Biological Resources - Volume 1

SANTA ROSA SUBREGIONAL LONG-TERM WASTEWATER PROJECT

Prepared for

City of Santa Rosa
and
U.S. Army Corps of Engineers

July 15, 1996

Prepared by

HARLAND BARTHOLOMEW & ASSOCIATES, INC.
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1. INTRODUCTION

Harland Bartholomew & Associates, Inc. (HBA) prepared this technical memorandum in support of the Santa Rosa Subregional Long-Term Wastewater Project EIR/EIS - Section 4.8 Terrestrial Biological Resources and Section 4.9 Aquatic Biological Resources. This document comprises Volume I of the Biological Resources Technical Memorandum and contains the setting, study methodologies, and results for the terrestrial and aquatic biological resources documented for each project component. This information is presented in the following order:

Section 1 Introduction;

Section 2 Storage Reservoir Sites;

Section 3 Agricultural Irrigation Areas;

Section 4 Pipelines and Pump Stations;

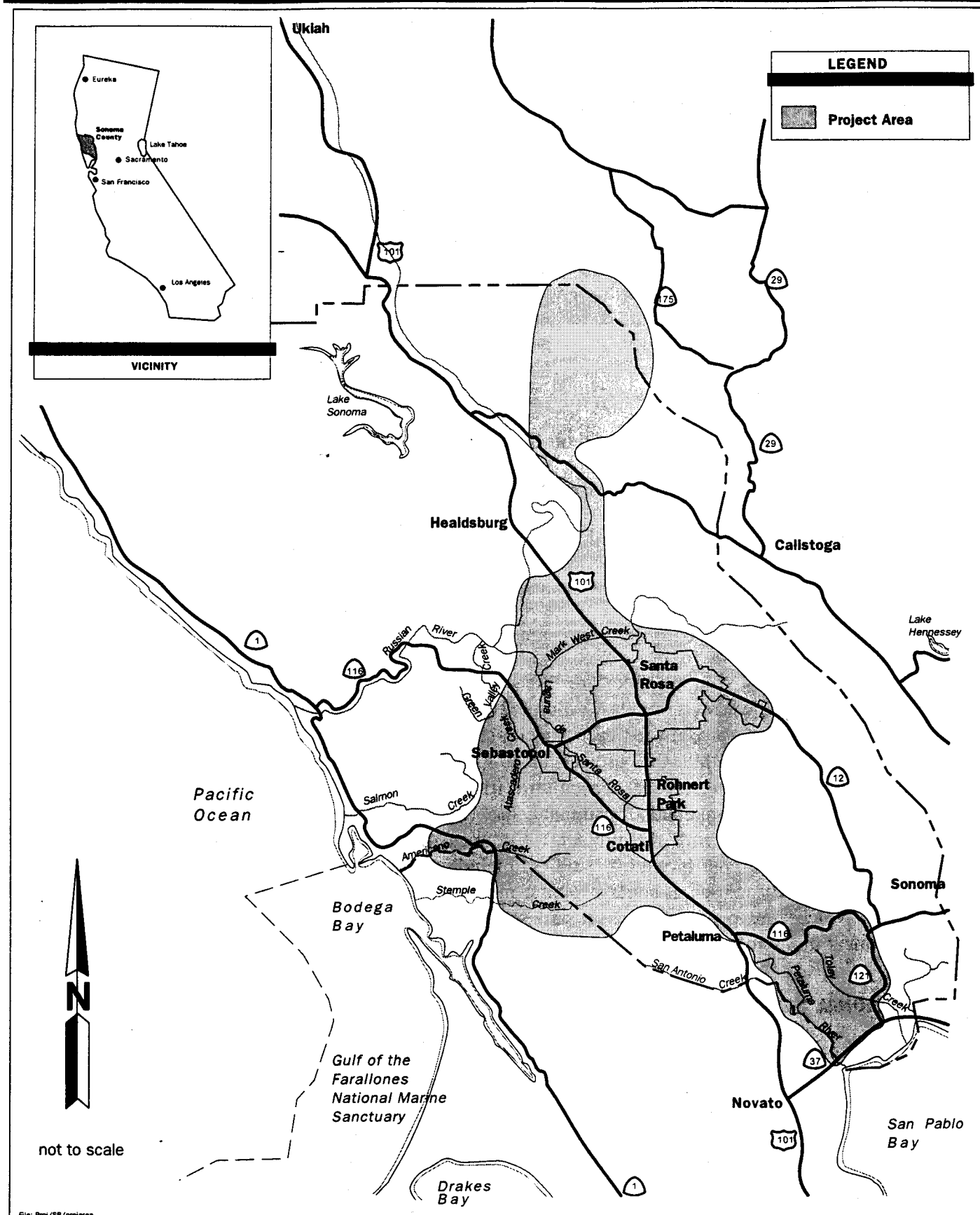
Section 5 Impact Analysis; and

Section 6 Document Sources.

In addition to this volume, there are three other volumes that make up the Biological Resources Technical Memorandum. Volume 2 - Special-Status Species Accounts contains individual species accounts for each special-status plant and animal species that could potentially occur within the project area. Volume 3 contains the four technical memoranda (storage reservoirs, agricultural irrigation, pipelines, and Geysers) prepared by Sycamore Environmental Consultants, Inc. (Sycamore Environmental) for botanical resources associated with the project. Volumes 4A-4E contain the maps that were prepared for all of the biological studies, including special-status species occurrences, plant community mapping, aquatic habitat mapping, and wildlife habitat mapping. The maps, which are organized by set and sheet number, are referenced throughout this document (e.g., Map A-1).

REGIONAL SETTING

On April 19, 1995, the Board of Public Utilities adopted alternative configurations of the Santa Rosa Subregional Long-Term Wastewater Project for purposes of analysis in the EIR/EIS. The alternatives encompass a large geographic area in Sonoma County and a portion of northern Marin County, covering approximately 400 square miles located in five cities as well as the two Counties (Figure 1-1). The project area is focused on central Sonoma County within and adjacent to the cities of Santa Rosa, Rohnert Park, Cotati, Petaluma, and Sebastopol, but also extends from the Geysers area north of Healdsburg to the Tolay Creek valley southeast of Petaluma and the San Antonio Valley in northern



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Santa Rosa
Subregional Long-Term Wastewater Project

Figure 1-1
VICINITY/PROJECT AREA

Marin County. The project area extends from the low coastal hills around Valley Ford in the west, to the lower elevations of the Sonoma Mountains in the east. The project area includes most of the Santa Rosa Plain, as well as portions of the Mayacamas Mountains, Alexander Valley, Cotati Valley, and Petaluma River Valley. Major waterways in the project area are the Russian River, the Laguna de Santa Rosa, the Estero Americano, Stemple Creek, Tolay Creek, and the Petaluma River. Major geographic areas included within the project area were defined to facilitate the identification of specific project alternatives. The three major geographic areas defined were Sebastopol, South County, and West County. Project components associated with the Sebastopol area are an agricultural irrigation area and associated transmission pipelines, and pump stations. The South County area is composed of five proposed storage reservoir sites, five agricultural irrigation areas, and associated transmission pipelines and pump stations. The West County area contains five proposed storage reservoirs, three agricultural irrigation areas, and associated pipelines and pump stations. More specific discussions on these geographic areas are provided below.

Sebastopol

The Sebastopol geographic area is characterized primarily by agricultural plant communities. Apple, crabapple, and peach orchards are common in this area. Squash and other row crops are also grown. Unirrigated areas are used as pasture and consist of annual grasslands, seasonal wetlands, drainages, and riparian communities.

The main watersheds associated with the Sebastopol area are Green Valley Creek and Atascadero Creek. For more information on the Sebastopol geographic area, refer to Section 3 - Agricultural Irrigation Areas.

South County

The South County area supports a large agricultural industry including vineyards, irrigated cropland, and pasture for sheep, cattle, and horses. The northern portion of this area consists of pasture and vineyards on rolling hills, while the southern portion primarily contains croplands and grazed annual grassland with a few scattered vineyards.

Due to the relative inaccessibility to cattle, steeper hillsides often support relatively undisturbed plant communities including native grassland. Freshwater seeps are also common on many of the hillsides in the area. Riparian and oak woodlands are distributed in areas with well-developed soils along drainages. Eucalyptus groves are prevalent in the area, planted along fencelines and drainages to serve as windbreaks. The floodplain of the Petaluma River formerly supported extensive tidal marshes. This area was diked, reclaimed, and is now dominated by cropland and pasture interspersed with seasonal wetlands (including vernal pools) (Association of Bay Area Governments 1991). The remaining tidal marshes are primarily associated with the east side of the Petaluma River. The Baylands area along northern San Pablo Bay formerly consisted of salt or freshwater marsh wetlands (Association of Bay Area Governments 1991). This area was extensively drained and now supports primarily crop and pastureland (composed of annual grasses); farmed wetlands and wetland pastures are also present.

Important habitat features associated with the South County geographic area include the Petaluma Marsh, Cunningham Marsh, Petaluma River, and San Pablo Bay. Three state wildlife areas are located within the vicinity of the South County geographic area and include San Pablo Bay Wildlife Area in Sonoma and Marin counties; Napa-Sonoma Marshes Wildlife Area in Solano, Napa, and Sonoma counties; and the Petaluma Marsh Wildlife Area in Sonoma County. The wildlife areas provide foraging habitat and cover for migratory waterfowl, as well as cover, breeding, and foraging habitat for resident water birds and other wildlife.

West County

The topography of the West County geographic area varies from rolling hills to steep, incised valleys. The area has a strong maritime influence which contributes to the growth of coastal prairie. The gently sloping, wind swept hills of the area also support annual grasslands, while pockets of oak woodland and oak-bay-madrone woodland are found in the steeper valleys. The numerous perennial and intermittent streams of the area also contain willow riparian and mixed-riparian woodland. Occasionally, narrow seasonal wetlands occur along the banks of these streams and drainages. Many of the valleys and low lying areas support seasonal wetlands, freshwater marshes, and vernal pools. Patches of northern coastal scrub are found on drier hillsides with shallow rocky soils. The West County area supports a large agricultural community; the majority of the area is devoted to pasture (for cattle and other livestock) and cropland (primarily oat hay). The predominant exotic plant community is eucalyptus.

The Estero Americano (a component of the Americano Creek watershed) and Estero de San Antonio (a component of the Stemple Creek watershed) comprise unique habitat features of the West County area. Both of the esteros are located within the Gulf of the Farallones National Marine Sanctuary (NMS). Americano Creek and Stemple Creek empty into the NMS at the upper ends of the esteros. The esteros are located in the heart of the Pacific Flyway, and the mudflats and open water of the esteros provide seasonally important foraging habitat for migratory waterfowl and shorebirds, and resident long-legged wading birds (Connors and Maron 1989, Madrone and Associates 1977). The eelgrass beds located near the mouths of the esteros provide critically important seasonal foraging habitat for migratory brant (*Branta bernicla*), which forage almost exclusively on eelgrass.

2. STORAGE RESERVOIR SITES

2.1 SETTING

Ten proposed sites for storage reservoirs are included in the project, five each in South County and West County (Figure 2.1-1). Storage reservoirs sites evaluated as part of the project are listed below.

- **South County**
    - Adobe Road
    - Lakeville Hillside
    - Sears Point
    - Tolay Confined
    - Tolay Extended
- **West County**
    - Bloomfield
    - Carroll Road
    - Huntley
    - Two Rock
    - Valley Ford

All reservoirs would be constructed by damming a natural drainage or valley by means of an earth filled embankment dam. In addition to the main dam, some of the reservoirs would include a smaller backdam, which would isolate a portion of the drainage area from the reservoir. This would be done to prevent flooding of a portion of the drainage area so that the current land use could be maintained. In addition, some of the reservoirs would include one or more saddle dams which would prevent the full reservoir from spilling out into an adjacent watershed. The purpose of the saddle dams would be to maximize storage capacity at the reservoir site while limiting impact on adjacent property. For more information on storage reservoir construction, refer to Chapter 3, Project Description of the Santa Rosa Subregional Long-Term Wastewater Project EIR/EIS.

SOUTH COUNTY

Adobe Road

The proposed Adobe Road storage reservoir site, which covers roughly 350 acres, is located in a northeast-southwest oriented valley, 3.6 miles southeast of the town of Penngrove in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 180 to

420 feet above mean sea level (amsl) (Glen Ellen 7.5-minute USGS Quadrangle 1980). An unnamed intermittent creek runs through the site in a southerly direction, ultimately draining into the Petaluma River. Several side channels empty into the creek from the surrounding hillsides. The site is currently being used as rangeland for cattle.

Lakeville Hillside

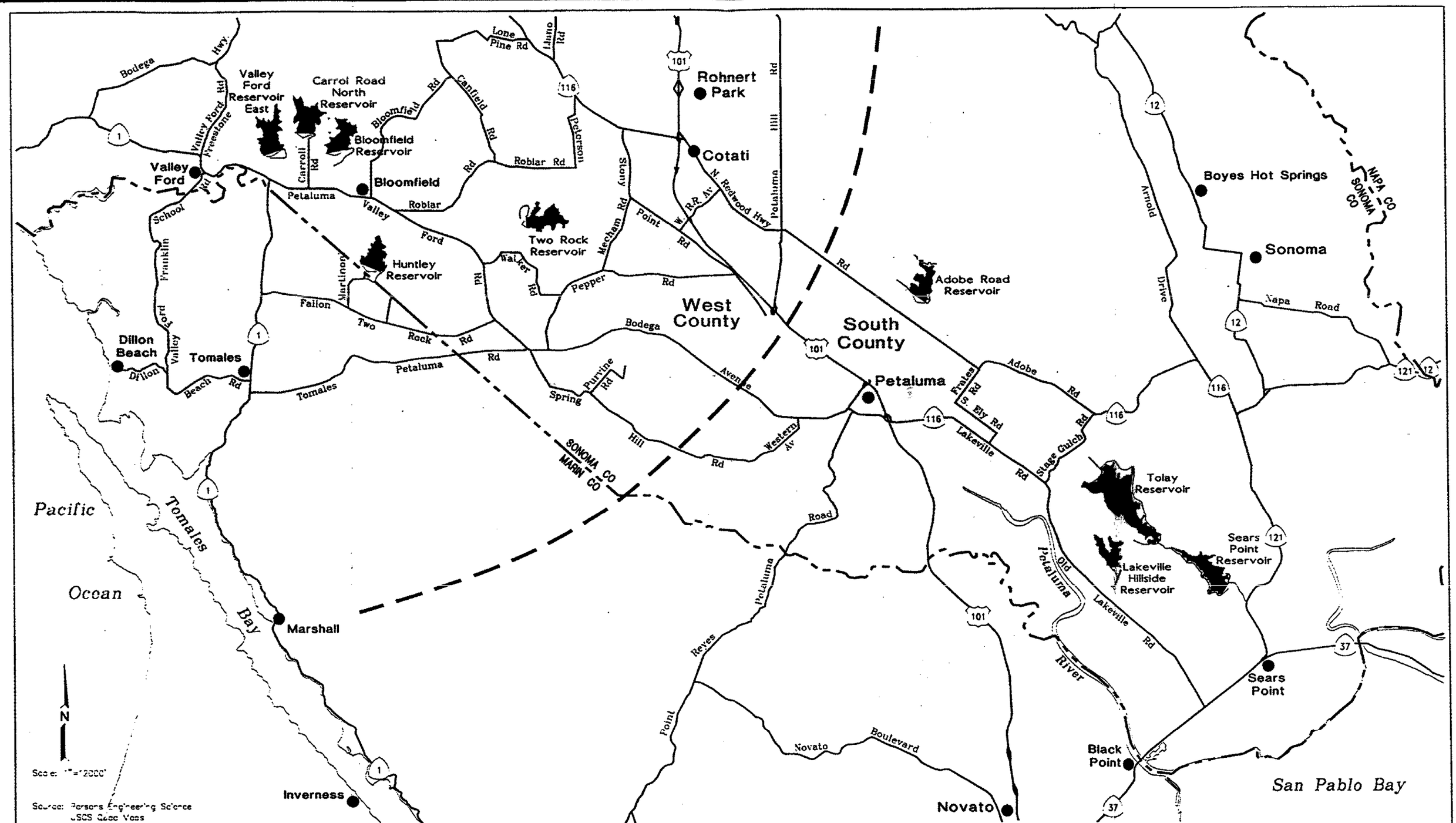
The proposed Lakeville Hillside storage reservoir site, which covers roughly 230 acres, is located in a steep-sided, northeast-northwest oriented valley, approximately 2.3 miles east of the town of Lakeville in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 140 to 220 feet amsl (Petaluma River 7.5-minute USGS Quadrangle 1980). Two unnamed, intermittent drainages flow into Lakeville Hillside from the north and converge into a single main drainage that ultimately flows off site into the Petaluma River. The Lakeville Hillside site is located in a fairly steep canyon that is vegetated primarily by grazed annual grassland. A vineyard is present at the northern end of the site between the two drainages. The vineyard is flanked by two side drainages which merge near the middle of the site, flowing in a southerly direction.

Sears Point

The proposed Sears Point storage reservoir site, which covers roughly 470 acres, is located in a narrow, northwest-southeast oriented valley, approximately 1.5 miles north of the intersection of State Routes 121 and 37 in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 80 to 200 feet amsl (Sears Point 7.5-minute USGS Quadrangle 1980). Tolay Creek flows through the center of the valley and empties into San Pablo Bay southeast of Sears Point. The site is primarily used as cattle rangeland.

