sup>
				Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	
I		Delta green ground beetle critical habitat	<i>Elaphrus viridis critical habitat</i>							
I	m	California freshwater shrimp	<i>Syncaris pacifica</i>	E	-	-	X			L
I	m	Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	E	-	-	X			L
I	m	Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	E	-	-		X2		L
I	m	Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T	-	-	X			L
I	m	Vernal pool tadpole shrimp	<i>Lepidurus packardi</i>	E	-	-	X			L
P	m	Antioch Dunes evening-primrose	<i>Oenothera deltooides ssp. howellii</i>	E	CE	1B	X			L
P		Antioch Dunes evening-primrose critical habitat	<i>Oenothera deltooides ssp. howellii critical habitat</i>							
P	m	Butte County meadowfoam	<i>Limnanthes floccosa ssp. californica</i>	E	CE	1B		X2		L
P	m	California seablite	<i>Suaeda californica</i>	E	-	1B	X			L
P	m	California vervain	<i>Verbena californica</i>	T	CT	1B		X2		L
P	m	Calistoga popcornflower	<i>Plagiobothrys strictus</i>	E	CT	1B		X2		L
P	m	Chinese Camp brodiaea	<i>Brodiaea pallida</i>	T	CE	1B	X			L
P	m	Clara Hunt's milkvetch	<i>Astragalus clarianus</i>	E	CT	1B		X2		L
P	m	Colusa grass	<i>Neostapfia colusana</i>	T	CE	1B	X			L
P	m	Contra Costa goldfields	<i>Lasthenia conjugens</i>	E	-	1B	X			L
P	m	Contra Costa wallflower	<i>Erysimum capitatum ssp. angustatum</i>	E	CE	1B	X			L
P		Contra Costa wallflower critical habitat	<i>Erysimum capitatum ssp. angustatum critical habitat</i>							
P	r	Crampton's tuctoria	<i>Tuctoria mucronata</i>	E	CE	1B	X			L
P	m	El Dorado bedstraw	<i>Galium californicum ssp. sierrae</i>	E	R	1B		X2		L
P	m	Few-flowered navarretia	<i>Navarretia leucocephala ssp. pauciflora</i>	E	CT	1B		X2		L
P	m	Greene's tuctoria	<i>Tuctoria greenei</i>	E	R	1B	X			L
P	m	Hairy orcutt grass	<i>Orcuttia pilosa</i>	E	CE	1B	X			L
P	m	Hartweg's golden sunburst	<i>Pseudobahia bahiifolia</i>	E	CE	1B	X			L
P	m	Hoover's eriastrum	<i>Eriastrum hooveri</i>	T	-	-	X			L
P	m	Hoover's spurge	<i>Chamaesyce hooveri</i>	T	-	1B	X			L

Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			Actions on Species <sup>4</sup>			
				Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	Decision Criteria <sup>5</sup>
P	m	Kenwood Marsh checkerbloom	<i>Sidalcea oregana ssp. valida</i>	E	CE	1B	X			L
P	m	Large-flowered fiddleneck	<i>Amsinckia grandiflora</i>	E	CE	1B	X			L
P		Large-flowered fiddleneck critical habitat	<i>Amsinckia grandiflora critical habitat</i>							
P	m	Layne's ragwort	<i>Senecio layneae</i>	T	R	1B	X			L
P	m	Loch Lomond button-celery	<i>Eryngium constancei</i>	E	CE	1B		X2		L
P	m	Many-flowered navarretia	<i>Navarretia leucocephala ssp. plieantha</i>	E	CT	1B		X2		L
P	m	Marin western flax	<i>Hesperolinon congestum</i>	T	CT	1B		X2		L
P	m	Napa blue grass	<i>Poa napensis</i>	E	CE	1B		X2		L
P	m	Pallid manzanita	<i>Arctostaphylos pallida</i>	T	CE	1B		X2		L
P	m	Palmate-bracted bird's-beak	<i>Cordylanthus palmatus</i>	E	CE	1B	X			L
P	m	Pine Hill ceanothus	<i>Ceanothus roderickii</i>	E	R	1B		X2		L
P	m	Pine Hill flannelbush	<i>Fremontodendron decumbens</i>	E	R	1B		X2		L
P	m	Pitkin Marsh lily	<i>Lilium pardalinum ssp. pitkinense</i>	E	CE	1B	X			L
P	m	Rawhide Hill onion	<i>Allium tuolumnense</i>	T	-	1B	X			P
P	m	Sacramento orcutt grass	<i>Orcuttia viscida</i>	E	CE	1B	X			L
P	m	San Benito evening-primrose	<i>Camissonia benitensis</i>	T	-	1B		X2		L
P	m	San Joaquin adobe sunburst	<i>Pseudobahia peirsonii</i>	T	CE	1B		X2		L
P	m	San Joaquin Valley orcutt grass	<i>Orcuttia inaequalis</i>	T	CE	1B	X			L
P	m	San Joaquin woollythreads	<i>Lembertia congdonii</i>	E	-	1B	X			L
P	m	Sebastopol meadowfoam	<i>Limnanthes vincularis</i>	E	CE	1B		X2		L
P	m	Showy Indian clover	<i>Trifolium amoenum</i>	E	-	1B	X			L
P	m	Slender orcutt grass	<i>Orcuttia tenuis</i>	T	CE	1B	X			L
P	R	Soft bird's-beak	<i>Cordylanthus mollis ssp. mollis</i>	E	R	1B	X			L
P	m	Sonoma alopecurus	<i>Alopecurus aequalis var. sonomensis</i>	E	-	1B	X			L
P	m	Sonoma spineflower	<i>Chorizanthe valida</i>	E	CE	1B		X2		L
P	m	Sonoma sunshine	<i>Blennosperma bakeri</i>	E	CE	1B		X2		L
P	m	Stebbins' morning-glory	<i>Calystegia stebbinsii</i>	E	CE	1B		X2		L
P	m	Succulent owl's-clover	<i>Castilleja campestris ssp. succulenta</i>	T	CE	1B	X			L

Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Potential Effects of CALFED Actions on Species <sup>4</sup>					Decision Criteria <sup>5</sup>	
				Status <sup>3</sup>			May Be Affected	Not Likely to be Affected		Not Enough Information on the Species
				Federal	State	Other				
P	R	Suisun thistle	<i>Cirsium hydrophilum var. hydrophilum</i>	E	-	1B	X		L	
P	m	Tiburon Indian paintbrush	<i>Castilleja affinis ssp. neglecta</i>	E	CT	1B		X2	L	
P	m	Tiburon jewelflower	<i>Streptanthus niger</i>	E	CE	1B		X2	L	
P	m	Tiburon Mariposa lily	<i>Calochortus tiburonensis</i>	T	CT	1B		X2	L	
P	m	White sedge	<i>Carex albida</i>	E	CE	1B	X		L	
P	m	White-rayed pentachaeta	<i>Pentachaeta bellidiflora</i>	E	CE	1B		X2	L	
<b>California Listed as Endangered, Threatened, Rare, or Fully Protected</b>										
M	m	Ringtail	<i>Bassariscus astutus</i>	-	FP	-	X		L	
M	m	Nelson's antelope ground squirrel	<i>Ammospermophilus nelsoni</i>	-	CT	SC	X		L	
M	r	Riparian brush rabbit	<i>Sylvilagus bachmani riparius</i>	PE	CE	-	X		L	
B	r	Little willow flycatcher	<i>Empidonax traillii brewsteri</i>	-	CE	SC	X		L	
B	r	Bank swallow	<i>Riparia riparia</i>	-	CT	-	X		L	
B	r	Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	-	CE	-	X		L	
B	r	Greater sandhill crane	<i>Grus canadensis tabida</i>	-	CT/FP	-	X		L	
B	r	California black rail	<i>Laterallus jamaicensis coturniculus</i>	-	CT/FP	SC	X		L	
B	m	White-tailed kite	<i>Elanus leucurus</i>	-	FP	-	X		L	
B	m	Golden eagle	<i>Aquila chrysaetos</i>	PR	CSC/FP	-		X1	L	
B	r	Swainson's hawk	<i>Buteo swainsoni</i>	-	CT	SC	X		L	
P	m	Baker's larkspur	<i>Delphinium bakeri</i>	PE	R	1B		X2	L	
P	m	Baker's manzanita	<i>Arctostaphylos bakeri ssp. bakeri</i>	-	R	1B/SC		X2	L	
P	m	Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	-	CE	1B	X		L	
P	r	Delta coyote-thistle	<i>Eryngium racemosum</i>	-	CE	1B/SC	X		L	
P	m	Indian Valley brodiaea	<i>Brodiaea coronaria ssp. rosea</i>	-	CE	1B		X2	L	
P	m	Ione buckwheat	<i>Eriogonum apricum var. apricum</i>	PE	CE	1B		X2	P	
P	m	Irish Hill buckwheat	<i>Eriogonum apricum var. prostratum</i>	PE	CE	1B		X2	L	
P	m	Marin checkerbloom	<i>Sidalcea hickmanii ssp. viridis</i>	-	R	1B/SC		X2	L	
P	m	Mason's ceanothus	<i>Ceanothus masonii</i>	-	R	1B/SC		X2	L	
P	R	Mason's lilacopsis	<i>Lilaeopsis masonii</i>	-	R	1B/SC	X		L	

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Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	Decision Criteria <sup>5</sup>
				Federal	State	Other				
P	m	Mt. Diablo bird's-beak	<i>Cordylanthus nidularius</i>	-	R	1B/SC		X2	L	
P	m	North Coast semaphore grass	<i>Pleuropogon hooverianus</i>	-	R	1B/SC		X2	L	
P	m	Rock sanicle	<i>Sanicula saxatilis</i>	-	R	1B/SC	X		L	
P	m	Santa Cruz tarplant	<i>Holocarpha macradenia</i>	PT	CE	1B		X2	L	
P	m	Yellow larkspur	<i>Delphinium luteum</i>	PE	R	1B		X2	L	
<b>Federally Proposed</b>										
M	r	San Joaquin Valley woodrat	<i>Neotoma fuscipes riparia</i>	PE	CSC	-	X		P	
F	R	Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	PT	CSC	-	X		P	
F	R	Central Valley fall-run chinook salmon	<i>Oncorhynchus tshawytscha (fr)</i>	PT	CSC	-	X		P	
F	R	Central Valley spring-run chinook salmon	<i>Oncorhynchus tshawytscha (sr)</i>	PE	CCT	-	X		P	
P	m	Ione manzanita	<i>Arctostaphylos myrtifolia</i>	PT	-	1B		X2	P	
<b>Federal Candidate</b>										
B	m	Mountain plover	<i>Charadrius montanus</i>	C	CSC	-	X		P	
A	m	California tiger salamander	<i>Ambystoma californiense</i>	C	CSC	-	X		P	
<b>California Species of Special Concern, or CNPS List 1 or 2</b>										
M	m	Greater western mastiff-bat	<i>Eumops perotis californicus</i>	-	CSC	SC	X		A	
M	R	Suisun ornate shrew	<i>Sorex ornatus sinuosus</i>	-	CSC	SC	X		B	
B	r	Alameda song sparrow	<i>Melospiza melodia pusillula</i>	-	CSC	SC	X		A	
B	r	California yellow warbler	<i>Dendroica petechia brewsteri</i>	-	CSC	-	X		A	
B	m	Grasshopper sparrow	<i>Ammodramus savannarum</i>	-	CSC	-	X		B	
B	r	Saltmarsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	-	CSC	SC	X		A	
B	r	San Pablo song sparrow	<i>Melospiza melodia samuelis</i>	-	CSC	SC	X		A	
B	R	Suisun song sparrow	<i>Melospiza melodia maxillaris</i>	-	CSC	SC	X		A	
B	m	Tricolored blackbird	<i>Agelaius tricolor</i>	-	CSC	SC	X		A	
B	m	Yellow-breasted chat	<i>Icteria virens</i>	-	CSC	-	X		A	
B	m	Long-eared owl	<i>Asio otus</i>	-	CSC	-	X		B	
B	m	Short-eared owl	<i>Asio flammeus</i>	-	CSC	-	X		B	

Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			Potential Effects of CALFED Actions on Species <sup>4</sup>			Decision Criteria <sup>5</sup>
				Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	
B	m	Western burrowing owl	<i>Athene cunicularia hypugea</i>	-	CSC <sup>1</sup>	SC	X			A
B	m	California gull	<i>Larus californicus</i>	-	CSC	-	X			B
B	m	Black tern	<i>Chlidonias niger</i>	-	CSC	SC	X			B
B	m	Long-billed curlew	<i>Numenius americanus</i>	-	CSC	-	X			A
B	m	Cooper's hawk	<i>Accipiter cooperii</i>	-	CSC	-	X			A
B	m	Northern harrier	<i>Circus cyaneus</i>	-	CSC	-	X			A
B	m	Osprey	<i>Pandion haliaetus</i>	-	CSC/SB	-	X			A
B	m	White-faced ibis	<i>Plegadis chihi</i>	-	CSC	SC	X			A
B	r	Western least bittern	<i>Ixobrychus exilis</i>	-	CSC	SC	X			A
B	m	Double-crested cormorant (rookery)	<i>Phalacrocorax auritus</i>	-	CSC	-	X			A
R	m	San Joaquin whipsnake	<i>Masticophis flagellum ruddocki</i>	-	CSC	SC	X			B
R	m	Western pond turtle	<i>Clemmys marmorata</i>	-	CSC	SC	X			A
A	m	Foothill yellow-legged frog	<i>Rana boylei</i>	-	CSC	SC	X			A
A	m	Western spadefoot	<i>Scaphiopus hammondi</i>	-	CSC	SC	X			A
F	r	Hardhead	<i>Mylopharodon conocephalus</i>	-	CSC	-	X			B
F	r	Sacramento perch	<i>Archoplites interruptus</i>	-	CSC	SC	X			B
F	R	Longfin smelt	<i>Spirinchus thaleichthys</i>	-	CSC	-	X			B
F	R	Green sturgeon	<i>Acipenser medirostris</i>	-	CSC	-	X			B
I	m	Monarch butterfly (roost)	<i>Danaus plexippus</i>	-	CSC	-	X			B
P	m	Ahart's dwarf rush	<i>Juncus leiospermus var. ahartii</i>	-	-	1B/SC	X			B
P	r	Alkali milkvetch	<i>Astragalus tener var. tener</i>	-	-	1B/SC	X			A
P	m	Arburua Ranch jewelflower	<i>Streptanthus insignis ssp. lyonii</i>	-	-	1B/SC	X			B
P	m	Ben Lomond buckwheat	<i>Eriogonum nudum var. decurrens</i>	-	-	1B	X			B
P	m	Big tarplant	<i>Blepharizonia plumosa ssp. plumosa</i>	-	-	1B	X			B
P	r	Bristly sedge	<i>Carex comosa</i>	-	-	2	X			B
P	m	Brittlescale	<i>Atriplex depressa</i>	-	-	1B/SC	X			A

D-053771

D-053770

Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			ACTIONS ON SPECIES			
				Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	Decision Criteria <sup>5</sup>
P	m	California beaked-rush	<i>Rhynchospora californica</i>	-	-	1B/SC	X			A
P	m	Congdon's lomatium	<i>Lomatium congdonii</i>	-	-	1B/SC	X			B
P	m	Congdon's tarplant	<i>Hemizonia parryi ssp. congdonii</i>	-	-	1B/SC	X			A
P	m	Contra Costa manzanita	<i>Arctostaphylos manzanita ssp. laevigata</i>	-	-	1B	X			B
P	r	Delta mudwort	<i>Limosella subulata</i>	-	-	2	X			A
P	r	Delta tule pea	<i>Lathyrus jepsonii var. jepsonii</i>	-	-	1B/SC	X			A
P	m	Diablo helianthella	<i>Helianthella castanea</i>	-	-	1B/SC	X			B
P	m	Diamond-petaled California poppy	<i>Eschscholzia rhombipetala</i>	-	-	1B/SC	X			B
P	m	Eel-grass pondweed	<i>Potamogeton zosteriformis</i>	-	-	2	X			A
P	m	Ferris' milkvetch	<i>Astragalus tener var. ferrisiae</i>	-	-	1B/SC	X			A
P	m	Four-angled spikerush	<i>Eleocharis quadrangulata</i>	-	-	2	X			A
P	m	Heartscale	<i>Atriplex cordulata</i>	-	-	1B/SC	X			A
P	m	Heckard's peppergrass	<i>Lepidium latipes var. heckardii</i>	-	-	1B	X			B
P	m	Hispid bird's-beak	<i>Cordylanthus mollis ssp. hispidus</i>	-	-	1B/SC	X			A
P	m	Hospital Canyon larkspur	<i>Delphinium californicum ssp. interius</i>	-	-	1B/SC	X			B
P	m	Legenere	<i>Legenere limosa</i>	-	-	1B/SC	X			B
P	m	Lesser saltscale	<i>Atriplex minuscula</i>	-	-	1B/SC	X			A
P	m	Lost Hills crownscale	<i>Atriplex vallicola</i>	-	-	1B/SC	X			A
P	m	Mad-dog skullcap	<i>Scutellaria lateriflora</i>	-	-	2	X			A
P	m	Mariposa clarkia	<i>Clarkia biloba ssp. australis</i>	-	-	1B	X			B
P	m	Marsh checkerbloom	<i>Sidalcea oregana ssp. hydrophila</i>	-	-	1B/SC	X			A
P	m	Merced phacelia	<i>Phacelia ciliata var. opaca</i>	-	-	1B/SC	X			B
P	m	Mt. Diablo jewelflower	<i>Streptanthus hispidus</i>	-	-	1B/SC	X			B
P	m	Mt. Diablo manzanita	<i>Arctostaphylos auriculata</i>	-	-	1B	X			B
P	m	Mt. Hamilton coreopsis	<i>Coreopsis hamiltonii</i>	-	-	1B/SC	X			B
P	m	Mt. Hamilton jewelflower	<i>Streptanthus callistus</i>	-	-	1B/SC	X			B