Tolay (Confined and Extended)

The proposed Tolay storage reservoir sites (Tolay Confined and Tolay Extended) are 600- and 1,050-acre sites respectively, that are located in the northwest-southeast oriented Tolay Valley approximately 1.6 miles east of the town of Lakeville in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 220 to 400 feet amsl (Petaluma River 7.5-minute USGS Quadrangle 1980). Tolay Creek, which has been channelized throughout most of the reservoir sites, flows southward to the proposed Sears Point storage reservoir site. The creek eventually empties into San Pablo Bay. The Tolay Valley is a historic natural lake drained decades ago for agricultural purposes. Currently the lowland region consists of cropland and fallow fields.



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Santa Rosa Subregional Long-Term Wastewater Project

Figure 2.1-1
PROPOSED RESERVOIR SITES

WEST COUNTY

Bloomfield

The proposed Bloomfield storage reservoir site, which covers roughly 340 acres, is situated in a north-south oriented valley on the north side of Petaluma Valley Ford Road, one mile west of the town of Bloomfield in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 100 to 390 feet amsl (Two Rock 7.5-minute USGS Quadrangle 1971). At the northern end of the Bloomfield site, several drainages flow down from the hillsides into two unnamed, intermittent channels. These channels converge above a stock pond at the southern end of the site and then flow off site into Americano Creek. The Bloomfield site has been primarily used for cattle rangeland over several generations.

Carroll Road

The proposed Carroll Road storage reservoir site, which covers roughly 320 acres, is located in a north-south oriented valley, on the north side of Petaluma Valley Ford Road and 2.2 miles east of the town of Valley Ford in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 120 to 290 feet amsl (Two Rock and Valley Ford 7.5-minute USGS Quadrangles 1971). Two unnamed, intermittent drainages flow into the site from the north, at the eastern and western corners. These drainages converge at the center of the site to form a perennial stream that eventually empties into Americano Creek. Carroll Road is managed as rangeland and pasture for cattle.

Huntley

The proposed Huntley storage reservoir site, which covers roughly 310 acres, is situated in a small, north-south oriented valley, approximately 1.3 miles south of the town of Bloomfield in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 30 to 320 feet amsl (Two Rock 7.5-minute USGS Quadrangle 1971). There are several seeps and drainages located at the northern end of the site that flow into the main creek corridor. This unnamed, intermittent creek flows in a north to south direction through the center of the Huntley site and empties into Stemple Creek off site.

Two Rock

The proposed Two Rock storage reservoir site, which covers roughly 350 acres, is situated in an east-west oriented valley, approximately 2.6 miles north of the town of Two Rock in Sonoma County (Figure 2.1-1). The elevation at the site ranges from 180 to 480 feet amsl (Two Rock 7.5 minute USGS Quadrangle 1971). Varied slope aspects create numerous microhabitats. Rock outcroppings occur on-site in the uplands, and along the creeks. The waters from Two Rock are part of the Stemple Creek watershed. Six tributaries flow down from the hillsides and drain into the main, unnamed creek channel. This main creek channel was historically perennial; however, damming activities along the upper reaches of this channel have rendered the creek intermittent. Freshwater ponds created by the damming activity persist year-round. The entire site is managed as rangeland for cattle and horses.

Valley Ford

The proposed Valley Ford reservoir storage site, which covers roughly 380 acres, is situated in a narrow, north-south oriented valley on the north side of Highway 1, approximately 1.6 miles east of the town of Valley Ford in Sonoma County (Figure 2.1-1). Elevation at the site ranges from 40 to 200 feet amsl (Valley Ford 7.5-minute USGS Quadrangle 1971). Two major tributaries at the northern end of the site converge to create the main, unnamed drainage that flows through the center of the valley floor. This non-wooded intermittent channel flows in a north to south direction into Americano Creek off site. The northwestern drainage contains two freshwater stock ponds, the northeastern drainage contains one small stock pond, and the main drainage contains two large stock ponds.

2.2 BOTANICAL STUDY METHODOLOGIES AND RESULTS

CALIFORNIA NATURAL DIVERSITY DATABASE OCCURRENCES

Introduction

The California Natural Diversity Data Base, or CNDDB, is a computerized inventory of the locations of populations of rare, threatened, and endangered plants, animals, and natural communities (eg. vernal pools, riparian woodlands) in California. The CNDDB is maintained by the Natural Heritage Division of the California Department of Fish and Game (CDFG). Each species and natural community is referred to as an inventory element. The data base includes site records for all state and federally listed plant and wildlife species, as well as all species that are candidates for listing. Species that are considered "sensitive" by government agencies (eg. U.S. Forest Service) and the conservation community (e.g., National Audubon Society, California Native Plant Society) are also included in the data base. As of January 1996, over 26,000 locational records existed within the CNDDB computer system.

The CNDDB is a text-based program that will produce reports of site records for the 1,164 different inventory elements that are currently being tracked. The CNDDB data is organized both geographically and taxonomically; therefore, information can be retrieved either by a particular species, USGS 7.5-minute quad, or county. Information contained in these reports includes common name, scientific name, legal status, habitat associations, occurrence number, date last observed, locational data, threats, and general comments.

The CNDDB analysis utilizes a Geographic Information System (GIS) to create map overlays corresponding to the locational information provided in the text reports. Occurrence numbers are used as a label. The occurrence number uniquely identifies a particular location of a community or species. Occurrence numbers are assigned sequentially as the occurrence is mapped. The first location mapped for an element is OCC#1, the tenth location is OCC#10, etc. (CDFG 1993). There may be gaps in the number sequence as occurrences are combined. The actual mapping precision of these occurrences may be either specific or non-specific. A specific occurrence is noted by a circle with a radius of 80 meters or a polygon whose boundary follows the known habitat of the element (CDFG 1993). A non-specific occurrence is noted by a circle with a radius of 0.2, 0.4, 0.6, 0.8, or 1 mile, or a polygon that delineates in more general terms where an element is known to occur. The sizes of the circles may indicate different confidence levels in the source data (CDFG 1993).

Study Methodology

A computerized search of the CNDDB was conducted for the Glen Ellen, Two Rock, Valley Ford, Petaluma River, and Sears Point 7.5-minute United States Geological Survey (USGS) topographic quadrangles to determine if there were any known occurrences of state and federally listed species recorded from the proposed storage reservoir sites. Only those CNDDB occurrences that were located within 100 feet of a storage reservoir configuration were evaluated.

A summary of these printouts is presented in Biological Resources Technical Memorandum, Volume III, Appendix A - Sycamore Environmental's Reservoir technical Memorandum: Botanical Resources.

Results

There were no CNDDB records for special-status plant species or sensitive natural plant communities within 100 feet of any of the proposed storage reservoir sites.

PLANT SURVEYS

Introduction

Information on the biology, distribution, taxonomy, legal status, and other aspects of special-status plant species was obtained prior to field work. Standard references used for the taxonomy of plants included Abrams (1923-1960), Barbour and Major (1977), Hickman (1993), Mason (1957), Munz (1959), and Skinner and Pavlik (1994).

In addition to the CNDDB/RareFind search, the following lists prepared by the CDFG were reviewed:

- *Special Plants List* (CDFG, January 1996); and
- *Endangered, Threatened, and Rare Plants of California* (CDFG, January 1996).

Consultations to identify species of concern were conducted on several occasions with Caitlin Bean CDFG - Yountville, Region 3; Betty Guggolz, Milo-Baker Chapter of the California Native Plant Society (CNPS); and Dr. Chuck Quibell, Professor of Botany, Sonoma State University. A letter was also sent to the U.S. Fish and Wildlife Service (USFWS), Ecological Services, Sacramento Field Office, requesting file data on special-status species that could occur in Marin and Sonoma counties. The USFWS provided an initial species list on February 9, 1994, as well as updated lists on February 16, 1995 and June 25, 1995.

A comprehensive list of special-status plants was compiled from the sources identified above. The list of special-status species was initially compiled in 1994, but was updated as new and revised listings became available from the CDFG and USFWS. The final list comprises 183 special-status plant species that needed to be evaluated in the EIR/EIS

(Table 2.2-1). A brief discussion of each special-status plant species is presented in Biological Resources Technical Memorandum, Volume II - Special-Status Species Accounts (bound separately).

Table 2.2-1

Special-Status Plant Species

		STATUS		
COMMON NAME	**SCIENTIFIC NAME**	**State**	**Federal**	**CNPS**
AQUATIC PLANTS				
Sonoma alopecurus	*Alopecurus aequalis* var. *sonomensis*	--	FPE	1B
Suisun marsh aster	*Aster lentus*	--	*	1B
Alkali milk-vetch	*Astragalus tener* var. *tener*	--	--	4
Sonoma sunshine	*Blennosperma bakeri*	SE	FE	1B
Bolander's reed grass	*Calamagrostis bolanderi*	--	--	4
Thurber's reed grass	*Calamagrostis crassiglumis*	--	*	2
Swamp harebell	*Campanula californica*	--	*	1B
White sedge	*Carex albida*	SE	FPE	1B
California sedge	*Carex californica*	--	--	2
Bristly sedge	*Carex comosa*	--	--	2
Point Reyes paintbrush	*Castilleja leschkeana*	--	FC	--
Pitkin Marsh Indian paintbrush	*Castilleja uliginosa*	SE	*	1A
Point Reyes bird's-beak	*Cordylanthus maritimus* ssp. *palustris*	--	*	1B
Soft bird's-beak	*Cordylanthus mollis* ssp. *mollis*	SR	FPE	1B
Bogg's Lake dodder	*Cuscuta howelliana*	--	--	--
Geysers dichanthelium [panicum]	*Dichanthelium lanuginosum* var. *thermale [Panicum acuminatum* var. *acuminatum]*	SCE	*	1B
Dwarf downingia	*Downingia pusilla*	--	*	2
Small spikerush	*Eleocharis parvula*	--	--	4
Loch Lomond button celery	*Eryngium constancei*	SE	FE	1B
Bogg's Lake hedge-hyssop	*Gratiola heterosepala*	SE	*	1B
Marsh gumplant	*Grindelia stricta* var. *angustifolia*	--	--	4
Serpentine sunflower	*Helianthus exilis*	--	*	4
Burke's goldfields	*Lasthenia burkei*	SE	FE	1B
Delta tule pea	*Lathyrus jepsonii* var. *jepsonii*	--	*	1B
Legenere	*Legenere limosa*	--	*	1B
Mason's lilaeopsis	*Lilaeopsis masonii*	SR	*	1B
Coast lily	*Lilium maritimum*	--	--	1B
Pitkin Marsh lily	*Lilium pardalinum* ssp. *pitkinense [L. pitkinense]*	SE	FPE	1B

Table 2.2-1

Special-Status Plant Species

		STATUS		
COMMON NAME	**SCIENTIFIC NAME**	**State**	**Federal**	**CNPS**
Point Reyes meadowfoam	*Limnanthes douglasii* ssp. *sulphurea*	SE	*	1B
Sebastopol meadowfoam	*Limnanthes vinculans*	SE	FE	1B
Baker's navarretia	*Navarretia leucocephala* ssp. *bakeri*	--	--	1B
Few-flowered navarretia	*Navarretia leucocephala* ssp. *pauciflora*	ST	FPE	1B
Many-flowered navarretia	*Navarretia leucocephala* ssp. *plieantha [N. plieantha]*	SE	FPE	1B
Hairless popcorn-flower	*Plagiobothrys glaber*	--	*	1A
Petaluma popcorn-flower	*Plagiobothrys mollis* var. *vestitus*	--	*	1A
Calistoga popcorn-flower	*Plagiobothrys strictus*	ST	FC	1B
North Coast semaphore grass	*Pleuropogon hooverianus*	SR	*	1B
Napa blue grass	*Poa napensis*	SE	FC	1B
Douglas pogogyne	*Pogogyne douglasii* ssp. *parviflora [P. douglasii]*	--	*	3
Marin knotweed	*Polygonum marinense*	--	*	3
Hickman's cinquefoil	*Potentilla hickmanii*	SE	FPE	1B
Lobb's aquatic buttercup	*Ranunculus lobbii*	--	--	4
White beaked-rush	*Rhynchospora alba*	--	--	4
California beaked-rush	*Rhynchospora californica*	--	*	1B
Round-headed beaked-rush	*Rhynchospora globularis* var. *globularis*	--	--	2
Point Reyes checkerbloom	*Sidalcea calycosa* ssp. *rhizomata*	--	--	1B
Kenwood Marsh checkerbloom	*Sidalcea oregana* ssp. *valida*	SE	FPE	1B
California seablite	*Suaeda californica*	--	FPE	1B
TERRESTRIAL PLANTS				
Pink sand-verbena	*Abronia umbellata* ssp. *breviflora*	--	*	1B
Awned bent grass	*Agrostis aristiglumis*	--	FC	--
Blasdale's bent grass	*Agrostis blasdalei* var. *blasdalei*	--	*	1B
Marin bent grass	*Agrostis blasdalei* var. *marinensis*	SR	--	--
Coastal bluff bent grass	*Agrostis clivicola* var. *clivicola*	--	*	--
Point Reyes bent grass	*Agrostis clivicola* var. *punta-reyesensis*	--	*	--
Bent-flowered fiddleneck	*Amsinckia lunaris*	--	--	4
Dimorphic snapdragon	*Antirrhinum subcordatum*	--	*	1B
Tall snapdragon	*Antirrhinum virga*	--	--	4
Coast rock cress	*Arabis blepharophylla*	--	*	4

Table 2.2-1

Special-Status Plant Species

		STATUS		
COMMON NAME	**SCIENTIFIC NAME**	**State**	**Federal**	**CNPS**
Baker's manzanita	*Arctostaphylos bakeri* ssp. *bakeri*	SR	*	1B
The Cedars manzanita	*Arctostaphylos bakeri* ssp. *sublaevis*	--	--	1B
Sonoma manzanita	*Arctostaphylos canescens* ssp. *sonomensis*	--	--	1B
Vine Hill manzanita	*Arctostaphylos densiflora*	SE	*	1B
Howell's manzanita	*Arctostaphylos hispidula*	--	*	4
Mount Tamalpais manzanita	*Arctostaphylos hookeri* ssp. *montana*	--	*	1B
Rincon manzanita	*Arctostaphylos stanfordiana* ssp. *decumbens*	--	--	1B
Hopland manzanita	*Arctostaphylos stanfordiana* ssp. *raichei*	--	*	1B
Marin manzanita	*Arctostaphylos virgata*	--	*	1B
Serpentine milkweed	*Asclepias solanoana*	--	--	4
Brewer's milk-vetch	*Astragalus breweri*	--	--	4
Clara Hunt's milk-vetch	*Astragalus clarianus*	ST	FPE	1B
Rattan's milk-vetch	*Astragalus rattanii* var. *rattanii*	--	--	4
Point Reyes blennosperma	*Blennosperma nanum* var. *robustum*	SR	*	1B
Serpentine reed grass	*Calamagrostis ophitidis*	--	--	4
Brewer's calandrinia	*Calandrinia breweri*	--	--	4
The Cedars fairy-lantern	*Calochortus raichei*	--	*	1B
Tiburon mariposa lily	*Calochortus tiburonensis*	ST	FPT	1B
Four-petaled pussypaws	*Calyptridium quadripetalum*	--	--	4
Mount Saint Helena morning-glory	*Calystegia collina* ssp. *oxyphylla*	--	*	4
Dissected-leaf toothwort	*Cardamine pachystigma* var. *dissectifolia*	--	--	3
Tiburon Indian paintbrush	*Castilleja affinis* ssp. *neglecta [C. neglecta]*	ST	FE	1B
Rincon Ridge ceanothus	*Ceanothus confusus*	--	*	1B
Calistoga ceanothus	*Ceanothus divergens*	--	*	1B
Vine Hill ceanothus	*Ceanothus foliosus* var. *vineatus*	--	*	1B
Point Reyes ceanothus	*Ceanothus gloriosus* var. *gloriosus*	--	--	4
Mount Vision ceanothus	*Ceanothus gloriosus* var. *porrectus*	--	*	1B
Mason's ceanothus	*Ceanothus masonii*	SR	*	1B
Sonoma ceanothus	*Ceanothus sonomensis*	--	*	1B
Dwarf soaproot	*Chlorogalum pomeridianum* var. *minus*	--	--	1B
San Francisco Bay spineflower	*Chorizanthe cuspidata* var. *cuspidata*	--	*	1B