Type <sup>1</sup>	Species Goals <sup>2</sup>	Common Name	Scientific Name	Status <sup>3</sup>			Potential Effects of CALFED Actions on Species <sup>4</sup>			Decision Criteria <sup>5</sup>
				Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species	
P	m	Napa western flax	<i>Hesperolinon serpentinum</i>	-	-	1B	X			B
P	r	Northern California black walnut (native stands)	<i>Juglans californica var. hindsii</i>	-	-	1B/SC	X			A
P	m	Panoche peppergrass	<i>Lepidium jaredii ssp. album</i>	-	-	1B/SC	X			A
P	m	Pincushion navarretia	<i>Navarretia myersii</i>	-	-	1B	X			B
P	m	Point Reyes bird's-beak	<i>Cordylanthus maritimus ssp. palustris</i>	-	-	1B/SC	X			A
P	m	Red Hills ragwort	<i>Senecio clevelandii var. heterophyllus</i>	-	-	1B	X			B
P	m	Red-flowered lotus	<i>Lotus rubriflorus</i>	-	-	1B/SC	X			B
P	m	Rose-mallow	<i>Hibiscus lasiocarpus</i>	-	-	2	X			A
P	m	San Joaquin spearscale	<i>Atriplex joaquiniana</i>	-	-	1B/SC	X			A
P	m	Sanford's arrowhead	<i>Sagittaria sanfordii</i>	-	-	1B/SC	X			A
P	m	Saw-toothed lewisia	<i>Lewisia serrata</i>	-	-	1B/SC	X			B
P	m	Shaggyhair lupine	<i>Lupinus spectabilis</i>	-	-	1B/SC	X			B
P	m	Sharsmith's harebell	<i>Campanula sharsmithiae</i>	-	-	1B/SC	X			B
P	m	Showy madia	<i>Madia radiata</i>	-	-	1B	X			B
P	m	Slough thistle	<i>Cirsium crassicaule</i>	-	-	1B/SC	X			A
P	m	Spiny-sepaled button-celery	<i>Eryngium spinosepalum</i>	-	-	1B/SC	X			A
P	R	Suisun Marsh aster	<i>Aster lentus</i>	-	-	1B/SC	X			A
<b>Other Species of Concern or CNPS List 3</b>										
M	r	San Pablo California vole	<i>Microtus californicus sanpabloensis</i>	-	-	SC	X			B
B	m	Black-crowned night heron (rookery)	<i>Nycticorax nycticorax</i>	-	-	SC	X			A
B	m	Great blue heron (rookery)	<i>Ardea herodias</i>	-	-	SC	X			A
B	m	Great egret (rookery)	<i>Casmerodius albus</i>	-	SB	SC	X			A
B	m	Snowy egret (rookery)	<i>Egretta thula</i>	-	SB	SC	X			A
P	m	Henderson's bent grass	<i>Agrostis hendersonii</i>	-	-	3/SC	X			A
P	m	Marin knotweed	<i>Polygonum marinense</i>	-	-	3/SC	X			A
P	m	San Antonio Hills monardella	<i>Monardella antonina ssp. antonina</i>	-	-	3	X			A

Notes:

<sup>1</sup>Type: M = mammal, B = bird, R = reptile, A = amphibian, F = fish, I = invertebrate, P = plant

<sup>2</sup>Species Goals:

- R = Recovery. Recover species' populations within the ERP Ecological Zones to levels that ensure the species' long-term survival in nature.
- r = Contribute to recovery. Implement a portion of the actions deemed necessary to recover species' populations within the ERP Ecological Zones.
- m = Maintain. Ensure that any adverse effects on the species that could be associated with implementation of CALFED actions will be fully offset through implementation of actions beneficial to the species.

<sup>3</sup>Status:

**Federal**

- E = Listed as endangered under ESA
- T = Listed as threatened under ESA
- PE = Proposed for listing as endangered under ESA
- PT = Proposed for listing as threatened under ESA
- C = Candidate for listing under ESA
- PR = Protected under the Bald and Golden Eagle Protection Act

**State**

- CE = Listed as endangered under CESA
- CT = Listed as threatened under CESA
- CCE = Candidate for listing as endangered under CESA
- CCT = Candidate for listing as threatened under CESA
- R = Listed as rare under California Native Plant Protection Act
- CSC = California species of special concern
- FP = Fully protected under California Fish and Game Code
- SB = Specified birds under California Fish and Game Code

**Other**

- 1A = California Native Plant Society List 1A
- 1B = California Native Plant Society List 1B
- 2 = California Native Plant Society List 2
- 3 = California Native Plant Society List 3
- SC = Other species of concern identified by CALFED

<sup>4</sup>Potential Effects of CALFED Actions on Species:

**May be Affected:**

X = CALFED actions may result in take of federally or state-protected species, species are associated with habitat types or occur at specific locations that may be adversely or beneficially affected by CALFED depending on where CALFED actions would be implemented, or species that are rare or transient in the ERP Ecological Zones and may be affected by CALFED depending on when or where CALFED actions would be implemented.

**Not Likely to be Affected:**

- X1 = CALFED actions do not affect the species because habitat is not limiting and the species is mobile.
- X2 = Species occurs in areas that would not be affected by CALFED actions.

**Not Enough Information on the Species:**

X = Not enough information on the species' biology or distribution to make a determination on effects.

<sup>5</sup>Decision Criteria:

- A = Included because CALFED actions could affect a substantial portion of the species' range or important habitat.
- B = Included because of limited distribution or rarity of the species.
- L = Included because species is federally or state listed as endangered, threatened, rare, or fully protected.
- P = Included because of the potential to become federally or state listed.

**SECTION XVII:**

**SPECIES CONSIDERED BUT NOT  
INCLUDED IN THE CALFED CONSERVATION  
STRATEGY**

**Species Considered but Not Included  
in the CALFED Conservation Strategy  
October 23, 1998**

D-053776

This is a list of special-status species known to occur or with potential to occur in the Ecosystem Restoration Program's (ERPs) 14 Ecological Zones that were considered but not included in the Conservation Strategy. Species on the list were not included in the Conservation Strategy because they:

- have no legal protection under federal or California Endangered Species Acts (ESA) or other California Fish and Game Code sections,
- are not likely to become federally or California listed as threatened or endangered during the term of CALFED implementation,

- would not be substantially affected by CALFED actions, or
- are not rare or limited in distribution.

Additionally, species were not included in the Conservation Strategy if there was not enough information on the species' biology to determine effects of CALFED actions and the species had no legal protection.

Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
			<b>California Species of Special Concern, or CNPS List 1 or 2</b>					
M	American badger	<i>Taxidea taxus</i>	-	CSC	-	X		
M	Pacific fisher	<i>Martes pennanti pacifica</i>	-	CSC	SC		X2	
M	California red tree vole	<i>Phenacomys longicaudus</i>	-	CSC	SC		X2	
M	Marysville California kangaroo rat	<i>Dipodomys heermanni eximus</i>	-	CSC	SC			X
M	Short-nosed kangaroo rat	<i>Dipodomys nitratoides brevinasus</i>	-	CSC	SC		X2	
M	Hoary bat	<i>Lasiurus cinereus</i>	-	CSC	-		X1	
M	Pacific western big-eared bat	<i>Plecotus townsendii townsendii</i>	-	CSC	SC		X1	
M	Pale Townsend's big-eared bat	<i>Plecotus townsendii pallescens</i>	-	CSC	SC	X		
M	Pallid bat	<i>Antrozous pallidus</i>	-	CSC	-		X1	
M	Silver-haired bat	<i>Lasionycteris noctivagans</i>	-	CSC	-		X1	
M	Spotted bat	<i>Euderma maculatum</i>	-	CSC	SC		X2	
B	Bell's sage sparrow	<i>Amphispiza belli belli</i>	-	CSC	SC		X2	
B	Loggerhead shrike	<i>Lanius ludovicianus</i>	-	CSC	-	X		
B	Purple martin	<i>Progne subis</i>	-	CSC	-		X1	
B	California spotted owl	<i>Strix occidentalis occidentalis</i>	-	CSC	SC		X2	
B	Yellow rail	<i>Coturnicops noveboracensis</i>	-	CSC	-		X1	

D-053775

Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
B	Merlin	<i>Falco columbarius</i>	-	CSC	-		X1	
B	Prairie falcon	<i>Falco mexicanus</i>	-	CSC	-		X1	
B	Ferruginous hawk	<i>Buteo regalis</i>	-	CSC	SC		X1	
B	Sharp-shinned hawk	<i>Accipiter striatus</i>	-	CSC	-		X1	
B	Harlequin duck	<i>Histrionicus histrionicus</i>	-	CSC	SC		X1	
B	American white pelican	<i>Pelecanus erythrorhynchos</i>	-	CSC	SC	X		
R	California horned lizard	<i>Phrynosoma coronatum frontale</i>	-	CSC	SC	X		
R	Silvery legless lizard	<i>Anniella pulchra pulchra</i>	-	CSC	SC			X2
A	Tailed frog	<i>Ascaphus truei</i>	-	CSC	SC			X2
F	Pit roach	<i>Lavinia symmetricus mitrulus</i>	-	CSC	SC			X2
F	San Joaquin roach	<i>Lavinia symmetricus ssp. (San Joaquin)</i>	-	CSC	SC			X2
F	McCloud River redband trout	<i>Oncorhynchus mykiss ssp.</i>	-	CSC	SC			X2
F	Kern brook lamprey	<i>Lampetra hubbsi</i>	-	CSC	SC			X2
F	River lamprey	<i>Lampetra ayresi</i>	-	CSC	-			X
P	Adobe-lily	<i>Fritillaria pluriflora</i>	-	-	1B/SC			X2
P	Ahart's paronychia	<i>Paronychia ahartii</i>	-	-	1B/SC	X		
P	American scheuchzeria	<i>Scheuchzeria palustris var. americana</i>	-	-	2	X		
P	Anthony Peak lupine	<i>Lupinus antoninus</i>	-	-	1B/SC			X2
P	Baker's navarretia	<i>Navarretia leucocephala ssp. bakeri</i>	-	-	1B	X		
P	Beaked clarkia	<i>Clarkia rostrata</i>	-	-	1B/SC	X		
P	Bearded popcornflower	<i>Plagiobothrys hystriculus</i>	-	-	1A			X2
P	Bellinger's meadowfoam	<i>Limnanthes floccosa ssp. bellingeriana</i>	-	-	1B/SC			X2
P	Big-scale balsamroot	<i>Balsamorhiza macrolepis var. macrolepis</i>	-	-	1B	X		
P	Brandegee's eriastrum	<i>Eriastrum brandegeae</i>	-	-	1B/SC			X2
P	Brewer's western flax	<i>Hesperolinon breweri</i>	-	-	1B/SC	X		
P	Butte County checkerbloom	<i>Sidalcea robusta</i>	-	-	1B/SC			X2

Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
P	Butte County fritillary	<i>Fritillaria eastwoodiae</i>	-	-	1B/SC		X2	
P	Calistoga ceanothus	<i>Ceanothus divergens</i>	-	-	1B/SC		X2	
P	Cantelow's lewisia	<i>Lewisia cantelovii</i>	-	-	1B		X2	
P	Canyon Creek stonecrop	<i>Sedum paradisum</i>	-	-	1B/SC		X2	
P	Caper-fruited tropidocarpum	<i>Tropidocarpum capparideum</i>	-	-	1A/SC		X2	
P	Carquinez goldenbush	<i>Isocoma arguta</i>	-	-	1B/SC	X		
P	Cascade alpine campion	<i>Silene suksdorfii</i>	-	-	2		X2	
P	Closed-throated beardtongue	<i>Penstemon personatus</i>	-	-	1B/SC		X2	
P	Cobb Mountain lupine	<i>Lupinus sericatus</i>	-	-	1B		X2	
P	Colusa layia	<i>Layia septentrionalis</i>	-	-	1B		X2	
P	Coulter's goldfields	<i>Lasthenia glabrata ssp. coulteri</i>	-	-	1B	X		
P	Cut-leaved ragwort	<i>Senecio eurycephalus var. lewisrosei</i>	-	-	1B		X2	
P	Dimorphic snapdragon	<i>Antirrhinum subcordatum</i>	-	-	1B		X2	
P	Drymaria-like western flax	<i>Hesperolinon drymarioides</i>	-	-	1B		X2	
P	Dwarf downingia	<i>Downingia pusilla</i>	-	-	2	X		
P	Dwarf soaproot	<i>Chlorogalum pomeridianum var. minus</i>	-	-	1B		X2	
P	El Dorado County mule ears	<i>Wyethia reticulata</i>	-	-	1B/SC		X2	
P	English sundew	<i>Drosera anglica</i>	-	-	2		X2	
P	Enterprise clarkia	<i>Clarkia mosquinii ssp. xerophila</i>	-	-	1B/SC		X2	
P	Feather River stonecrop	<i>Sedum albomarginatum</i>	-	-	1B		X2	
P	Fox sedge	<i>Carex vulpinoidea</i>	-	-	2	X		
P	Fragrant fritillary	<i>Fritillaria liliacea</i>	-	-	1B/SC		X2	
P	Freed's jewelflower	<i>Streptanthus brachiatus ssp. hoffmanii</i>	-	-	1B/SC		X2	
P	Golden draba	<i>Draba aureola</i>	-	-	1B		X2	
P	Hairless popcornflower	<i>Plagiobothrys glaber</i>	-	-	1A		X2	
P	Hall's bush mallow	<i>Malacothamnus hallii</i>	-	-	1B	X		

Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
P	Hall's madia	<i>Madia hallii</i>	-	-	1B/SC		X2	
P	Hall's rupertia	<i>Rupertia hallii</i>	-	-	1B		X2	
P	Hooked popcornflower	<i>Plagiobothrys uncinatus</i>	-	-	1B/SC	X		
P	Hoover's calycadenia	<i>Calycadenia hooveri</i>	-	-	1B/SC	X		
P	Indian Valley bush mallow	<i>Malacothamnus aboriginum</i>	-	-	1B		X2	
P	Jepson's milkvetch	<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	-	-	1B		X2	
P	Jepson's onion	<i>Allium jepsonii</i>	-	-	1B/SC		X2	
P	Kruckeberg's jewelflower	<i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i>	-	-	1B/SC		X2	
P	Lassen Peak smelowskia	<i>Smelowskia ovalis</i> var. <i>congesta</i>	-	-	1B/SC		X2	
P	Long-haired star-tulip	<i>Calochortus longebarbatus</i> var. <i>longebarbatus</i>	-	-	1B		X2	
P	Long-leaved starwort	<i>Stellaria longifolia</i>	-	-	2		X2	
P	Madera linanthus	<i>Linanthus serrulatus</i>	-	-	1B	X		
P	Marin County navarretia	<i>Navarretia rosulata</i>	-	-	1B		X2	
P	Marsh skullcap	<i>Scutellaria galericulata</i>	-	-	2	X		
P	Merced monardella	<i>Monardella leucocephala</i>	-	-	1A/SC		X2	
P	Mingan moonwort	<i>Botrychium minganense</i>	-	-	2		X2	
P	Mosquin's clarkia	<i>Clarkia mosquinii</i>	-	-	1B	X		
P	Moss phlox	<i>Phlox muscoides</i>	-	-	2		X2	
P	Most beautiful jewelflower	<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	-	-	1B/SC	X		
P	Mt. Tamalpais jewelflower	<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	-	-	1B		X2	
P	Mt. Diablo buckwheat	<i>Eriogonum truncatum</i>	-	-	1A/SC		X2	
P	Mt. Diablo fairy-lantern	<i>Calochortus pulchellus</i>	-	-	1B	X		
P	Mt. Diablo phacelia	<i>Phacelia phacelioides</i>	-	-	1B/SC	X		
P	Mt. Hamilton thistle	<i>Cirsium fontinale</i> var. <i>campylon</i>	-	-	1B/SC	X		
P	Mt. Tedoc linanthus	<i>Linanthus nuttallii</i> ssp. <i>howellii</i>	-	-	1B/SC		X2	
P	Munz's tidy-tips	<i>Layia munzii</i>	-	-	1B	X		

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Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
P	Narrow-leaved daisy	<i>Erigeron angustatus</i>	-	-	1B		X2	
P	Niles madia	<i>Madia doris-nilesiae</i>	-	-	1B		X2	
P	Nissenan manzanita	<i>Arctostaphylos nissenana</i>	-	-	1B/SC		X2	
P	Northern daisy	<i>Trimorpha acris var. debilis</i>	-	-	2		X2	
P	Northern spleenwort	<i>Asplenium septentrionale</i>	-	-	2		X2	
P	Nuttall's pondweed	<i>Potamogeton epihydrus ssp. nuttallii</i>	-	-	2		X2	
P	Obtuse starwort	<i>Stellaria obtusa</i>	-	-	2		X2	
P	Oregon fireweed	<i>Epilobium oreganum</i>	-	-	1B/SC		X2	
P	Pale-yellow layia	<i>Layia heterotricha</i>	-	-	1B		X2	
P	Parry's horkelia	<i>Horkelia parryi</i>	-	-	1B/SC		X2	
P	Petaluma popcornflower	<i>Plagiobothrys mollis var. vestitus</i>	-	-	1A		X2	
P	Pleasant Valley mariposa lily	<i>Calochortus clavatus var. avius</i>	-	-	1B/SC		X2	
P	Point Reyes checkerbloom	<i>Sidalcea calycosa ssp. rhizomata</i>	-	-	1B		X2	
P	Pointed broom sedge	<i>Carex scoparia</i>	-	-	2		X2	
P	Prairie wedge grass	<i>Sphenopholis obtusata</i>	-	-	2		X2	
P	Quincy lupine	<i>Lupinus dalesiae</i>	-	-	1B		X2	
P	Rayless layia	<i>Layia discoidea</i>	-	-	1B		X2	
P	Rayless ragwort	<i>Senecio aphanactis</i>	-	-	2		X2	
P	Recurved larkspur	<i>Delphinium recurvatum</i>	-	-	1B/SC	X		
P	Red Bluff dwarf rush	<i>Juncus leiospermus var. leiospermus</i>	-	-	1B		X2	
P	Red Hills soaproot	<i>Chlorogalum grandiflorum</i>	-	-	1B/SC		X2	
P	Rincon manzanita	<i>Arctostaphylos stanfordiana ssp. decumbens</i>	-	-	1B		X2	
P	Rincon Ridge ceanothus	<i>Ceanothus confusus</i>	-	-	1B/SC		X2	
P	Robust monardella	<i>Monardella villosa ssp. globosa</i>	-	-	1B		X2	
P	San Benito spineflower	<i>Chorizanthe biloba var. immemora</i>	-	-	1B		X2	
P	San Francisco owl's-clover	<i>Triphysaria floribunda</i>	-	-	1B		X2	