Table 2.2-1

Special-Status Plant Species

		STATUS		
COMMON NAME	**SCIENTIFIC NAME**	**State**	**Federal**	**CNPS**
Woolly-headed spineflower	*Chorizanthe cuspidata* var. *villosa*	--	--	1B
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	--	FPE	1B
Sonoma spineflower	*Chorizanthe valida*	SE	FE	1B
Franciscan thistle	*Cirsium andrewsii*	--	--	4
Mount Tamalpais thistle	*Cirsium hydrophilum* var. *vaseyi*	--	*	1B
Raichei's red ribbons; Tomales clarkia	*Clarkia concinna* ssp. *raichei*	--	*	1B
Vine Hill clarkia	*Clarkia imbricata*	SE	FPE	1B
Round-headed Chinese houses	*Collinsia corymbosa*	--	--	1B
Serpentine bird's-beak	*Cordylanthus tenuis* ssp. *brunneus*	--	--	4
Pennell's bird's-beak	*Cordylanthus tenuis* ssp. *capillaris*	SR	FE	1B
Pygmy cypress	*Cypressus goveniana* ssp. *pigmaea*	--	*	1B
California lady's-slipper	*Cypripedium californicum*	--	*	4
Clustered lady's-slipper	*Cypripedium fasciculatum*	--	*	4
Mountain lady's-slipper	*Cypripedium montanum*	--	*	4
Baker's larkspur	*Delphinium bakeri*	SR	FC	1B
Yellow larkspur	*Delphinium luteum*	SR	FC	1B
Western dichondra	*Dichondra occidentalis*	--	*	4
Western leatherwood	*Dirca occidentalis*	--	--	1B
California bottle-brush grass	*Elymus californicus*	--	*	4
Brandegee's eriastrum	*Eriastrum brandegeae*	--	*	1B
Narrow-leafed daisy	*Erigeron angustatus*	--	--	1B
Streamside daisy	*Erigeron biolettii*	--	--	3
Serpentine daisy	*Erigeron serpentinus*	--	--	1B
Supple daisy	*Erigeron supplex*	--	*	1B
Tiburon buckwheat	*Eriogonum luteolum* var. *caninum*	--	*	3
Snow Mountain buckwheat	*Eriogonum nervulosum*	--	*	1B
Ternate buckwheat	*Eriogonum ternatum*	--	--	4
San Francisco wallflower	*Erysimum franciscanum*	--	*	4
Saint Helena fawn lily	*Erythronium helenae*	--	--	4
Fragrant fritillary	*Fritillaria liliacea*	--	*	1B
Purdy's fritillary	*Fritillaria purdyi*	--	--	4
San Francisco gumplant	*Grindelia hirsutula* var. *maritima [G. maritima]*	--	*	1B
California matchweed	*Gutierrezia californica*	--	--	--
Diablo helianthella	*Helianthella castanea*	--	*	1B

Table 2.2-1

Special-Status Plant Species

		STATUS		
COMMON NAME	**SCIENTIFIC NAME**	**State**	**Federal**	**CNPS**
Hayfield tarplant	*Hemizonia congesta* ssp. *leucocephala*	--	--	3
Seaside tarplant	*Hemizonia mutlicaulis* ssp. *maulticaulis*	--	*	--
Tiburon tarplant	*Hemizonia mutlicaulis* ssp. vernalis	--	*	--
Short-leafed evax	*Hesperevax sparsiflora* var. *brevifolia*	--	--	4
Glandular western flax	*Hesperolinon adenophyllum*	--	*	1B
Two-carpellate western flax	*Hesperolinon bicarpellatum*	--	*	1B
Marin western flax	*Hesperolinon congestum*	ST	FT	1B
Santa Cruz tarplant	*Holocarpha macradenia*	CE	FC	1B
Bolander's horkelia	*Horkelia bolanderi*	--	*	1B
Kellogg's horkelia	*Horkelia cuneata* ssp. *sericea*	--	*	1B
Point Reyes horkelia	*Horkelia marinensis*	--	*	1B
Thin-lobed horkelia	*Horkelia tenuiloba*	--	--	1B
Beach layia	*Layia carnosa*	SE	FE	1B
Colusa layia	*Layia septentrionalis*	--	--	1B
Crystal Springs lessingia	*Lessingia arachnoidea*	--	*	1B
Woolly-headed lessingia	*Lessingia hololeuca*	--	--	3
Tamalpais lessingia	*Lessingia micradenia* var. *micradenia*	--	*	1B
Redwood lily	*Lilium rubescens*	--	--	4
Bristly linanthus	*Linanthus acicularis*	--	--	4
Large-flower linanthus	*Linanthus grandiflorus*	--	--	4
Napa lomatium	*Lomatium repostum*	--	--	4
San Mateo tree lupine	*Lupinus eximius (L. arboreus* var. *eximius)*	--	*	3
Cobb mountain lupine	*Lupinus sericatus*	--	*	1B
Tidestrom's lupine	*Lupinus tidestromii*	SE	FE	1B
Point Reyes clover lupine	*Lupinus tidestromii* var. *layneae*	SE	FE	1B
Nodding madia	*Madia nutans*	--	--	4
Mount Diablo cottonweed	*Micropus amphibolus*	--	--	4
Curly-leafed monardella	*Monardella undulata*	--	--	4
San Luis Obispo monardella	*Monardella frutescens*	--	*	1B
Robust monardella	*Monardella villosa* ssp. *globosa*	--	--	1B
Green monardella	*Monardella viridus* ssp. *viridus*	--	--	4
Awl-leaved navarretia	*Navarretia subuligera*	--	--	4
Howell's broomrape	*Orobanche valida* ssp. *howellii*	--	--	4
Lake County stonecrop	*Parvisedum leiocarpum*	SE	--	1B

Table 2.2-1

Special-Status Plant Species

		STATUS		
COMMON NAME	**SCIENTIFIC NAME**	**State**	**Federal**	**CNPS**
Sonoma beardtongue	*Penstemon newberryi* var. *sonomensis*	--	--	1B
White-rayed pentachaeta	*Pentachaeta bellidiflora*	SCE	PE	1B
Gairdner's yampah	*Perideridia gairdneri* ssp. *gairdneri*	--	*	4
North Coast phacelia	*Phacelia insularis* var. *continentis*	--	*	1B
White-flowered rein orchid	*Piperia candida*	--	--	4
California pinefoot	*Pityopus californicus*	--	*	4
Valley oak	*Quercus lobata*	--	--	--
Straggly gooseberry	*Ribes divaricatum* var. *pubiflorum*	--	--	--
Victor's gooseberry	*Ribes victoris*	--	--	4
Marin checkerbloom	*Sidalcea hickmanii* ssp. *viridis*	--	*	1B
Santa Cruz microseris	*Stebbinsoseris decipiens [Microseris decipiens]*	--	--	1B
Tamalpais jewel-flower	*Streptanthus batrachopus*	--	*	1B
Socrates Mine jewel-flower	*Streptanthus brachiatus* ssp. *brachiatus*	--	--	1B
Freed's jewel-flower	*Streptanthus brachiatus* ssp. *hoffmanii*	--	--	1B
Secund jewel-flower	*Streptanthus glandulosus* var. *hoffmanii [S. glandulosus* ssp. *secundus]*	--	*	1B
Three Peaks jewel-flower	*Streptanthus morrisonii* ssp. *elatus*	--	*	1B
Dorr's Cabin jewel-flower	*Streptanthus morrisonii* ssp. *hirtiflorus*	--	FC	1B
Kruckeberg's jewel-flower	*Streptanthus morrisonii* ssp. *kruckebergii*	--	*	1B
Morrison's jewel-flower	*Streptanthus morrisonii* ssp. *morrisonii*	--	*	1B
Tiburon jewel-flower	*Streptanthus niger*	SCE	PE	1B
Mountain jewel-flower	*Streptanthus tortuosus* var. *sufrutescens*	--	--	--
Beaked tracyina	*Tracyina rostrata*	--	*	1B
Showy Indian clover	*Trifolium amoenum*	--	FPE	1B
San Francisco owl's-clover	*Triphysaria floribunda [Orthocarpus floribunda]*	--	*	1B
Fringed false-hellebore	*Veratrum fimbriatum*	--	*	4

Source: Harland Bartholomew & Associates, Inc., 1996

Notes:

* In a series of federal register notices (50 CFR Part 17, Volume 61, Number 40, 7457-7463 and 7595-7613, February 28, 1996), the USFWS reclassified 96 candidate taxa of plants and animals. The USFWS now only recognize a single federal candidate status. These taxa are considered by the USFWS as candidates

for possible addition to the List of Endangered and Threatened Plants and Animals. As a consequence, the status of many taxa originally included in the analysis has changed, requiring that many taxa be removed from the list of species being considered in this EIR/EIS analysis.

1. State status data taken from CDFG documents, Endangered and Threatened Animals of California (Revised January 1995) and Special Animals (Revised August 1994).
   CE = State-listed Endangered
   CT = State-listed Threatened
   CR= State-listed Rare
   SCE = State Candidate Endangered
   SSC = Species of Special Concern
   CFP = Listed as Fully Protected by the CDFG

2. Federal status and probable distribution in Marin and Sonoma counties determined by correspondence with Laurie Simons-USFWS, 9 February 1994.
   FE = Federal-listed Endangered
   FT = Federal-listed Threatened
   PE = Proposed Endangered
   PT = Proposed Threatened
   FC = Federal Candidate: Taxa for which the USFWS has sufficient biological information to support a proposal to list as endangered or threatened.

Study Methodology

Prior to conducting plant surveys, a field notebook that included key characteristics, descriptions, illustrations, and habitat notes for each of the 183 special-status species that potentially occur in the project study area was compiled using the data discussed in the introduction above.

Field surveys consisted of botanists walking transects which were 25 to 100 feet wide and spaced to achieve 100 percent coverage of each parcel. All special-status plant species observed were mapped on aerial photographs (1:500) of the site. In addition, botanists compiled a comprehensive list of all other plant species observed.

Plant surveys were conducted over four time periods: fall 1994, spring 1995, summer 1995, and early-fall 1995 (Table 2.2-2). These four survey periods provided optimal coverage of proposed storage reservoir sites for early- and late-blooming special-status plant species.

Table 2.2-2

Storage Reservoir Site Botanical Survey Periods

Storage Reservoir	Month / Year Surveyed
Adobe Road	September 1994 October 1994 March 1995 May 1995 June 1995 August 1995

Table 2.2-2

Storage Reservoir Site Botanical Survey Periods

Storage Reservoir	Month / Year Surveyed
Lakeville Hillside	August 1994 October 1994 March 1995 May 1995 June 1995 August 1995
Sears Point	October 1994 March 1995 May 1995 June 1995 August 1995
Tolay Confined	May 1994 November 1994 February 1995 May 1995 June 1995 August 1995
Tolay Extended	May 1994 November 1994 February 1995 May 1995 June 1995 August 1995
Bloomfield	September 1994 March 1995 May 1995 June 1995 August 1995
Carroll Road	August 1994 October 1994 March 1995 May 1995 June 1995 August 1995
Huntley	March 1995 May 1995 June 1995 August 1995

Table 2.2-2

Storage Reservoir Site Botanical Survey Periods

Storage Reservoir	Month / Year Surveyed
Two Rock	May 1994 June 1994 October 1994 February 1995 March 1995 May 1995 June 1995 August 1995
Valley Ford	August 1994 October 1994 February 1995 May 1995 June 1995 August 1995

Source: Sycamore Environmental, 1996

Plants that could not be identified in the field were collected for later identification in the lab. Voucher specimens were collected for most native species observed in the field, a process recommended by the California Botanical Society (Ferren et al. 1995). Voucher specimens were also collected for many non-native species. All voucher specimens were pressed, mounted, labeled, and are maintained for reference. Duplicate specimens will be given to Sonoma State University and the University of California at Berkeley.

Separate plant species lists were compiled for each of the ten proposed storage reservoir sites, as requested by Caitlin Bean of CDFG - Yountville, Region 3. Records of all species found in the project study area were entered in a Microsoft Access® data base. These plant species lists are presented in Biological Resources Technical Memorandum, Volume III, Appendix A - Sycamore Environmental's Reservoir Technical Memorandum: Botanical Resources.

Results

The results of the plant surveys are summarized below by storage reservoir.

Adobe Road

No special-status plant species were found on the proposed Adobe Road storage reservoir site.

Lakeville Hillside

No special-status plant species were found on the proposed Lakeville Hillside storage reservoir site.

Sears Point

No special-status plant species were found on the proposed Sears Point storage reservoir site.

Tolay Confined

No special-status plant species were found on the proposed Tolay Confined storage reservoir site.

Tolay Extended

No special-status plant species were found on the proposed Tolay Extended storage reservoir site.

Bloomfield

No special-status plant species were found on the proposed Bloomfield storage reservoir site.

Carroll Road

No special-status plant species were found on the proposed Carroll Road storage reservoir site.

Huntley

Two populations of hayfield tarplant and one population of Lobb's aquatic buttercup were found on the proposed Huntley storage reservoir site. One Hayfield tarplant population, located on the west side of Martinoni Road, consisted of approximately 100 to 200 plants scattered over a 100-foot-wide by 100 foot long area (Map C-7). The second hayfield tarplant population, located on the east side of Martinoni Road, consisted of approximately 50 to 100 plants scattered over a 100-foot-wide by 100-foot-long area (Map C-7). The population of Lobb's aquatic buttercup was located in a 10-foot by 20-foot ponded area within the unnamed creek (Map C-7).

Two Rock

One population of bristly linanthus was observed on the proposed Two Rock storage reservoir site (Map C-1). A population of Victor's gooseberry was found outside of the proposed storage reservoir construction zone. This particular population occurs on a moderately steep hillside located approximately 1,500 feet southwest of the proposed construction zone (Map C-1).

Valley Ford

No special-status plant species were found on the proposed Valley Ford storage reservoir site. A population of Lobb's aquatic buttercup was found in a large seasonal wetland located outside of the proposed storage reservoir construction zone, approximately 1,500 feet south of the proposed main dam location (Map C-6).

PROTECTED TREE RESOURCES

Introduction

The Sonoma County Tree Ordinance 4014 (June 13, 1989) was reviewed to identify protected tree species. Trees, as defined by the ordinance, must have a dbh (diameter breast height, defined as 4.5 feet above ground level) of over 9 inches. The following 11 species are protected: big-leaf maple (*Acer macrophyllum*), black oak (*Quercus kelloggii*), blue oak *(Q. douglasii*), coast live oak (*Q. agrifolia*), interior live oak (*Q. wislizenii*), Pacific madrone (*Arbutus menziesii*), oracle oak (*Q. morehus*), Oregon oak (*Q. garryana*), coast redwood (*Sequoia sempervirens*), valley oak (*Q. lobata*), and California bay (*Umbellularia californica*). The ordinance also protects hybrids of these species.

Study Methodology

All tree species protected under the Sonoma County Tree Ordinance 4014 were surveyed for at each proposed storage reservoir site. The surveys conducted for this project determined the presence or absence of protected tree resources, but did not attempt to quantify the numbers of such trees present at each site. The number of trees that will be subject to the Sonoma County Tree Ordinance would be determined during site-specific pre-construction surveys once a preferred project alternative has been selected.

Results

Protected tree species occur on all of the proposed storage reservoir sites except Huntley and Lakeville Hillside. Table 2.2-3 below lists the eleven tree species protected by this ordinance and indicates if they occur on a particular storage reservoir site.

Table 2.2-3

Protected Tree Resources Observed at Proposed Storage Reservoir Sites

Tree	Adobe Road	Lakeville Hillside	Sears Point	Tolay[1]	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
Big-leaf maple	--	--	X	X	--	X	--	X	--
Blue oak	--	--	--	--	--	--	--	--	--
California bay	X	--	X	X	X	X	--	X	X
California black oak	--	--	--	--	--	X	--	X	X
Coast live oak	X	--	X	X	--	--	--	X	X
Coast redwood	X	--	--	--	--	X	--	X	--
Interior live oak	--	--	--	--	--	--	--	X	--
Oregon oak	X	--	--	X	--	--	--	X	--
Oracle oak	--	--	--	--	--	--	--	--	--
Pacific madrone	X	--	X	--	X	--	--	X	--
Valley oak	X	--	X	--	--	--	--	X	--
Total Species[2]	6	0	5	4	2	4	0	9	3

Source: Sycamore Environmental, 1996

Notes:
1 = Tolay refers to both the Confined and Extended configurations.
2 = Does not reflect the total number of protected trees at each site.

PLANT COMMUNITY MAPPING

Introduction

Plant communities are assemblages of plant species that occur together in the same area and are defined by species composition and relative abundance. Many factors contribute to regional plant species distribution, including soil type, slope aspect, frequency of fire, and amount of precipitation. Many plant community classifications have been prepared for all or portions of the California flora over the past 40 years (Munz 1959, Cheatham and Haller 1975, Holland 1986, Mayer and Laudenslayer 1988, and Shuford and Timossi 1989).

Due to the unique hydrogeological nature of the region, a singular classification system does not provide an adequate description of the regions' plant communities. The plant community descriptions and nomenclature used in this analysis were based primarily on Holland (1986) and Shuford and Timossi (1989). The Holland system is not entirely applicable to all of the communities found in the project study area. The community descriptions of Shuford and Timossi (1989), which focus on the plant communities of Marin County, are also applicable to the project study area and were therefore used to augment the Holland classification scheme. Four common and abundant community types (i.e., cropland, orchard, vineyard, and pasture) not described by Holland or Shuford and Timossi are included. In addition, monotypic associations of native trees and tree communities composed of species not native to Marin or Sonoma County, are identified and described.

Some plant communities are further differentiated into specific subtypes (e.g., willow riparian and mixed-riparian). Subtypes are only included when there are discernible or unique differences in their characteristics that warrant separate treatment in the impacts and mitigation analysis. Plant communities found throughout the project area are described below.

Cropland

Croplands are located on flat to gently rolling terrain which is tilled prior to commencement of crop production. Due to the artificially controlled growth and harvesting regime, croplands do not conform to normal seral stages (i.e., growth stage of habitat). Cropland habitats may either be annual or perennial depending upon the crop-rotation system and geographic location. Crops grown in the project area include hay, wheat, corn, potatoes, squash, and pumpkins. There are no special-status plant species associated specifically with croplands.

Orchard

Orchards are generally found on valley floors that have rich, alluvial soils. They also may occur on rolling foothills and fairly steep slopes. Typical elevations for orchards range from sea level up to 3,000 feet amsl in areas that are normally frost-free. Orchards in California are dominated by a single tree species. Spacing between trees is uniform, and the understory is usually composed of low-growing grasses and other herbaceous plants (Schultze 1988). Typical orchards in the project area include apples and peaches. There are no special-status plant species specifically associated with orchards.

Pasture

Pastures are usually grown on flat to gently sloping land and are usually irrigated in some manner. The length of a growing season for a particular pasture will depend on the cover type and climatic influences. Pastures are maintained by man and are usually composed of a mix of perennial grasses and legumes that provide 100 percent ground cover. Old or poorly drained pastures may also have patches of weedy species (Zeiner 1988). This community is maintained to

provide forage for a variety of livestock, including cattle, sheep, and horses. In northern California, ryegrass (*Lolium* spp.), tall fescue (*Festuca arundinacea*), Dallisgrass (*Paspalum dilatatum*), Ladino clover (*Trifolium repens*), and trefoils (*Lotus* spp.) are preferred pasture plant species (George et al. 1980, Zeiner 1988). There are a few special-status plant species that can be associated with pastures. For example, in the Santa Rosa Plain, special-status plant species such as Sebastopol meadowfoam, Burke's goldfields, and Douglas' pogogyne are known to occur in seasonal wetlands in lightly grazed pastures (Betty Guggolz, personal communication).

Vineyard

Vineyards are generally found on alluvial soils of valley floors but may also occur in the foothills at elevations up to 3,000 feet amsl. Vineyards are typically composed of a single shrub species planted in rows and are usually supported on wood and wire trellises. Vines are normally intertwined in the rows, but there is open space between rows, which may be planted with grasses or other herbaceous plants. Vineyards are usually long-lived and may persist for over 40 years (Schultze 1988). There are no special-status plant species specifically associated with vineyards.

Coastal Salt Marsh

Coastal salt marsh communities are tidally influenced emergent wetland habitats dominated by salt tolerant plants. Coastal salt marshes are usually found in sheltered inland margins of bays, lagoons, and estuaries (Holland 1986) and are characterized by the presence of perennial emergent grasses, succulent herbs, and suffrutescent (herbaceous above, with a woody base) shrubs (Springer 1988). Characteristic plant species found in this community include dodder (*Cuscuta salina*), salt grass, alkali heath (*Frankenia grandifolia*), Suisun Marsh gumweed (*Grindelia paludosa*), jaumea (*Jaumea carnosa*), saltbush (*Jimens leseurii*), California sea-lavender (*Limonium californicum*), seaside plantain (*Plantago maritima*), silverweed, (*Potentilla anserina*), Virginia glasswort (*Salicornia virginica*), and seaside arrow-grass (*Triglochin maritimum*) (Holland 1986). Salinity levels in coastal salt marshes vary temporally and spatially, increasing in dry summer months or at high tide and decreasing during periods of freshwater. Species composition and densities are influenced by water salinity level. The very salt-tolerant cord grass (*Spartina* spp.) may dominate off-shore communities, pickleweed often dominates in the mid-littoral (near shore) zones.

Coastal salt marsh communities occur at several locations within the project area. The most extensive coastal salt marsh communities are associated with the mouths of the Estero Americano and Estero de San Antonio. Coastal salt marsh also occurs along the lower reaches of Walker Creek where it flows into Tomales Bay, along the lower Petaluma River where it enters San Pablo Bay in Marin County, and along the shoreline of Bodega Harbor.

A variety of special-status plants occur in coastal salt marsh. These species include Point Reyes bird's-beak, small spikerush, and marsh gumplant. Northern

coastal salt marsh, which is a subtype of coastal salt marsh, has been identified by the CDFG as a sensitive natural community (CDFG 1995).

Coastal Brackish Marsh

Coastal brackish marsh is a plant community that contains elements from both salt marsh and freshwater marsh plant communities. Plants in coastal brackish marsh have evolved in response to a unique set of ecological conditions including seasonal variations in inundation area, variable salinity, changing hydrology due to periodic flooding, and periodic desiccation. Salinity may vary considerably and may increase at high tide or during seasons of low freshwater runoff. Coastal brackish marsh gradually intergrades with coastal salt marsh toward the ocean and along the interior edges of coastal bays, estuaries, and coastal lagoons. Coastal brackish marsh intergrades with freshwater marsh at the mouths of rivers (Madrone Associates 1977). Within the project area, coastal brackish marsh is found on the upper reaches of the Estero Americano and the Estero de San Antonio.

The coastal brackish marsh community is normally dominated by perennial, emergent, herbaceous monocots that grow to around six feet in height (Holland 1986). Typical plant species found in the coastal brackish marsh community include Harford's sedge (*Carex harfordii*), slough sedge (*Carex obnupta*), salt grass (*Distichlis spicata* var. *spicata*), and pickleweed (*Salicornia* spp.) (Holland 1986). In areas of decreasing salinity, common cattail (*Typha latifolia*), Baltic rush (*Juncus balticus*), and common reed (*Phragmites communis*) are interspersed with a mixture of bulrushes (*Scirpus* spp.) (Barbour et al. 1993). Coastal brackish marsh has been classified by the CDFG as a sensitive natural community (CDFG 1995).

Freshwater Marsh

Freshwater marsh vegetation is characterized by herbaceous plants adapted to perennially wet aquatic habitats (hydrophytes). Freshwater marsh communities occur near the edges of rivers and lakes, and in basins or depressions that flood periodically. Perennial monocots such as Baltic rush and nutsedge (*Cyperus esculentus*) often dominate the upper fringes of marsh habitats, whereas cattails and tules (*Scirpus acutus* var. *occidentalis*) occur in deeper waters.

In the project area, freshwater marsh habitat may be found in association with perennial streams, around farm ponds, or adjacent to the margins of estuaries. Portions of the Baylands, including areas potentially containing freshwater marshes, were not accessible for on-site surveys. Therefore, color aerial photographs (3x3 inch color slides; April 1994) were used to map and evaluate the plant communities. Although wetland areas were discernible on the photographs, it was not possible to determine the type of wetland habitat present, for example, freshwater marsh, seasonally wet vegetation, vernal pool, or brackish marsh. Therefore, these areas were mapped as "undetermined wetland type."

Many special-status plant species, including Sonoma alopecurus, Bolander's reed grass, Thurber's reed grass, swamp harebell, white sedge, and Pitkin Marsh lily are found in freshwater marsh habitats. Coastal and valley freshwater marsh, which are both subtypes of freshwater marsh, are plant communities that have been identified by the CDFG as sensitive natural communities.

Freshwater Pond

Freshwater ponds within the project area include man-made impoundments created by the damming of natural drainage channels. These impoundments primarily collect water for agricultural uses, including irrigation and livestock watering. Phytoplankton such as algae and diatoms comprise the greatest biomass of plant species in freshwater ponds (Grenfell 1988). Shoreline vegetation often consists of floating rooted aquatic plants such as water lily (*Nuphar* spp.) and knotweed (*Polygonum* spp.). California bulrush (*Scirpus californicus*) and common cattail are typical freshwater marsh plants that frequently occur along the shorelines of freshwater ponds (Grenfell 1988). In freshwater ponds that are used as stock ponds, vegetation is commonly harvested in the fall to provide greater storage capacity for the following spring. There are no special-status plant species specifically associated with man-made freshwater ponds.

Freshwater Seep

Seeps occur where the groundwater table is high or where underground springs seep water out of the ground. Seeps are common at many locations throughout the project area, and may form permanently or temporarily wet conditions. Seepage from underground springs produces an environment conducive to the growth of hydrophytic grasses, rushes, sedges, and herbaceous vegetation. Vegetation found in freshwater seeps includes spike rush (*Eleocharis macrostachya*), toad rush (*Juncus bufonius* var. *bufonius*), baltic rush, spreading rush (*Juncus patens*), brown-headed rush (*Juncus phaeocephalus* var. *phaeocephalus*), prickle-fruited buttercup (*Ranunculus muricatus*), and water sedge (*Carex aquatis* var. *dives*).

Freshwater seep communities have the potential to support several special-status plant species, including Mount Tamalpais thistle, California lady's-slipper, Geyser's dichanthelium, and California beaked-rush.

Seasonally Wet Vegetation

Seasonally wet vegetation is a common plant community or habitat in the project area. This plant community occurs in shallow depressions, and swales that fill with precipitation and runoff, and remain saturated or inundated during winter and spring months. These communities support species adapted to temporarily wet conditions followed by long periods of desiccation. Seasonally wet vegetation supports many of the same types of species found in vernal pools and freshwater seeps.

Special-status plant species that occur in areas which support seasonally wet vegetation include Sonoma sunshine, Sebastopol meadowfoam, Baker's navarretia, Burke's goldfields, and Douglas's pogogyne.

Vernal Pool

Vernal pools occur in depressions within grasslands and other habitats that are underlain with an impervious soil layer. These depressions fill with water in the winter and slowly dry in the spring and summer. Vernal pools are characterized by four different stages. These stages include a filling stage in the fall, a holding stage in the winter, a drying stage in the spring, and a dry stage through the summer (Zedler 1987). Vernal pools are classified according to the substrate on which they occur. These substrates include terrace soils, volcanic mudflows, and hardpan.

Extensive spring wildflower displays develop in vernal pools. As water in the vernal pools recedes during the spring, vernal pool annual plants begin to germinate and grow. A concentric display (i.e., rings) of small but brightly-colored annual plants develops in the vernal pool basin as different plant species respond to the different and changing temperatures and hydrology of the drying pool. These concentric rings are not exhibited by all vernal pools, but are unique to vernal pools in California. This ecosystem is therefore relatively easy to identify during the spring and summer months, when surrounding vegetation is often dry and brown.

The vernal pools in the project area are dominated by popcorn flower (*Plagiobothrys trachycarpus*), goldfields (*Lasthenia glaberrima*), meadowfoam (*Limnanthes douglasii* ssp. *douglasii*), downingia (*Downingia concolor*), and button-celery (*Eryngium armatum*). Other plant species that occur in this community include flowering quillwort (*Lilaea scilloides*), tidy tips (*Layia platyglossa*), aquatic buttercups (*Ranunculus aquatilus* var. *subrigidus*), dwarf sack's clover (*Trifolium depauperatum* var. *truncatum*), and water star-wort (*Callitriche verna*). Introduced species make up less than seven percent of the total number of species found in vernal pools (Holland and Jain 1977).

Representative special-status plant species that may be found in vernal pools in the project area include dwarf downingia, Sonoma sunshine, Sebastopol meadowfoam, many-flowered navarretia, and Burke's goldfields. Northern vernal pool and northern hardpan vernal pool, subtypes of the vernal pool community, have been identified by the CDFG as sensitive natural communities (CNDDB 1995).

Drainage

Drainages are intermittent waterways that contain flowing water for only part of the year. Flow may cease anytime from late spring to early autumn depending on the water source and climate. Standing water may or may not remain as isolated

pools within the streambed. Substrate types of intermittent drainages range from fine sediments to mud to bedrock. Vegetation along intermittent drainages (if present) includes spike rush, toad rush, spreading rush, prickle-fruited buttercup, and water sedge. Special-status plant species that may occur in intermittent drainages include Rattan's milk-vetch, streamside daisy, and Lobb's aquatic buttercup.

Excavated Drainage

Excavated drainages are intermittent waterways that have been channelized for agricultural purposes and urban stormwater conveyance. Excavated drainages are periodically cleared of vegetation to improve flow capacity. Vegetation is similar to the vegetation associated with drainages.

Annual Grassland

Annual grasslands are virtually treeless areas dominated by non-native annual grasses which occur from sea level to about 3,600 feet amsl (Kie 1988). Annual changes in rainfall and grazing have a profound effect on the species composition of annual grasslands during a given year. Growth typically starts with the first fall rains. Slow growth is maintained throughout winter, followed by rapid growth in spring. During years of favorable rainfall and little or no grazing pressure, large amounts of standing dead plant material can be found during the summer months. A moderate level of livestock grazing may preserve botanical diversity and is considered beneficial (Kie 1988). In the absence of grazing, annual grasslands are often limited in diversity and dominated by tall, dense stands of invasive non-native grasses and scattered trees or clumps of trees.

Within the project area, common non-native grass species in the annual grassland community include European hairgrass (*Aira caryophyllea*), slender wild oat (*Avena barbata*), wild oat (*A. fatua*), ripgut brome (*Lolium multiflorum*), barnyard grass (*Echinochloa crus-galli*), wild barley (*Hordeum murinum* ssp. *leporinum*), and wild rye (*Lolium multiflorum*). Common herbaceous plants in annual grasslands include filaree (*Erodium botrys*), bur-clover (*Medicago polymorpha*), white clover (*Trifolium repens*), and hayfield tarweed (*Hemizonia congesta* ssp. *congesta*).

Although the proportion and density of native plant species occurring within annual grasslands is typically low, there are some special-status plant species which may be found in this community. These species include Brewer's milk-vetch, Clara Hunt's milk-vetch, Tiburon Mariposa lily, Tiburon Indian paintbrush, and Vine Hill clarkia.

Coastal Prairie

Coastal prairie, also referred to as coastal terrace prairie (Holland 1986) and festuca-danthonia grassland (Shuford and Timossi 1989), occurs in sandy loams on marine terraces near the coast. Strong maritime influences produce frequent

fog events resulting in reduced evapotranspiration and promoting the growth of perennial bunchgrasses (Shuford and Timossi 1989). Coastal prairies occur in the coastal portions of the project area, including the vicinity of the Estero Americano and Estero de San Antonio. Most stands are quite patchy and variable in composition, reflecting local differences in available soil moisture capacity (Holland 1986). A higher proportion of native species are usually present in coastal prairies than in annual grasslands. Plant species found in coastal prairies may include colonial bent grass (*Agrostis tenuis*), California thrift (*Armeria maritima californica*), reedgrass (*Calamagrostis nutkaensis*), and red fescue (*Festuca rubra*).

Coastal terrace prairie, a subtype of coastal prairie, has been identified by the CDFG as a sensitive natural community (CDFG 1995). Special-status plant species found in this plant community include Blasdale's bent grass and Point Reyes blennosperma.

Native Grassland

Native grasslands are treeless areas dominated by perennial bunchgrass species. In northern California, relict perennial bunchgrasses such as purple needlegrass (*Nassella pulchra*) and wild blue rye (*Elymus glaucus*) occupy areas with greater precipitation and light grazing. Native grass species occurring within the project area include Oldfield three-awn (*Aristida oligantha*), California brome (*Bromus carinatus*), California oatgrass (*Danthonia californica* var. *californica*), slender hairgrass (*Deschampsia elongata*), mannagrass (*Glyceria leptostachya*), and Lemmon's canary grass (*Phalaris lemmonnii*).

Annual, non-native grasses have replaced most of the native, perennial bunchgrasses that once dominated lower elevations throughout North America. One of the main factors that shifted the competitive advantage from native to non-native grasses appears to be the inability of native grasses to successfully compete under heavy grazing conditions. Due to the historic use of grasslands for livestock grazing, most stands of native grasses in the region now occur as small, isolated populations. Extensive grazing has also limited the population and distribution of species endemic to the native grassland community, resulting in many species receiving protected status. Some of the special-status plant species associated with native grasslands include Colusa layia, woolly-headed lessingia, San Francisco wallflower, fragrant fritillary, bristly linanthus, and Lake County stonecrop. Valley needlegrass grassland and serpentine bunchgrass, which are subtypes of the native grassland community, are considered sensitive natural communities by the CDFG (1995).

Chaparral

Chaparral is composed of evergreen woody shrubs that form extensive low shrublands in nutrient poor, rocky soils on dry inland hills and lower mountain slopes of California (Hanes 1977; Holland 1986). Four types of chaparral

communities occur in the project area. These four communities include chamise chaparral, manzanita chaparral, mixed chaparral, and serpentine chaparral (Shuford and Timossi 1989). These community types also intergrade within the project area.

Species that grow in chaparral communities are hardy and are able to withstand severe environmental factors such as frequent fires, low water availability, and high magnesium, calcium and iron concentrations in underlying soils. Chaparral shrubs often form dense, impenetrable stands at full maturity, with extensive accumulation of leaf litter and dead material in stands that have not burned in several years. Chaparral plant species in the region include Stanford manzanita (*Arctostaphylos stanfordiana* ssp. *stanfordiana*), chamise (*Adenostoma fasciculatum*), buck brush (*Ceanothus cuneatus* var. *cuneatus*), soap plant (*Chlorogalum pomeridianum* var. *pomeridianum*), scrub oak (*Quercus berberidifolia*), leather oak (*Quercus durata*), gray (digger) pine (*Pinus sabiniana*), mule ears (*Wyethia glabra*), narrowleaf mule ears (*W. angustifolia*), yerba santa (*Eriodictyon californicum*), and Douglas' lupine (*Lupinus nanus*).

Chamise chaparral is the dominant type of chaparral throughout California (Hanes 1977). This community type is found on hot dry sites, usually on south- or west-facing slopes and ridges (Hanes 1977). Stanford manzanita and buck brush occasionally occur intermixed with the dominant component, chamise. Special-status plants which may be associated with chamise chaparral include Brewer's calandrinia, Vine Hill ceanothus, Vine Hill clarkia, western dichondra, and thin-lobed horkelia.