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Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
P	Santa Clara red ribbons	<i>Clarkia concinna ssp. automixa</i>	-	-	1B/SC	X		
P	Scalloped moonwort	<i>Botrychium crenulatum</i>	-	-	1B/SC	X		
P	Serpentine cryptantha	<i>Cryptantha clevelandii var. dissita</i>	-	-	1B			X2
P	Sharsmith's onion	<i>Allium sharsmithae</i>	-	-	1B/SC	X		
P	Shasta clarkia	<i>Clarkia borealis ssp. arida</i>	-	-	1B/SC			X2
P	Shasta snow-wreath	<i>Neviusia cliftonii</i>	-	-	1B			X2
P	Shining navarretia	<i>Navarretia nigelliformis ssp. radians</i>	-	-	1B	X		
P	Shore sedge	<i>Carex limosa</i>	-	-	2			X2
P	Silky cryptantha	<i>Cryptantha crinita</i>	-	-	1B/SC			X2
P	Slender bulrush	<i>Scirpus heterochaetus</i>	-	-	2			X2
P	Slender sedge	<i>Carex lasiocarpa</i>	-	-	2	X		
P	Slender-leaved pondweed	<i>Potamogeton filiformis</i>	-	-	2	X		
P	Small's southern clarkia	<i>Clarkia australis</i>	-	-	1B			X2
P	Snow Mountain buckwheat	<i>Eriogonum nervulosum</i>	-	-	1B/SC			X2
P	Socrates mine jewelflower	<i>Streptanthus brachiatus ssp. brachiatus</i>	-	-	1B/SC			X2
P	Sonoma beardtongue	<i>Penstemon newberryi var. sonomensis</i>	-	-	1B			X2
P	Sonoma ceanothus	<i>Ceanothus sonomensis</i>	-	-	1B/SC			X2
P	Sonoma manzanita	<i>Arctostaphylos canescens ssp. sonomensis</i>	-	-	1B			X2
P	Stebbins' lewisia	<i>Lewisia stebbinsii</i>	-	-	1B/SC			X2
P	Stebbins' madia	<i>Madia stebbinsii</i>	-	-	1B/SC			X2
P	Stebbins' phacelia	<i>Phacelia stebbinsii</i>	-	-	1B/SC			X2
P	Sticky pyrrocoma	<i>Pyrrocoma lucida</i>	-	-	1B			X2
P	Suksdorf's milkvetch	<i>Astragalus pulsiferae var. suksdorfii</i>	-	-	1B/SC			X2
P	Talus collomia	<i>Collomia larsenii</i>	-	-	2			X2
P	Talus fritillary	<i>Fritillaria falcata</i>	-	-	1B/SC	X		
P	Tehama County western flax	<i>Hesperolinon tehamense</i>	-	-	1B			X2

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Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
P	The Lassics sandwort	<i>Minuartia decumbens</i>	-	-	1B/SC			X2
P	Three Peaks jewelflower	<i>Streptanthus morrisonii ssp. elatus</i>	-	-	1B/SC			X2
P	Tracy's sanicle	<i>Sanicula tracyi</i>	-	-	1B/SC			X2
P	Tuolumne fawn lily	<i>Erythronium tuolumnense</i>	-	-	1B			X2
P	Two-carpellate western flax	<i>Hesperolinon bicarpellatum</i>	-	-	1B/SC			X2
P	Upswept moonwort	<i>Botrychium ascendens</i>	-	-	2/SC			X2
P	Veiny monardella	<i>Monardella douglasii ssp. venosa</i>	-	-	1B/SC			X2
P	Water bulrush	<i>Scirpus subterminalis</i>	-	-	2			X2
P	Western goblin	<i>Botrychium montanum</i>	-	-	2			X2
P	Western leatherwood	<i>Dirca occidentalis</i>	-	-	1B		X	
P	White-stemmed clarkia	<i>Clarkia gracilis ssp. albicaulis</i>	-	-	1B			X2
P	White-stemmed pondweed	<i>Potamogeton praelongus</i>	-	-	2		X	
P	Wilkin's harebell	<i>Campanula wilkinsiana</i>	-	-	1B/SC			X2
P	Woolly meadowfoam	<i>Limnanthes floccosa ssp. floccosa</i>	-	-	2			X2
P	Woolly violet	<i>Viola tomentosa</i>	-	-	1B			X2
P	Wright's trichocoronis	<i>Trichocoronis wrightii var. wrightii</i>	-	-	2		X	
<b>Other Species of Concern or CNPS List 3</b>								
M	Berkeley kangaroo rat	<i>Dipodomys heermanni berkeleyensis</i>	-	-	SC			X2
M	Merced kangaroo rat	<i>Dipodomys heermanni dixonii</i>	-	-	SC		X	
M	San Joaquin pocket mouse	<i>Perognathus inornatus</i>	-	-	SC		X	
M	Fringed myotis	<i>Myotis thysanodes</i>	-	-	SC		X	
M	Long-eared myotis	<i>Myotis evotis</i>	-	-	SC			X2
M	Long-legged myotis	<i>Myotis volans</i>	-	-	SC			X1
M	Red bat	<i>Lasiurus borealis</i>	-	-	SC		X	
M	Small-footed myotis	<i>Myotis ciliolabrum</i>	-	-	SC			X2
M	Yuma myotis	<i>Myotis yumanensis</i>	-	-	SC		X	
B	California horned lark	<i>Eremophila alpestris actia</i>	-	-	SC		X	