Manzanita chaparral is found on deeper soils and at higher elevations than chamise chaparral. Manzanita chaparral often forms thick, almost impenetrable stands (Hanes 1977). Special-status plant species associated with manzanita chaparral include Sonoma manzanita, Rincon manzanita, and Marin manzanita.

Mixed chaparral occurs on mesic sites and usually grades into mixed evergreen forest on moist, shady slopes or in drainages (Shuford and Timossi 1989). Mixed chaparral consists of an almost even mix of interior live oak (*Quercus wislizenii* var. *wislizenii*), scrub oak, manzanita, chamise, and buck brush (Shuford and Timossi 1989). Special-status plant species associated with mixed chaparral include bent-flowered fiddleneck, Sonoma ceanothus, western leatherwood, nodding madia, and robust monardella.

Serpentine chaparral is an open, low type of chaparral associated with serpentine soils (Hanes 1977). The dominant shrubs in this community include chamise, toyon (*Heteromeles arbutifolia*), and leather oak. Tree species associated with this community include scrub oak and gray pine. Serpentine soils have very low levels of important nutrients such as calcium, phosphorus, and nitrogen, and high levels of magnesium, chromium, and nickel (Shuford and Timossi 1989, Kozloff and Beidleman 1994). Consequently, plant species occurring on these soils are usually dwarfed due to the poor growing conditions.

Serpentine chaparral is irregularly and locally distributed within the chaparral zone of the region. The impoverished soil that results from the breakdown of minerals present in serpentinite supports a variety of unique plant species (i.e., serpentine endemics) that contribute a significant portion of California's plant diversity. Examples of special-status plant species in the region that are limited primarily to serpentine soils are bent-flowered fiddleneck, Hopland manzanita, serpentine milkweed, serpentine reed grass, dwarf soaproot, serpentine bird's beak, Baker's manzanita, and The Cedars manzanita.

Northern Coastal Scrub

Northern coastal scrub is characterized by low to moderate-sized, semi-woody shrubs (one to six feet in height) with mesophytic leaves and shallow root systems. Southern and western exposures with shallow, rocky soils support a relatively dense canopy with a well-developed understory of herbs and grasses. Species composition changes between mesic and xeric sites and from north to south along the coast. In the project area two types of northern coastal scrub are recognized: those dominated by low-growing patches of bush lupine (*Lupinus succulentus*) near the ocean, and areas of coyote brush (*Baccharis pilularis*) in less exposed sites. Other common northern coastal scrub species include buck brush, coffeeberry (*Rhamnus californica*), bush monkey-flower (*Mimulus aurantiacus*), and poison-oak (*Toxicodendron diversilobum*). Bracken fern (*Pteridium aquilinum* var. *pubescens*) and western sword fern (*Polystichum munitum*) as well as herbaceous species such as Indian paintbrush (*Castilleja affinis* ssp. *affinis*), yerba buena (*Satureja douglasii*), and California oatgrass are common understory species in northern coastal scrub.

Several special-status plant species are associated with northern coastal scrub, including San Francisco spineflower, woolly-headed spineflower, yellow larkspur, and coast rock cress. Coast rock cress is most often found on rocky outcrops in northern coastal scrub habitat (Betty Guggolz, personal communication).

Oak Woodland

Several species of tree oaks (*Quercus* spp.) occur in California, seven of which are found in the project area. These seven oak species include coast live oak, canyon live oak (*Q. chrysolepis*), blue oak, Oregon oak, California black oak, valley oak, and interior live oak. A predominance of deciduous oaks, open canopies, and grassy ground cover beneath and among the trees characterizes the oak woodlands in the project area (Shuford and Timossi 1989).

Although various classifications have been devised to describe the oak woodland communities of California (e.g., Holland 1986, Griffin 1977, Pavlik et al. 1991), none of these classifications accurately describes the dominant oak woodland community type found within the project area. The most common oak woodland community type occurring in the project area consists of a mixture of coast live

oak and interior live oak, with coast live oak usually occurring as the dominant tree among these two species. This community is therefore identified as coast live oak/interior live oak.

The other species of oak trees within the project area occur as scattered, individual trees or as small stands of trees, consisting of one or more oak species. Shrub species associated with oak woodlands in the project area include manzanita (*Arctostaphylos* spp.), ceanothus (*Ceanothus* spp.), and toyon. Herbaceous species include hedge nettle (*Stachys ajugoides*), miner's lettuce (*Claytonia perfoliata* ssp. *perfoliata*), and rough corn bedstraw (*Galium tricornutum*).

Oak-bay-madrone woodland is a type of mixed evergreen forest dominated by closed-canopy stands of coast live oak, California bay (*Umbellularia californica*), and California madrone (*Arbutus menziesii*) (Shuford and Timossi 1989). Oak-bay-madrone woodland is a tall, dense community with few shrubs or low-growing herbs (Pavlik et al. 1991). Other plant species that are found in oak-bay-madrone woodlands in the project area include poison-oak, gooseberry (*Ribes menziesii*), and toyon. Oak-bay-madrone woodland generally occurs in moist, cool areas but may also occur on drier sites (Shuford and Timossi 1989).

Special-status plant species associated with the oak woodlands within the project area include bent-flowered fiddleneck, western dichondra, Diablo helianthella, Napa lomatium, robust monardella, and green monardella.

Redwood

Redwood, also described as upland redwood forest by Holland (1986), is dominated by redwood (*Sequoia sempervirens*). Redwood forests grow on shallow, well-drained soils and very deep, alluvial floodplain soils in the Coast Range of California from San Luis Obispo County north to southwestern Oregon (McMinn and Maino 1981, Zinke 1977). Natural stands of redwood forest occur in Sonoma and Marin counties, and are present in scattered locations within the project area. Individual redwood trees are a popular horticultural tree and are commonly planted along roadsides and in parks and yards. Special-status plant species that may occur within the redwood plant community include fringed false-hellebore, California pinefoot, and California bottle-brush grass.

Riparian Woodland

Riparian woodlands are complex habitats that occur on well-aerated, sandy, alluvial soils associated with perennial and intermittent creeks and streams. Riparian woodlands generally have closed canopies dominated by broadleaved, winter deciduous trees. The composition of species in riparian woodland communities is highly variable and dependent on geographic location, elevation, substrate, and amount of flow in the watercourse. Riparian woodland is a widespread community type scattered throughout the Central Valley of California, lower foothills of the Cascades, Sierra Nevada, and Coast Range,

though it has been estimated that 95 percent of riparian woodlands have been eliminated in California (Grenfell 1988).

Willow riparian and mixed-riparian are two types of riparian woodlands that occur in the project area. Willow riparian is dominated by red willow (*Salix laevigata*) and arroyo willow (*S. lasiolepis*), whereas mixed-riparian woodland is dominated by red alder (*Alnus rubra*) and big-leaf maple (*Acer macrophyllum*). Further inland, red alder is replaced by white alder (*Alnus rhombifolia*), Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*), and valley oak.

Evergreen hardwoods such as California bay and coast live oak commonly occur along the edges of riparian corridors where they gradually intergrade into adjacent grasslands. The riparian woodland understory generally consists of shade-tolerant shrubs and herbs including poison-oak, Himalayan blackberry (*Rubus discolor*), blue elderberry (*Sambucus mexicana*), snowberry (*Symphoricarpos albus* var. *laevigatus*), wild honeysuckle (*Lonicera hispidula* var. *vacillans*), mulefat (*Baccharis salicifolia*), and a variety of ferns.

The number of layers of understory vegetation depends on the age of the woodland, climate, and surrounding land uses. The density and diversity of the understory is often influenced by cattle grazing. Riparian woodlands that have been carefully managed or fenced from cattle support a significantly higher number of native species than those areas where cattle are allowed free access.

Riparian corridors that are mostly devoid of shrubs and trees (due to cattle grazing) are classified as non-wooded riparian habitats. These corridors occur mostly along intermittent watercourses. In the absence of cattle grazing, it is likely that these corridors would support at least some level of riparian community development.

Sonoma alopecurus is a special-status plant species that is associated with riparian woodlands.

California Buckeye

California buckeye (*Aesculus californica*), is a native California species that occurs on canyon slopes and low dry hills of the Sierra Nevada and Coast Range of California (McMinn and Maino 1981). Populations of California buckeye in Sonoma County occur in small, scattered populations in canyons and on hillsides in association with major community types such as grasslands, oak woodlands, and mixed hardwood forests. The species also occurs as an associate with coast live oak in narrow canyons along drainages.

Eucalyptus

Eucalyptus is an example of a non-native, exotic plant that has become naturalized in many locations in the project area. Eucalyptus was introduced to California as an ornamental species and a source of lumber and windbreaks (Ornduff 1974). Monotypic stands of eucalyptus are common in the project area,

especially where the trees were planted in groves to serve as windbreaks. The groves are usually even aged with an open understory due to the allelopathic effects (inhibits growth of nearby plants) of this genus. Poison-oak, bedstraw, and blackberry are some of the few understory species that are able to survive. The most common species in the project area is blue gum (*Eucalyptus globulus*), which reaches heights of up to 120 feet and trunk diameters of over five feet. Eucalyptus trees tend to replace natural riparian habitat when planted along creeks or natural drainages.

Lombardy Poplar

The Lombardy poplar (*Poplar nigra* var. *italica*) is not native to California. Although similar to the native Fremont cottonwood, Lombardy poplars have a columnar shape as compared to the open, spreading form of the native cottonwood. In the project area, Lombardy poplars are planted in rows in scattered locations as a windbreak along property lines and hedgerows. They have also become established in scattered locations along drainages.

Monterey Cypress

The Monterey cypress (*Cupressus macrocarpa*) is a native California species that has been widely planted outside its natural range of the Monterey Peninsula (Bartel 1993). This species is planted as hedges, windbreaks, and park trees (McMinn and Maino 1981).

Monterey Pine

The Monterey pine (*Pinus radiata*) is a native California species that occurs in Santa Cruz and Monterey counties along California's central coast. This species has also been widely planted throughout coastal California. In the project area, Monterey pines have been planted as hedgerows and wind breaks.

Study Methodology

Plant community mapping consisted of identifying distinct community types within each site and drawing the approximate boundary (polygon) of each community onto a blueline copy of an aerial photograph. Plant community mapping was conducted during the botanical surveys (refer back to Table 2.2-2).

The field maps were digitized into AutoCAD® using 7.5-minute USGS quadrangle maps as base maps. Acreages of plant communities were calculated using ArcINFO™. The results of the plant community mapping are summarized below.

Results

The acreages of mapped plant communities are identified in Table 2.2-4.

The plant species lists for each storage reservoir site are presented in Biological Resources Technical Memorandum, Volume III, Appendix A - Sycamore Environmental's Reservoir Technical Memorandum: Botanical Resources. The results of the plant community mapping are presented on Maps C-1 through C-7.

Table 2.2-4

Summary of Plant Communities Found on Each Proposed Storage Reservoir Site (In Acres)

Plant Community	Adobe Road	Lakevile Hillside	Sears Point	Tolay Confined	Tolay Extended	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
Annual Grassland	265.4	168.4	387.9	294.2	350.9	306.2	273.2	268.6	235.1	307.3
California Buckeye[1]	--	--	--	0.8	0.8	--	--	--	--	--
Coast Live Oak/Interior Live Oak Woodland	16.8	--	6.2	--	--	--	--	--	--	--
Cropland	--	--	--	245.9	605.9	--	--	--	--	--
Drainage	--	0.5	1.2	3	6.1	--	0.7	--	0.4	2.8
Eucalyptus	--	13.7	3.5	2.6	0.1	6	18.2	17.8	1.8	2.1
Excavated Drainage	--	--	--	4.9	10.4	--	--	--	--	--
Freshwater Marsh	--	--	--	--	--	--	--	--	0.4	--
Freshwater Pond	2.4	0.2	--	1.5	9.8	0.8	2.4	0.5	6.8	3
Freshwater Seep	0.7	0.6	0.4	0.3	0.5	--	0.2	2.4	23.9	1.8
Lombardy Poplar[1]	--	0.7	--	--	--	--	--	--	--	--
Mixed-Riparian Woodland	60.2	--	43.7	4.4	4.4	1	--	1.1	8.3	--
Monterey Cypress[1]	--	--	--	--	--	--	--	--	0.5	--
Native Grassland	--	0.6	--	23.9	24.8	--	1	2.1	1.3	--

Table 2.2-4

Summary of Plant Communities Found on Each Proposed Storage Reservoir Site (In Acres)

Plant Community	Adobe Road	Lakevile Hillside	Sears Point	Tolay Confined	Tolay Extended	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
Non-wooded Riparian	3.9	8	6.4	18.9	19	13.6	1.1	2.6	2.9	3.2
Northern Coastal Scrub	--	--	--	--	--	4.6	2.9	--	--	--
Oak-Bay-Madrone Woodland	--	--	--	--	--	0.6	--	--	58.3	1
Redwood[1]	--	--	--	--	--	--	0.1	--	--	--
Seasonally Wet Vegetation	--	--	0.7	1.4	13.9	--	--	8.3	1	46.5
Urban	--	--	--	0.1	8.2	--	--	--	--	--
Vineyard	--	28.2	--	--	10.7	--	--	--	--	--
Willow Riparian Woodland	--	10.6	15.4	2.6	2.4	8.7	17.4	3.5	7.4	9
Total Acreage	349.4	231.5	465.4	604.5	1,067.9	341.5	317.2	306.9	348.1	376.7
Communities Per Site	6	10	9	14	15	8	10	9	13	9

Source: Harland Bartholomew & Associates, 1996

Note:
1 = These represent small tree stands, not actual plant communities.

FLORISTIC ANALYSIS

Introduction

The floras of the ten proposed storage reservoir sites were analyzed. Formal estimates of species diversity require the determination of the number of species present and their abundance (Barbour et al. 1980). The number of species present, known as species "richness," was determined on each reservoir site. Since it was beyond the scope of this project to measure species abundance (density, cover, or frequency), it was not possible to perform a formal diversity analyses. In this document, the term "floristic diversity" refers to taxonomic richness, i.e., numbers of families, genera, or species present.

Study Methodology

The floristic analyses are based on species lists prepared during field surveys. A comprehensive flora for each storage reservoir site is presented in Biological Resources Technical Memorandum, Volume III, Appendix A - Sycamore Environmental's Reservoir Technical Memorandum: Botanical Resources. The floras of the proposed reservoir sites were combined into a comprehensive flora and compared with floras of other areas in the Central Coast Ranges of California. Floristic diversity data were derived from information on file in the Shields Library (including electronic data bases) at the University of California, Davis. Dr. Charles Quibell, Professor of Botany, Sonoma State University, was consulted regarding information on floristic studies conducted in the Central Coast Range.

Results

The results of the storage reservoir plant surveys indicate that there are a total of 81 families, 279 genera, and 493 species which comprise the combined flora for all of the sites. Of the 493 species, 326 are native species and 159 are introduced species. Eight plant specimens could only be keyed to genus, making it difficult to determine if they were native or introduced species.

Table 2.2-5 ranks each of the storage reservoir sites, in order of magnitude from greater to lesser, by the total number of plant species observed. The proposed Two Rock storage reservoir site contains the greatest number of plant species (316), accounting for 64.1 percent of the total number of plant species observed at all of the sites. The proposed Lakeville Hillside storage reservoir site contains the least number of plant species (135) and accounts for only 27.4 percent of the total number of plant species observed at all of the sites.

Table 2.2-5

Total Number of Plant Species Found at Each Storage Reservoir Site

Rank	Storage Reservoir	Number of Species	Percentage of Total Species Observed[1]
1	Two Rock	316	64.1%
2	Tolay (Confined/Extended)	210	42.6%
3	Carroll Road	181	36.7%
4	Bloomfield	178	36.1%
5	Huntley	164	33.3%
6	Valley Ford	161	32.7%
7	Adobe Road	154	31.2%
8	Sears Point	138	28.0%
9	Lakeville Hillside	135	27.4%

Source: Sycamore Environmental, 1996

Notes:
1 = Percentage is derived by dividing the number of plant species observed at a particular site by 493, which is the total number of plant species observed for all the sites.

Table 2.2-6 ranks each of the storage reservoir sites, in order of magnitude from greater to lesser, by the total number of native plant species observed. The proposed Two Rock storage reservoir site contains the greatest number of native plant species (215), accounting for 66 percent of all native plant species observed at all of the proposed storage reservoir sites. The proposed Lakeville Hillside storage reservoir site contains the least number of native plant species (69), accounting for only 21.2 percent of all native plant species observed at all of the proposed storage reservoir sites.

Table 2.2-6

Total Number of Native Species Found at Each Storage Reservoir Site

Rank	Storage Reservoir	Number of Species	Percentage of Total Native Species Observed[1]
1	Two Rock	215	66.0%
2	Tolay (Confined/Extended)	123	37.7%
3	Bloomfield	96	29.4%
4	Carroll Road	93	28.5%
5	Huntley	89	27.3%
6	Adobe Road	87	26.7%
7	Valley Ford	80	24.5%
8	Sears Point	76	23.3%

Table 2.2-6

Total Number of Native Species Found at Each Storage Reservoir Site

Rank	Storage Reservoir	Number of Species	Percentage of Total Native Species Observed[1]
9	Lakeville Hillside	69	21.2%

Source: Sycamore Environmental, 1996

Notes:
1 = Percentage is derived by dividing the number of native plant species observed at a particular site by 326, which is the total number of native plant species observed for all the sites.

Table 2.2-7 ranks each of the storage reservoir sites, in order of magnitude from greater to lesser, by the total number of unique plant species observed. Unique is defined as those species which occur at only one of the storage reservoir sites. Two Rock, with 69 unique plant species, is ranked the highest, while Lakeville Hillside and Sears Point are ranked the lowest with six unique plant species each.

Table 2.2-7

Number of Unique Plant Species Found at Each Storage Reservoir Site

Rank	Storage Reservoir	Number of Unique Plant Species[1]
1	Two Rock	69
2	Tolay (Confined/Extended)	25
3	Bloomfield	14
4	Huntley	14
5	Carroll Road	10
6	Valley Ford	8
7	Adobe Road	8
8	Sears Point	6
9	Lakeville Hillside	6

Source: Sycamore Environmental, 1996

Notes:
1 = “Unique” refers to a plant species that was found only at one of the storage reservoir sites

Table 2.2-8 ranks each of the storage reservoir sites, in order of magnitude from greater to lesser, by the total number of native grass species observed. The proposed Two Rock storage reservoir site contains the largest number of native grass species (20), while the Bloomfield, Lakeville Hillside, and Valley Ford sites contain the least number of native grass species with six each.

The column furthest to the right shows the percentage of native grass species compared to the total number of grass species observed. For example, 44 total grass species were observed at the Two Rock site, 20 of which (45.5 percent) were native grass species. Two Rock at 45.5 percent has the highest percentage of native grass species, while Valley Ford at 22.2 percent has the lowest percentage.

Table 2.2-8

Total Number of Native Grass Species Found at Each Storage Reservoir Site

Rank	Storage Reservoir	Number of Native Grass Species	Percentage of Native Grass Species Versus Total Grass Species
1	Two Rock	20	45.5%
2	Huntley	8	33.3%
3	Tolay (Confined/Extended)	9	29.0%
5	Sears Point	7	28.0%
6	Adobe Road	7	28.0%
8	Carroll Road	7	22.6%
7	Bloomfield	6	24.0%
4	Lakeville Hillside	6	28.6%
9	Valley Ford	6	22.2%

Source: Sycamore Environmental, 1996

Based on the results summarized in the tables above, the proposed Two Rock storage reservoir site would be considered the most floristically diverse site. Two Rock ranks first among all the storage reservoir sites for total number of plant species, total number of native plant species, total number of unique plant species, and total number of native grass species. Biological Resources Technical Memorandum, Volume III, Appendix A - Sycamore Environmental's Reservoir Technical Memorandum: Botanical Resources contains a more thorough discussion of the floristic diversity results.

2.3 WILDLIFE STUDY METHODOLOGIES AND RESULTS

A comprehensive list of special-status wildlife species was compiled by consulting with representatives from both USFWS and CDFG. In addition, CNDDB/Rarefind record searches were conducted. The list of special-status species was initially compiled in 1994, but was updated as new and revised listings became available from both agencies. The final list comprises 89 special-status wildlife species that needed to be evaluated in the EIR/EIS (Table 2.3-1). A brief discussion of each special-status wildlife species is presented in Biological Resources Technical Memorandum, Volume II - Special-Status Species Accounts (bound separately).

Surveys for both common and special-status wildlife species were conducted in all habitat types potentially affected by the project. Focused surveys were performed for all state and federal listed or proposed- endangered and threatened wildlife species that were likely to be impacted by the various project components. Those species requiring focused surveys included California red-legged frog, California freshwater shrimp, vernal pool fairy shrimp, longhorn fairy shrimp, Conservancy fairy shrimp, and vernal pool tadpole shrimp. Concurrently, focused surveys were conducted for federal candidate species (prior to notices February 28, 1996 federal notices [50 CFR Part 17, Volume 61, Number 40, 7457-7463 and 7595-7613,] regarding status changes), including California tiger salamander, northwestern pond turtle, Tomales isopod, California linderiella, and foothill yellow-legged frog, since these candidate species share similar habitats. Established protocols, as developed by the USFWS and CDFG, were followed by wildlife biologists while conducting the focused surveys. In addition to these focused surveys, habitat data was collected from each site for use in the California Wildlife Habitat Relationships (CWHR) wildlife species modeling program. A complete list of observed wildlife species for each proposed storage reservoir site is presented in Appendix A.

The survey methodologies and corresponding results for each of the aforementioned surveys are described in this section in the following order: 1) CNDDB Occurrences; 2) CWHR Habitat Mapping; 3) Special-Status Amphibian Surveys; 4) Vernal Pool Habitat Assessments and Surveys; 5) California Freshwater Shrimp Surveys; 6) Northwestern Pond Turtle Surveys; and 7) Avian Assessments.

Table 2.3-1

Special-Status Animal Species

COMMON NAME	SCIENTIFIC NAME	STATUS State	STATUS Federal
INVERTEBRATES			
Opler's longhorn moth	*Adella oplerella*	--	*
Conservancy fairy shrimp	*Branchinecta conservatio*	--	FE
Longhorn fairy shrimp	*Branchinecta longiantennae*	--	FE
Vernal pool fairy shrimp	*Branchinecta lynchi*	--	FT
Tomales isopod	*Caecidotea tomalensis*	--	*
Sonoma artic skipper	*Carterocephalus palaemon ssp.*	--	*
Sandy beach tiger beetle	*Cicindella hirticollis gravida*	--	*
Globose dune beetle	*Coelus globosus*	--	*
Monarch butterfly	*Danaus plexippus*	--	--
Brownish dubiraphian riffle beetle	*Dubiraphia brunnescens*	--	*
Durant's snail	*Haplotrema duranti*		--
William's bronze shoulderband snail	*Helminthoglypta arrosa williamsi*	--	*
Rickseker's water scavenger beetle	*Hydrochara ricksekeri*	--	*
Leech's skyline diving beetle	*Hydroporus leechi*	--	*
Mission blue butterfly	*Icaricia icarioides missionensis*	--	FE
Point Reyes blue butterfly	*Icaricia icarioides* ssp.	--	*
Marin elfin butterfly	*Incisalia mossii*	--	*
San Bruno elfin butterfly	*Incisalia mossii bayensis*	--	FE
Vernal pool tadpole shrimp	*Lepidurus packardi*	--	FE
Bumblebee scarab beetle (Pacific sand bear)	*Lichnanthe ursina*	--	*
California linderiella	*Linderiella occidentalis*	--	*
Callippe silverspot butterfly	*Speyeria callipe callipe*	--	PE
Behren's silverspot butterfly	*Speyeria zerene behrensii*	--	PE
Myrtle's silverspot butterfly	*Speyeria zerene myrtleae*	--	FE
California freshwater shrimp	*Syncaris pacifica*	--	FE
California brackishwater snail	*Tryonia imitator*	--	*
AMPHIBIANS			

Table 2.3-1

Special-Status Animal Species

COMMON NAME	SCIENTIFIC NAME	STATUS State	STATUS Federal
California tiger salamander	*Ambystoma californiense*	SSC	C
California red-legged frog	*Rana aurora draytoni*	SSC	FT
Foothill yellow-legged frog	*Rana boylii*	SSC	*
Western spadefoot toad	*Scaphiopus hammondii*	SSC	*
REPTILES			
Northwestern pond turtle	*Clemmys marmorata marmorata*	SSC	*
California horned lizard	*Phrynosoma coronatum frontale*	SSC	*
BIRDS			
Cooper's hawk	*Accipiter cooperii*	SSC	--
Sharp-shinned hawk	*Accipiter striatus*	SSC	--
Tricolored blackbird	*Agelaius tricolor*	SSC	*
Bell's sage sparrow	*Amphispiza belli belli*	SSC	*
Golden eagle	*Aquila chrysaetos*	SSC CFP	--
Great blue heron	*Ardea herodias* (Rookery site)	--	--
Short-eared owl	*Asio flammeus*	SSC	--
Long-eared owl	*Asio otus*	SSC	--
Marbled murrelet	*Brachyranmphus marmoratus*	CE	FT
Barrow's goldeneye	*Bucephala islandica*	SSC	--
Ferruginous hawk	*Buteo regalis*	SSC	*
Rhinoceros auklet	*Cerorhinca monocerata*	SSC	--
Western snowy plover	*Charadrius alexandrinus nivosus*	SSC	FT
Northern harrier	*Circus cyaneus*	SSC	--
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	CE	--
Black swift	*Cypseloides niger*	SSC	--
Vaux's swift	*Chaetura vauxi*	SSC	--
Yellow warbler	*Dendroica petechlia*	SSC	--
White-tailed kite	*Elanus caeruleus*	CFP	--
Little willow flycatcher	*Empidonax trailii brewsteri*	CE	*
California horned lark	*Eremophila alpeseris actia*	SSC	*
Merlin	*Falco columbarius*	SSC	--

Table 2.3-1

Special-Status Animal Species

COMMON NAME	SCIENTIFIC NAME	STATUS State	STATUS Federal
Prairie falcon	*Falco mexicanus*	SSC	--
American peregrine falcon	*Falco peregrinus anatum*	CE	FE
Tufted puffin	*Fratercula cirrhata*	SSC	--
Salt marsh common yellowthroat	*Geothlypis trichas sinuosa*	SSC	*
Bald eagle	*Haliaeetus leucocephalus*	CE CFP	FT
Yellow-breasted chat	*Icteria virens*	SSC	--
Loggerhead shrike	*Lanius ludovicianus*	SSC	*
California gull	*Larus californicus*	SSC	--
California black rail	*Laterallus jamaicensis coturniculus*	CT	*
San Pablo song sparrow	*Melospiza melodia smauelis*	SSC	*
Long-billed curlew	*Numenius americanus*	SSC	*
Osprey	*Pandion haliaetus*	SSC	--
California brown pelican	*Pelecanus occidentalis californicus*	CE	FE
Double-crested cormorant	*Phalacrocorax auritus*	SSC	--
Purple martin	*Progne subis*	SSC	--
California clapper rail	*Rallus longirostris obsoletus*	CE	FE
Bank swallow	*Riparia riparia*	CT	--
Western burrowing owl	*Speotyto cunicularia hypugea*	SSC	*
Northern spotted owl	*Strix occidentalis caurina*	SSC	FT
MAMMALS			
Pallid bat	*Antrozous pallidus*	SSC	--
Point Reyes mountain beaver	*Aplodontia rufa phaea*	SSC	*
California red tree vole	*Arborimus pomo*	SSC	*
Ringtail	*Bassariscus astutus*	CFP	--
Greater western mastiff-bat	*Eumops perotis californicus*	SSC	*
San Pablo vole	*Microtus californicus sanpabloensis*	SSC	*
Long-eared myotis	*Myotis evotis*	--	*
Fringed myotis	*Myotis thysanodes*	--	*
Long-legged myotis	*Myotis volans*	--	*

Table 2.3-1

Special-Status Animal Species

COMMON NAME	SCIENTIFIC NAME	STATUS State	STATUS Federal
Yuma myotis bat	*Myotis yumanensis*	--	*
Pacific western big-eared bat	*Plecotus townsendii townsendii*	SSC	*
Saltmarsh harvest mouse	*Reithrodontomys raviventris*	CE CFP	FE
Suisun ornate shrew	*Sorex ornatus sinuosus*	SSC	*
Salt marsh wandering shrew	*Sorex vagrans halicoetes*	SSC	*
American badger	*Taxidea taxus*	SSC	--
Point Reyes jumping mouse	*Zapus trinotatus oratius*	SSC	*

Source: Harland Bartholomew & Associates, Inc., 1996

* In a series of federal register notices (50 CFR Part 17, Volume 61, Number 40, 7457-7463 and 7595-7613, February 28, 1996), the USFWS reclassified 96 candidate taxa of plants and animals. The USFWS now only recognize a single federal candidate status. These taxa are considered by the USFWS as candidates for possible addition to the List of Endangered and Threatened Plants and Animals. As a consequence, the status of many taxa originally included in the analysis has changed, requiring that many taxa be removed from the list of species being considered in this EIR/EIS analysis.

1. State status data taken from CDFG documents, Endangered and Threatened Animals of California (Revised January 1995) and Special Animals (Revised August 1994).
   - CE = State-listed Endangered
   - CT = State-listed Threatened
   - CR= State-listed Rare
   - SCE = State Candidate Endangered
   - SSC = Species of Special Concern
   - CFP = Listed as Fully Protected by the CDFG

2. Federal status and probable distribution in Marin and Sonoma counties determined by correspondence with Laurie Simons-USFWS, 9 February 1994.
   - FE = Federal-listed Endangered
   - FT = Federal-listed Threatened
   - PE = Proposed Endangered
   - PT = Proposed Threatened
   - FC = Federal Candidate: Taxa for which the USFWS has sufficient biological information to support a proposal to list as endangered or threatened.

CALIFORNIA NATURAL DIVERSITY DATABASE OCCURRENCES

Introduction

The CNDDB system has been previously described in Section 2.2 - Botanical Study Methodologies and Results.

Study Methodology

The approach used to analyze CNDDB wildlife species occurrences is similar to the approach discussed above for plant species and natural plant communities.

Results

There were no CNDDB records for special-status wildlife species within 100 feet of any of the proposed storage reservoir sites.

CWHR HABITAT MAPPING

Introduction

The CWHR system is a comprehensive information system for California wildlife that describes and/or models: habitat relationships and requirements, management status, geographic distribution, life history, and responses of wildlife species to habitat changes. Currently, the system has models for 643 species of resident and migratory terrestrial and aquatic amphibians, birds, mammals, and reptiles that regularly occur in California. Only regularly occurring species were included in CWHR because these are the species that typically receive management emphasis by resource professionals in California.

In order to fully predict what wildlife species would occur in a given habitat, the vegetative and structural elements of the habitat need to be determined. Important physical and biological attributes of the landscape (i.e., ponds, snags, acorns), which provide habitat elements required by certain wildlife species for foraging, reproduction or both, must also be identified. Habitat elements are an integral component of the CWHR system because the incorporation of habitat elements leads to more precise predictions.

For large-scale projects such as the Santa Rosa Subregional Long-Term Wastewater Project, some assumptions must be made as to what special habitat elements are present. For the purposes of this project, certain habitat elements were excluded based on observations made by biologists in the field, or due to the fact that the elements chosen for exclusion did not provide an essential habitat element for species that occur in the project area. A list of the elements that were excluded from the analysis may be found at the beginning of the CWHR report printouts for each specific habitat type (Appendix B). These same elements were excluded for each specific habitat that was analyzed.

Over 50 different habitat types are classified by the definitions and descriptions provided in the CWHR system's *A Guide to Wildlife Habitats of California* (Mayer and

Laudenslayer 1988). Twelve different habitat types, including 20 classifiable growth stages, were observed within the ten proposed storage reservoir sites. The CWHR computer system does not distinguish between different samples of the same habitat type (i.e., annual grassland found in the South County region versus annual grassland found in the West County region). However, a system user can differentiate between separate samples of the same habitat by assigning specific habitat elements to each sample. Due to the fact that a general habitat element exclusion was utilized for this study, broad definitions of each observed habitat type were used in conducting the CWHR analysis.

Study Methodology

The CWHR modeling analysis required the following habitat characterization inputs:

- habitat type;
- ground cover or canopy cover;
- age of plant community; and
- habitat elements (i.e. trees, rocks, stream, pond, etc.).

Field inventories for vegetative and wildlife habitat element data were conducted on all the proposed storage reservoir sites. The field team consisted of two botanists and a wildlife biologist. On larger sites, a second wildlife biologist was included as part of the survey team. Data collection started in October 1994 and was completed in March 1995. Each site was sampled once during a single day visit. While the sampling could be conducted during any time of the year, the biologists took into account what the site would look like throughout the year in terms of vegetation and habitat elements included in the data collection.

The first step of data collection was to determine what wildlife habitats were present at the storage sites and the approximate acreage of each habitat type on each site. Tables 2.3-2, 2.3-3, and 2.3-4 offer explanations for the various codes and abbreviations that are utilized by the CWHR habitat classification system. These codes are used for naming the specific habitat type, defining canopy closure within each habitat type, and classifying growth or seral stages within each habitat type. A crosswalk that demonstrates the relationship between the plant communities that were used in the plant community mapping and the CWHR habitat types is provided in Table 2.3-5.

The botanists collected data along two 50-meter transects per 40 acres of each habitat type. In those instances where more than 40 acres of a given habitat type were present on a particular storage site, then an additional set of sample transects were conducted. Point intercept data was collected every meter. For each given point, the following information was recorded:

- If the point touched bare ground or vegetation; and
- If vegetation occurred;

- identification of genus and species;
- height of vegetation;
- diameter at breast height (dbh) of wooded vegetation; and
- canopy crown cover of wooded vegetation.