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Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
B	Northern goshawk	<i>Accipiter gentilis</i>	-	-	SC		X1	
A	Cascades frog	<i>Rana cascadae</i>	-	-	SC		X2	
A	Shasta salamander	<i>Hydromantes shastae</i>	-	-	SC		X2	
F	Rough sculpin	<i>Cottus asperimus</i>	-	-	SC		X2	
F	Pacific lamprey	<i>Lampetra tridentata</i>	-	-	SC			X
I	Antioch andrenid bee	<i>Perdita scitula antiochensis</i>	-	-	SC	X		
I	Antioch mutillid wasp	<i>Myrmosula pacifica</i>	-	-	SC	X		
I	Antioch sphecid wasp	<i>Philanthus nasilis</i>	-	-	SC	X		
I	Redheaded sphecid wasp	<i>Eucerceris ruficeps</i>	-	-	SC	X		
I	Yellow-banded andrenid bee	<i>Perdita hirticeps luteocincta</i>	-	-	SC	X		
I	Ant'och cophuran robberfly	<i>Cophura hurdi</i>	-	-	SC	X		
I	Antioch efferian robberfly	<i>Efferia antiochi</i>	-	-	SC	X		
I	Gold Rush hanging fly	<i>Orbittacus obscurus</i>	-	-	SC	X		
I	Hurd's metapogon robberfly	<i>Metapogon hurdi</i>	-	-	SC	X		
I	Opler's longhorn moth	<i>Adela oplerella</i>	-	-	SC		X2	
I	Bohart's blue butterfly	<i>Philotiella speciosa bohartorum</i>	-	-	SC	X		
I	Marin elfin butterfly	<i>Incisalia mossii</i>	-	-	SC		X2	
I	Amphibious caddisfly	<i>Desmona bethula</i>	-	-	SC	X		
I	Antioch Dunes anthicid beetle	<i>Anthicus antiochensis</i>	-	-	SC	X		
I	Ciervo aegialian scarab beetle	<i>Aegialia concinna</i>	-	-	SC	X		
I	Curved-foot hygrotus diving beetle	<i>Hygrotus curvipes</i>	-	-	SC	X		
I	Globose dune beetle	<i>Coelus globosus</i>	-	-	SC	X		
I	Ground beetle (no common name)	<i>Scaphinotus behrensi</i>	-	-	SC	X		
I	Leech's skyline diving beetle	<i>Hydroporus leechi</i>	-	-	SC			X
I	Moestan blister beetle	<i>Lytta moesta</i>	-	-	SC	X		
I	Molestan blister beetle	<i>Lytta molesta</i>	-	-	SC	X		
I	Ricksecker's water scavenger beetle	<i>Hydrochara rickseckeri</i>	-	-	SC	X		

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Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
I	Sacramento anthicid beetle	<i>Anthicus sacramento</i>	-	-	SC	X		
I	Sacramento Valley tiger beetle	<i>Cicindela hirticollis abrupta</i>	-	-	SC	X		
I	San Joaquin dune beetle	<i>Coelus gracilis</i>	-	-	SC	X		
I	San Joaquin tiger beetle	<i>Cicindela tranquebarica ssp</i>	-	-	SC	X		
I	Sandy beach tiger beetle	<i>Cicindela hirticollis gravida</i>	-	-	SC	X		
I	Middlekauf's shieldback katydid	<i>Idiostatus middlekaufi</i>	-	-	SC	X		
I	Bridges' Coast Range shoulderband snail	<i>Helminthoglypta nickliniana bridgesi</i>	-	-	SC			X2
I	Merced Canyon shoulderband snail	<i>Helminthoglypta allynsmithi</i>	-	-	SC	X		
I	Williams' bronze shoulderband snail	<i>Helminthoglypta arrosa williamsi</i>	-	-	SC	X		
P	Bisbee Peak rush-rose	<i>Helianthemum suffrutescens</i>	-	-	3			X2
P	Butte County morning-glory	<i>Calystegia atriplicifolia ssp. buttensis</i>	-	-	3/SC			X2
P	California sycamore	<i>Platanus racemosa</i>	-	-	SC	X		
P	Clustered lady's-slipper	<i>Cypripedium fasciculatum</i>	-	-	SC			X2
P	Dissected-leaf toothwort	<i>Cardamine pachystigma var. dissectifolia</i>	-	-	3			X2
P	Douglas' pogogyne	<i>Pogogyne douglasii ssp. parviflora</i>	-	-	3	X		
P	Dubious pea	<i>Lathyrus sulphureus var. argillaceus</i>	-	-	3			X2
P	Forked fiddleneck	<i>Amsinckia vernicosa var. furcata</i>	-	-	SC			X2
P	Gairdner's yampah	<i>Perideridia gairdneri ssp. gairdneri</i>	-	-	SC			X2
P	Hayfield tarplant	<i>Hemizonia congesta ssp. leucocephala</i>	-	-	3			X2
P	Little mousetail	<i>Myosurus minimus ssp. apus</i>	-	-	3/SC	X		
P	Mt. Saint Helena morning-glory	<i>Calystegia collina ssp. oxyphylla</i>	-	-	SC			X2
P	Nelson's pepperwort	<i>Marsilea oligospora</i>	-	-	3	X		
P	Pubescent needlegrass	<i>Achnatherum lemmonii var. pubescens</i>	-	-	3			X2
P	Santa Cruz Mtns. pussypaws	<i>Calyptidium parryi var. hesseae</i>	-	-	3			X2
P	Serpentine monkeyflower	<i>Mimulus brachiatus</i>	-	-	3			X2
P	Siskiyou Mtns. huckleberry	<i>Vaccinium coccineum</i>	-	-	3			X2
P	Streamside daisy	<i>Erigeron biolettii</i>	-	-	3			X2

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Type <sup>1</sup>	Common Name	Scientific Name	Status <sup>2</sup>			Potential Effects of CALFED Actions on Species <sup>3</sup>		
			Federal	State	Other	May Be Affected	Not Likely to be Affected	Not Enough Information on the Species
			P	Sweet marsh ragwort	<i>Senecio hydrophiloides</i>	-	-	3
P	Tiburon buckwheat	<i>Eriogonum luteolum var. caninum</i>	-	-	3		X2	
P	Vernal pool saltbush	<i>Atriplex persistens</i>	-	-	SC		X2	
P	Western campion	<i>Silene occidentalis ssp. longistipitata</i>	-	-	3/SC		X2	
P	Woolly-headed lessingia	<i>Lessingia hololeuca</i>	-	-	3		X2	

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**Notes:**

<sup>1</sup> **Type:** M = mammal, B = bird, R = reptile, A = amphibian, F = fish, I = invertebrate, P = plant

<sup>2</sup> **Status:**

**State**

CSC = California species of special concern

**Other**

1A = California Native Plant Society List 1A

1B = California Native Plant Society List 1B

2 = California Native Plant Society List 2

3 = California Native Plant Society List 3

SC = Other species of concern identified by CALFED

<sup>3</sup> **Potential Effects of CALFED Actions on Species:**

**May be Affected:**

X = Species are associated with habitat types or occur at specific locations that may be adversely or beneficially affected by CALFED depending on where CALFED actions would be implemented, or species that are rare or transient in the ERP Ecological Zones and may be affected by CALFED depending on when or where CALFED actions would be implemented.

**Not Likely to be Affected:**

X1 = CALFED actions do not affect the species because habitat is not limiting and the species is mobile.

X2 = Species occurs in areas that would not be affected by CALFED actions.

**Not Enough Information on the Species:**

X = Not enough information on the species' biology or distribution to make a determination on effects.