Densiometer (device that measures percent canopy closure) readings were taken for each sample transect in a wooded habitat. Four separate readings were taken (one each facing north, south, east, and west) at a point along the transect that was representative of the

Table 2.3-2

CWHR Habitat Code Explanations

CHWR Habitat Code	Complete Name
Tree Habitats	
MHC	Montane Hardwood Conifer
MHW	Montane Hardwood
COW	Coastal Oak Woodland
VRI	Valley Foothill Riparian
EUC	Eucalyptus
RED	Redwood
OVN	Orchard/Vineyard
Shrub Habitats	
CSC	Coastal Scrub
MCH	Mixed Chaparral
Herbaceous Habitats	
AGS	Annual Grassland
PAS	Pasture
CRP	Cropland
Aquatic Habitats	
FEW	Fresh Emergent Wetland
LAC	Lacustrine
SEW	Saline Emergent Wetland
Other Habitats	
URB	Urban

Source: "A Guide to Wildlife Habitats of California" (Mayer and Laudenslayer 1988)

Table 2.3-3

CWHR Canopy/Coverage Code Explanations

Canopy Code	Tree, Shrub, & Herbaceous Habitats	Aquatic Habitats
D	Dense	N/A
S	Sparse	Coarse grained sediments cover at least 75 percent of the surface.
P	Open	N/A
M	Moderate	Wet, soft earth (clays & silts) cover 75 percent or more of the surface.
O	N/A	Substrate is mostly organic matter.
G	N/A	Rock fragments under three inches which cover at least 75 percent of the surface.
R	N/A	Rock fragments greater than three inches which cover at least 75 percent of the surface.
B	N/A	Bedrock cover at least 75 percent of the surface.

Source: "A Guide to Wildlife Habitats of California" (Mayer and Laudenslayer 1988)

Table 2.3-4

CWHR Growth Stage Explanations

Code Number	Tree Habitats	Shrub Habitats	Herbaceous Habitats	Aquatic Habitats
1	Seedling tree	Seedling shrub	Short herb	Open water
2	Sapling tree	Young shrub	Tall herb	Substrate submerged
3	Pole tree	Mature shrub	N/A	Substrate flooded
4	Small tree	Decadent shrub	N/A	Substrate devoid of vegetation
5	Medium/large tree	N/A	N/A	N/A
6	Multi-layered tree	N/A	N/A	N/A

Source: "A Guide to Wildlife Habitats of California" (Mayer and Laudenslayer 1988)

Notes:
A complete example would read: COW 4D = Coastal oak woodland, small tree, dense canopy.

Table 2.3-5

Plant Community/CWHR Habitat Type Crosswalk

Plant Community	Corresponding CWHR Habitat[1]
Annual Grassland	Annual Grassland
Brackish Marsh	Saline Emergent Wetland
Buckeye	N/A
Chaparral	Mixed Chaparral
Coastal Live Oak/Interior Live Oak Woodland	Coastal Oak Woodland
Coastal Prairie	N/A
Coastal Salt Marsh	Saline Emergent Wetland
Cropland	Cropland
Monterey Cypress	Urban
Drainage/Excavated Drainage	General Habitat Element
Eucalyptus	Eucalyptus
Freshwater Marsh	Fresh Emergent Wetland
Freshwater Pond	Lacustrine
Freshwater Seep	General Habitat Element
Mixed-riparian	Valley Foothill Riparian
Monterey Pine	Urban
Native Grassland	N/A
Non-wooded Riparian	N/A
Northern Coastal Scrub	Coastal Scrub
Oak-Bay-Madrone Woodland	Montane Hardwood/Montane Hardwood-Conifer[2]
Orchard	Orchard/Vineyard
Pasture	Pasture
Lombardy Poplar	Urban
Redwood	Redwood
Seasonally Wet Vegetation	General Habitat Element
Vernal Pool	General Habitat Element
Vineyard	Orchard/Vineyard
Willow Riparian	Valley Foothill Riparian

Source: "A Guide to Wildlife Habitats of California",(Mayer and Laudenslayer 1988)

Notes:

1= Habitats are grouped according to vegetative dominance or unique characteristics to which wildlife are thought to respond (Mayer and Laudenslayer 1988).

2 = Montane hardwood-conifer habitats relate to oak-bay-madrone woodlands which are composed of at least one-third Douglas-fir.

associated canopy closure. This point intercept sampling data was important for determining the size class, canopy closure, and associated habitat elements along a transect within a particular habitat type.

Habitat types that did not encompass 40 acres, but were considered unique (riparian, freshwater pond, etc.) in providing habitat for a distinct assemblage of wildlife species, were surveyed. Areas with agricultural crops were not surveyed, but notes on the type of crop and approximate acreage were recorded.

The wildlife biologist on the field team was responsible for recording all wildlife species observed during the field inventories. This data was used to validate the species list generated by the computer model. In addition, the wildlife biologist recorded habitat elements, as defined by Mayer and Laudenslayer (1988) in *A Guide to Wildlife Habitats of California*. Habitat elements are specific physical and biological attributes of the surrounding landscape (e.g., ponds, rocks) which are essential to the life history of certain wildlife species. Elements that occurred along the transect and within the area as a whole (i.e., within a reasonable distance for utilization by a given species) were recorded.

Habitat characteristics collected from field inventories were entered into the computer database program model. This model predicted potential wildlife species occurrences within each specific habitat type. The reliability of the model is directly correlated to the acreage of the habitat type. Therefore, the accuracy of the predicted wildlife species list generally decreases for those habitat types that are represented by small acreages (less than 40 acres).

Results

Results for the CWHR habitat mapping study are organized into two categories. The first category, Mapped CWHR Habitat Types, includes the habitat types and acreages found at each storage reservoir site. The second category, Computer Model Results, provides summaries of the predicted wildlife species for each CWHR habitat type observed.

Mapped CWHR Habitat Types

The CWHR habitat types and the approximate acreage of each habitat type at the proposed storage reservoir sites are summarized in Table 2.3-6. The acreages were generated by GIS analysis of all mapped habitat types. Results of CWHR mapping are presented in maps A-1 through A-7.

Table 2.3-6

Summary of CWHR Habitat Types Found at Each Proposed Storage Reservoir Site (In Acres)

Habitat Type	Adobe Road	Lakeville Hillside	Sears Point	Tolay Confined	Tolay Extended	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
AGS 1D	--	120	--	--	1	320	134	183	79	362
AGS 2D	271	58	397	343	412	--	142	100	185	--
FEW 1D	--	--	--	--	--	--	--	--	0.4	--
LAC 2M	2.4	0.2	--	2	10	1	2.5	0.5	7	3
CSC 3M	--	--	--	--	--	5	3	--	--	--
EUC	--	14	4	3	--	6	18	18	2	2
COW 4D	7	--	--	--	--	--	--	--	--	--
COW 5M	8	--	5	--	--	--	--	--	--	--
COW 5D	0.2	--	--	--	--	--	--	--	--	--
CRP	--	--	--	250	619	--	--	--	--	--
OVN	--	28	--	--	11	--	--	--	--	--
MHW 4D	--	--	--	--	--	--	--	--	58	1
MHW 5M	--	--	--	--	--	1	--	--	--	--
URB	--	--	--	0.1	8	--	--	--	0.4	--
VRI 3M	--	11	--	0.1	--	3	1.3	1	5	4
VRI 4M	1	--	31	--	--	--	3	--	9	--
VRI 4D	--	--	27	2	2	7	13.4	4	2	5
VRI 5S	--	--	1	6	6	--	--	--	--	--
VRI 5D	60	--	--	--	--	--	--	--	--	--
TOTALS	350	231	465	606	1,069	343	317	307	348	377

Source: Harland Bartholomew & Associates, 1996

Computer Model Results

Appendix B contains the computer printouts for each CWHR habitat model that was run (predicted wildlife species list), while Table 2.3-7 summarizes what special-status species could potentially be associated with each habitat type.

Wildlife species that potentially occur within each CWHR habitat type are described below by habitat type. These wildlife species were determined by supplementing information contained in the CWHR computer model print outs with actual field observations and literature research. In some cases, extraneous special-status species were predicted by the model (e.g., brown pelican associated with annual grassland). This type of error can be attributed to minor flaws in the computer system. Since the system can only filter out species at the county-level, occasionally special-status species that occur within Sonoma and Marin counties but not within the project study were predicted by the model (e.g., rhinoceros auklet associated with coastal scrub habitat).

Annual Grassland

Relatively undisturbed annual grasslands provide nesting habitat for bird species such as western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), and western burrowing owl (*Speotyto cunicularia hypugea*). This habitat produces large numbers of seeds, which are shed and become available to bird species such as American pipit (*Anthus rubescens*), lark sparrow (*Chondestes grammacus*), and savanna sparrow (*Passerculus sandwichensis*). Mammals that also forage on seeds and are found in this habitat include deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), California ground squirrel (*Spermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*). These rodents become the prey base for various raptors that utilize wide, open grasslands as foraging habitat, including golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), prairie falcon (*Falco mexicanus*), and northern harrier (*Circus cyaneus*). In addition, coyote (*Canis latrans*), Pacific gopher snake (*Pituophis melanoleucus catenifer*), striped racer (*Coluber constrictor*), and western rattlesnake (*Crotalus viridis*) feed on seed-eaters in this community. Due to its extensive distribution, annual grassland intergrades with all of the different habitat types discussed in this section.

Annual grasslands sometimes contain vernal pools, a habitat element which supports a unique wildlife assemblage and plant community especially adapted to the annual cycle of seasonal inundation and desiccation. Vernal pools are characterized by a high diversity of aquatic macroinvertebrates and aquatic insect larvae. Pacific tree frog (*Pseudacris regilla*) and the special-status California tiger salamander (*Ambystoma californiense*) use vernal pools as breeding habitat. In addition, many other wildlife species have been observed utilizing vernal pools as foraging or resting habitat, including cinnamon teal (*Anas cyanoptera*),

Table 2.3-7

Special-Status Terrestrial Wildlife Species Associated with CWHR Habitat Types (High Suitability)

Wildlife Species	Observed During Surveys	Annual Grassland	Coastal Scrub	Coastal Oak Woodland	Cropland	Montane Hardwood	Orchard-Vineyard	Valley Foothill Riparian
Pallid bat	No	F	--	F	--	--	--	--
Ringtail	No	--	--	--	--	--	--	F, R
White-tailed kite	Yes	F	--	R	F	--	F	R
Northern harrier	Yes	F, R	--	--	F	--	--	--
Ferruginous hawk	No	F	--	--	F	--	--	--
Golden eagle	Yes	F	--	R	--	R	--	--
Prairie falcon	Yes	F	--	--	--	--	--	--
Long-billed curlew	No	F	--	--	--	--	--	--
Loggerhead Shrike	Yes	F	--	F, R	--	--	--	--
Tricolored blackbird	Yes	F	--	--	F	--	--	--
Sharp-shinned hawk	Yes	--	F	F	--	F, R	F	F
Cooper's hawk	Yes	--	F	F, R	--	F, R	--	F, R
Merlin	Yes	--	--	--	--	--	--	F
Western burrowing owl	Yes	F, R	--	--	F, R	--	--	--
Yellow warbler	No	--	--	F	--	--	--	F, R
Yellow-breasted chat	No	--	--	F	--	--	--	F

Source: Harland Bartholomew & Associates, Inc., 1996

Notes:
F = high suitability for foraging
R = high suitability for reproduction

common snipe (*Gallinago gallinago*), great egret, greater yellowlegs (*Tringa melanoleuca*), lesser yellowlegs (*Tringa flavipes*), mallard, and snowy egret (Harvey et al. 1992). Migratory shorebirds and waterfowl make extensive use of vernal pools as foraging habitat during the winter months. Mammals that occasionally use vernal pools and surrounding habitats include black-tailed jackrabbit, California vole, deer mouse, and western harvest mouse (*Reithrodontomys megalotis*) (Harvey et al. 1992).

Coastal Oak Woodland

The wildlife habitat associated with coastal oak woodland is diverse. Oak acorns are an essential food resource for many wildlife species, including western gray squirrel (*Sciurus griseus*), California ground squirrel, black-tailed deer (*Odocoileus hemionus*), wild pig (*Sus scrofa*), deer mouse, dusky-footed woodrat (*Neotoma fuscipes),* acorn woodpecker (*Melanerpes formicivorus*), band-tailed pigeon (*Columba fasciata*), northern flicker (*Colaptes auratus*), and scrub jay (*Aphelocoma coerulescens*). The abundant insect life found in the bark and foliage of oaks provide food for bird species such as white-breasted nuthatch (*Sitta carolinensis*), bushtit (*Psaltriparus minimus*), plain titmouse (*Parus inornatus*), and ash-throated flycatcher (*Myiarchus cinerascens*). Avian predators that nest and forage in the coast oak woodland habitat include great horned owl (*Bubo virginianus*), western screech-owl (*Otus kennicotti*), red-tailed hawk, and red-shouldered hawk (*Buteo lineatus*).

Oak trees and other hardwoods in this community provide shelter, shade, and breeding habitat for many wildlife species, including raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), cottontail (*Sylvilagus audubonii*), and gray fox (*Urocyon cinereoargenteus*). A variety of woodpecker species are primary-cavity nesters in oak trees, while house wren (*Troglodytes aedon*), western bluebird (*Sialia mexicana*), and American kestrel (*Falco sparverius*) are secondary-cavity nesters (i.e., utilizing abandoned woodpecker cavities).

Typical amphibian and reptile species that utilize this habitat include ensatina (*Ensatina eschscholtzi*), western skink (*Eumeces skiltonianus*), California slender salamander (*Batrachoseps attenuatus*), arboreal salamander (*Aneides lugubris*), sharp-tailed snake (*Contia tenuis*), ringneck snake (*Diadophis punctatus*), Pacific tree frog, western terrestrial garter snake (*Thamnophis elegans*), western fence lizard (*Sceloporus occidentalis*), and northern alligator lizard (*Elgaria coeruleus*).

Coastal Scrub

Coastal scrub provides habitat for many bird species, including California thrasher (*Toxostoma redivivum*), bushtit, California quail (*Callipepla californica*), Swainson's thrush (*Catharus ustulatus*), Wilson's warbler (*Wilsonia pusilla*), and wrentit (*Chamaea fasciata*). White-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), Anna's hummingbird (*Calyple anna*), and Allen's hummingbird (*Selasphorus sasin*) may nest in the thick coastal scrub near the seashore. Birds that utilize coastal scrub as foraging habitat include northern

harrier, red-tailed hawk, common raven (*Corvus corax*), and turkey vulture (*Cathartes aura*). Mammals known to occur in coastal scrub include cottontail, black-tailed deer, striped skunk, coyote, bobcat (*Felis rufus*), and the introduced red fox (*Vulpes vulpes*). Common amphibian and reptile species found in this community include western fence lizard, southern alligator lizard (*Elgaria multicarinatus*), racer, Pacific gopher snake, and western skink.

Cropland

Cropland generally provides low to moderate habitat value for wildlife, although low-growing row crops and fallow fields may provide important foraging habitat for open-country hawk species such as red-tailed hawk, ferruginous hawk (*Buteo regalis*), rough-legged hawk (*Buteo lagopus*), and prairie falcon. Migratory waterfowl species such as Canada goose (*Branta canadensis*) may seasonally depend on croplands for foraging habitat.

Eucalyptus

The lack of plant species diversity within the eucalyptus wildlife habitat results in a corresponding limited wildlife species diversity. Wildlife species that inhabit eucalyptus stands are generalists that utilize a wide variety of habitat types. Bird species that utilize this habitat for nesting or roosting include red-tailed hawk, red-shouldered hawk, great horned owl, American crow (*Corvus brachyrhyncos*), house finch (*Carpodacus mexicanus*), European starling (*Sturnus vulgaris*), Anna's hummingbird, turkey vulture, and house sparrow (*Passer domesticus*). Mammals which may occur in eucalyptus groves include opossum (*Didelphis virginiana*), raccoon, house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and striped skunk. Western fence lizard, Pacific slender salamander, Pacific gopher snake, and southern alligator lizard are common reptile and amphibian species that are found in this habitat. There are no special-status animal species that are associated with eucalyptus wildlife habitat.

Fresh Emergent Wetland

Fresh emergent wetland supports a high diversity of wildlife species. Many species of fish, amphibians, reptiles, birds, and mammals depend on this habitat type for food, cover, and water. The entire life cycle of many species is completed within wetland habitats. Birds are particularly suited to exploit this habitat. Typical species found in fresh emergent wetland include belted kingfisher (*Ceryle alcyon*), great blue heron, green heron (*Butorides virescens*), great egret, American coot, marsh wren (*Cistothorus palustris*), and red-winged blackbird. Fresh emergent wetlands also provide important feeding and resting habitat for migratory waterfowl such as mallard and ring-necked duck (*Aythya collaris*). Other common vertebrate species found in fresh emergent wetlands include: bullfrog (*Rana catesbeiana*), Pacific tree frog, western aquatic garter snake (*Thamnophis couchi*), common garter snake (*Thamnophis sirtalis*), muskrat (*Ondatra zibethicus*), raccoon, shrews, and cottontail.

Lacustrine

Lacustrine corresponds to the freshwater pond community described earlier in Section 2.2 - Botanical Study Methodologies and Results.

Freshwater ponds provide important habitat for migratory waterfowl, wading birds (such as great blue heron), grebes, rails, American coot (*Fulica americana*), sparrows, and blackbirds. Garter snakes and bullfrogs also frequently occur in this aquatic habitat type. Many species of sunfish (e.g., *Lepomis* spp., *Micropterus* spp., and *Pomoxis* spp.) and catfish (*Ictalurus* spp.) are often stocked in man-made freshwater ponds.

Mixed Chaparral

Mixed chaparral provides important cover, foraging, and breeding habitat for many wildlife species. Characteristic bird species that utilize this habitat include wrentit, bushtit, California quail, orange-crowned warbler (*Vermivora celata*), rufous-sided towhee (*Pipilo erythrophthalmus*), California thrasher, scrub jay, and northern mockingbird (*Mimus polyglottos*). During the winter months, chaparral also provides suitable foraging habitat for Cooper's hawk and sharp-shinned hawk.

Chaparral also offers valuable foraging habitat and cover for wild pig, black-tailed deer, bobcat, coyote, brush rabbit (*Sylvilagus bachmani*), black-tailed jackrabbit (*Lepus californicus*), and California kangaroo rat (*Dipodomys californicus)*. Due to the relatively dry nature of the chaparral community, few if any amphibian species inhabit this habitat type. However, chaparral does provide suitable shelter, basking sites, and foraging habitat for reptiles such as the western rattlesnake, common kingsnake (*Lampropeltis getulus*), Pacific gopher snake, striped racer, and western fence lizard.

Montane Hardwood

Montane hardwood habitat provides resources for many species of forest birds and mammals. Bark and leaf-gleaning insectivores such as white-breasted nuthatch and chestnut-backed chickadee (*Parus rufescens*) are common residents of montane hardwood habitat, as are birds and mammals that feed primarily on the abundant acorn crops, including wild turkey (*Meleagris gallopavo*), band-tailed pigeon, scrub jay, acorn woodpecker, western gray squirrel, and black-tailed deer. Sharp-tailed snake, ensatina, and western fence lizard are reptile and amphibian species found in montane hardwood habitat. Many of these species are prey for mammalian and avian predators such as ringtail, gray fox, Cooper’s hawk, and red-shouldered hawk. Mature trees and snags provide habitat for cavity-nesting birds and mammals, while raptors such as red-tailed hawk and golden eagle often nest near the tops of large conifers.

Montane Hardwood Conifer

Montane hardwood conifer woodlands provide foraging and/or breeding habitat for a variety of wildlife species. Wildlife species associated with montane hardwood habitat (described above) are also associated with montane hardwood conifer. However, bird species such as northern pygmy owl (*Glaucidium gnoma*), brown creeper (*Certhia americana*), pileated woodpecker (*Dryocopus pileatus*), and Hutton's vireo (*Vireo huttoni*) are more likely to be found in montane hardwood conifer habitat.

Orchard-Vineyard

Animal species which may use orchard or vineyard communities for cover, foraging, or breeding habitat include widespread species such as northern flicker, scrub jay, American crow, plain titmouse, Brewer's blackbird (*Euphagus cyanocephalus*), house finch, mourning dove (*Zenaida macroura*), northern mockingbird, and California ground squirrel.

Redwood

One hundred ninety three wildlife species are supported by the cover, food, and breeding habitat provided by redwood forest. Bird species typically found in this habitat type include pileated woodpecker, northern pygmy owl, Allen's hummingbird, Pacific-slope flycatcher (*Empidonax difficilis*), brown creeper, winter wren (*Troglodytes troglodytes*), Wilson's warbler, and dark-eyed junco (*Junco hyemalis*). Other animals inhabiting the various seral stages of redwood forest include striped skunk, western gray squirrel, ringtail, Oregon salamander (*Ensatina eschscholtzii oregonensis*), black salamander (*Aneides flavipunctatus*), Pacific giant salamander, California slender salamander, and Coast garter snake (*Thamnophis elegans terrestris*).

Saline Emergent Wetland

Saline emergent wetlands are used by a wide diversity of wildlife species. Waterfowl and shorebird species utilize this habitat for foraging and nesting. Common bird species include great blue heron, great egret, American avocet (*Recurvirostra americana*), black-necked stilt (*Himantopus mexicanus*), mallard, ruddy duck (*Oxyura jamaicensis*), and cinnamon teal. Songbirds such as song sparrow, common yellowthroat, red-winged blackbird, and marsh wren will also nest in this habitat. In addition, raptors such as northern harrier, red-shouldered hawk, white-tailed kite, and barn owl (*Tyto alba*) forage in salt marshes. Saline emergent wetlands also serve as an important winter foraging area for the endangered peregrine falcon. Mammal species that are common in this habitat include raccoon, mink, river otter, a variety of shrews, voles (*Phenacomys* spp.), and mice. While reptiles and amphibians do not normally inhabit saline emergent wetlands, some species may be found in areas around the edges of this habitat, including Pacific gopher snake, garter snake (*Thamnophis* spp.), Pacific tree frog, and western toad (*Bufo boreas*).

Brackish marsh contains elements from both saline emergent wetland and fresh emergent wetland. Resident bird species that forage in brackish marshes include the black-crowned night-heron (*Nycticorax nycticorax*), great blue heron, great egret, and snowy egret (Harvey et al. 1992). Typical nesting birds in brackish marshes include American bittern (*Botaurus lentiginosus*), cinnamon teal (*Anas cyanoptera*), common yellowthroat (*Geothlypis trichas*), mallard (*Anas platyrhynchos*), marsh wren (*Cistothorus palustris*), sora (*Porzana carolina*), and Virginia rail (*Rallus limicola*) (Harvey et al. 1992). Brackish marshes provide vegetation that is consumed by beavers (*Castor canadensis*) and muskrats (*Ondatra zibethica*). Predators that utilize brackish marshes as foraging habitat include mink (*Mustela vison*), river otter (*Lutra canadensis*), red fox (*Vulpes vulpes*), and northern harrier (Harvey et al. 1992).

Urban

Native and introduced animal species that are tolerant of human activities often thrive in urban habitats. These species include western fence lizard, northern mockingbird, barn swallow (*Hirundo rustica*), raccoon, striped skunk, European starling, house sparrow, house finch, house mouse, Norway rat, and opossum.

Valley Foothill Riparian

The valley foothill riparian habitat type is one of the most diverse wildlife habitats present within the project area. In California, this habitat type can support more than 250 vertebrate species - more than any other terrestrial habitat type in the California (Grenfell 1988). Valley foothill riparian habitat provides abundant food, cover, and breeding sites for wildlife in close proximity to water. These factors and the structural diversity of riparian woodland are largely responsible for the high productivity of this habitat type. Bird species that are characteristic of this habitat include California quail, mourning dove, Nuttall's woodpecker (*Picoides nuttallii*), black phoebe (*Sayornis nigricans*), western wood-pewee (*Contopus sordidulus*), California towhee (*Pipilo crissalis*), and song sparrow. A number of these species nest or roost in the riparian woodland habitat type and feed in adjacent habitat types, such as annual grasslands and agricultural fields. Valley foothill riparian woodlands also provide important feeding, resting, and nesting habitat for neotropical migrant songbirds such as warblers, vireos, grosbeaks, and flycatchers.

Mammals found within valley foothill riparian habitats may include opossum, raccoon, deer mouse, broad-footed mole (*Scapanus latimanus*), striped skunk, gray fox, and ringtail. Amphibians and reptiles that are likely to occur in this community include California newt (*Taricha torosa*), western toad, Pacific tree frog, common kingsnake, western aquatic garter snake, and western skink.

Valley foothill riparian woodlands also provide nesting and foraging habitat for a variety of special-status wildlife species including Cooper’s hawk, yellow

warbler, willow flycatcher, white-tailed kite, yellow-breasted chat, and long-eared owl.

In addition to providing wildlife habitat, riparian corridors provide local movement corridors between fragmented habitat patches. Valley foothill riparian woodlands provide high value wildlife habitat, and important wildlife migration and local movement corridors. Due to the value and scarcity of riparian woodlands on both a state and region-wide scale, they are considered a sensitive habitat type and monitored closely by CDFG.

SPECIAL-STATUS AMPHIBIAN SURVEYS

Introduction

HBA wildlife biologists conducted surveys for special-status amphibians at the ten proposed storage reservoir sites. Focused surveys were conducted for California red-legged frog and foothill yellow-legged frog.

Habitat requirements for foothill yellow-legged frog generally consist of permanent, fast-moving, shallow, rocky streams with patches of sunlight. California red-legged frog habitat typically consists of slow-moving, permanent water with deep pools and heavy vegetative cover (Jennings 1988). Refer to Biological Resources Technical Memorandum, Volume II - Special-Status Species Accounts for more specific information on both of these species.

Study Methodology

Focused surveys consisted of an initial habitat assessment and a subsequent night-time survey at those areas determined to have suitable habitat. Two wildlife biologists were responsible for conducting these surveys.

The goal of the habitat assessment was to identify areas of potential habitat and determine the quality, extent, and location of the habitat in preparation for the night-time surveys.

The primary goal of the night-time surveys was to determine presence or absence of red-legged or yellow-legged frogs at a given storage reservoir site. The night-time surveys followed the draft protocol developed by John Brode, Staff Herpetologist, CDFG, April 1994. Two wildlife biologists walked the stream perimeter searching for frog eye-shines with their headlamps. If an eye-shine was detected, one biologist would hold the light on the frog while the other approached to within one meter of the frog for positive visual identification. Three nights of surveys were required to determine presumed absence of these special-status frogs for a given area. If special-status frogs were found before the third night of surveys, then additional surveys were not required.

The primary characteristics for identifying California red-legged frog include the presence of dorsolateral folds (distinct folds of skin extending from the head down the sides of the back to the base of the hind legs) and the lack of green color. Secondary characteristics include size of the tympanic membrane or external eardrum (equal to or smaller in size than the eye for red-legged frogs), relatively narrow pointed head, and eyes that are relatively close together (Stebbins 1972). For foothill yellow-legged frog, the key identification features are a mottled, flecked pattern with gray, brown, reddish or olive coloration on the dorsal surface and yellow coloration on the lower belly and underside of the hindlimbs. The general coloration normally resembles the stream bottom in which the frog resides. Secondary characteristics include an indistinct dorsolateral fold, triangular light-colored patch on the snout, and toe tips that usually are not dusky (Stebbins 1972).

The survey season for these two frog species typically extends from late February through September. However, in areas with coastal influence, the frogs hibernate only under the most extreme winter conditions and they may be active throughout the year (Federal Register, 4886, Vol. 59, No.22). Surveys were conducted from August through early October 1994 and from May through June 1995. All red-legged frog observations were recorded and mapped on aerial photographs (1:500) of the proposed storage reservoir sites.

Results

The following are the results of the special-status amphibian habitat assessments and surveys for each storage reservoir site. In addition, California red-legged frog observations noted by Merritt Smith Consulting biologists during their stream habitat assessments are also included. These results are summarized in Tables 2.3-8 and 2.3-9.

Adobe Road

A habitat assessment for special-status stream amphibians was conducted at the proposed Adobe Road storage reservoir site on September 7, 1994. The proposed Adobe Road storage reservoir site is bisected in a north-south direction by an unnamed intermittent creek. The shadier portions of the creek contain small pools that persist throughout the summer. A well-developed mixed-riparian community occurs along the drainage, including an understory comprised primarily of poison oak and Himalayan blackberry. In addition to the riparian community, there are three stock ponds on the site (Map B-2). The largest (approximately 100 feet wide by 100 feet long and 4 feet deep) is located at the northern end of the site. The two smaller ponds (approximately 50 feet wide by 50 feet long and 3 feet deep) are located at the southeastern corner of the site. Each of these ponds is devoid of nearshore vegetation and has poor water quality due to cattle use. The Adobe Road site does not contain suitable habitat for foothill yellow-legged frog, but does contain some potential suitable habitat for California red-legged frog.

The stock ponds and standing pools along the creek were surveyed for three consecutive nights (September 19-21, 1995). No red-legged frogs were observed, but several Pacific tree frogs were detected.

Lakeville Hillside

A habitat assessment for special-status stream amphibians was conducted at the proposed Lakeville Hillside storage reservoir site on August 12, 1994. The site contains a freshwater pond along a side drainage in the northeastern corner of the site (Map B-3). This pond was fairly small (30 feet wide by 35 feet long), with a maximum depth of three feet. The vegetation surrounding the pond consists of

Table 2.3-8

Summary of California Red-legged Frog Surveys

	Habitat Assessment			California Red-legged Frog Surveys		
Storage Reservoir Site	**Date Conducted**	**Suitable Habitat Present**	**Acres of Occupied Habitat[1]**	**Date Conducted**	**Number of Frogs Observed**	**Number of Frogs Observed During Other Surveys**
Adobe Road	9/7/94	Yes	0	9/21/94	0	0
Bloomfield	9/13/94	Yes	2.7	10/3/94	2	0
Carroll Road	8/18/94	Yes	0	9/13/94, 9/14/94, 9/15/94	0	0
Huntley	2/27/95	Yes	1.5	4/26/95	4	4
Lakeville Hillside	8/12/94	Yes	1.4	9/20/94	4	0
Sears Point	9/7/94	Yes	1.6	8/25/95	2	0
Tolay (Confined and Extended)	8/25/94	Yes	4.8	6/19/94, 6/20/94, 6/21/94	0	2
Two Rock	8/24/94 3/2/95	Yes	8.7	8/24/94, 4/26/95	12	1
Valley Ford	8/11/94	Yes	3.4	9/14/94	1	1

Source: Harland Bartholomew & Associates, 1996

Notes:
1 = Occupied habitat refers to the acreage of the pond or stream segment where red-legged frogs were observed.

Table 2.3-9

Summary of Foothill Yellow-legged Frog Surveys

	Habitat Assessment		Foothill Yellow-Legged Frog Surveys	
Storage Reservoir Site	**Date Conducted**	**Suitable Habitat Present**	**Date Conducted**	**Number of Frogs Observed**
Adobe Road	9/7/94	No	N/A	N/A
Bloomfield	9/13/94	No	N/A	N/A
Carroll Road	8/18/94	No	N/A	N/A
Huntley	2/27/95	No	N/A	N/A
Lakeville Hillside	8/12/94	No	N/A	N/A
Sears Point	9/7/94	No	N/A	N/A
Tolay (Confined and Extended)	8/25/94	No	N/A	N/A
Two Rock	8/24/94 3/2/95	Yes	8/24, 25, 26/94	0
Valley Ford	8/11/94	No	N/A	N/A

Source: Harland Bartholomew & Associates, 1996

tall grasses, a patch of old-growth willow (approximately 10 feet east of the pond), and patches of rushes. The central drainage that flows through the site is heavily utilized by cattle; however, there are several pools along this drainage that persist throughout the summer. These pools are small (none larger than 10 feet wide by 10 feet long), but some have dense surrounding vegetation consisting of Himalayan blackberry. The emergent vegetation associated with these pools consists of rushes and cattails.

As a result of the habitat assessment, it was determined that no suitable habitat for foothill yellow-legged frog was present on-site. The stock pond and areas of pooling with dense surrounding vegetation were considered potentially suitable habitat for California red-legged frog.

The survey for California red-legged frogs was conducted on September 20, 1994. Four adult red-legged frogs were observed in the small stock pond located in the northeastern drainage at the Lakeville Hillside storage reservoir site (Map B-3). These individuals were floating on a dense moss bed that was present in the pond. Approximately 20 bullfrogs were also observed at this location. The red coloration of these red-legged frogs was exceptionally bright and uncharacteristically covered the entire body. During a follow-up visit on September 21, 1994 to photograph the aforementioned red-legged frogs, another individual was observed in a small pool (10 feet wide by 20 feet long) located downstream of the dam and outside of the construction zone. This pool was surrounded by a dense patch of Himalayan blackberry. This particular red-legged frog lacked the vibrant red coloration of the other four individuals.

Sears Point

A habitat assessment for special-status stream amphibians was conducted at the proposed Sears Point storage reservoir site on September 7, 1994. Tolay Creek, an intermittent stream, is the primary waterway and flows through the center of the site. A few pools of water remained along the creek in September 1994, but there was little vegetation associated with these pools and they were heavily degraded by cattle usage. Therefore, the portion of Tolay Creek that was within the original storage reservoir configuration was not considered suitable habitat for either foothill yellow-legged frog or California red-legged frog. Consequently, no focused surveys were conducted in 1994.

Suitable California red-legged frog habitat was identified at the northernmost boundary of the current configuration during a vernal pool habitat assessment in November 1994. This portion of Tolay Creek contains mixed-riparian woodland with a willow understory and appeared to have the potential to support perennial pooling in the shadier areas. This portion of the creek could therefore provide suitable habitat for California red-legged frogs.

Focused surveys for California red-legged frog were conducted on June 19, 20, and 21, 1995, but no red-legged frogs were observed. Two newly-metamorphosed red-legged frogs were observed during the California freshwater shrimp survey conducted on August 25, 1995. These frogs were found in deep

pools surrounded by dense riparian vegetation located at the northernmost tip of the Sears Point site (Map B-5).

Tolay (Confined and Extended)

A habitat assessment for special-status stream amphibians was conducted at the proposed Tolay storage reservoir sites on August 25, 1994. Tolay Creek runs through both sites in a north-south direction. Virtually the entire creek has been channelized for agricultural purposes and little, if any, water persists year-round in this channel. As a result, it was determined that no suitable foothill yellow-legged frog habitat was present on this site. However, the Tolay storage reservoir site was reconfigured, extending the construction zone into the southern portion of Tolay Creek which has not been channelized. Mixed-riparian vegetation with an understory of willow, blackberry, and poison oak was present along the creek at this location. This portion of the creek appeared to have the potential to support perennial pooling that could provide suitable habitat for California red-legged frogs.

Focused surveys for California red-legged frog were conducted on June 19, 20, and 21, 1995, but no red-legged frogs were observed. Two adult red-legged frogs were observed during the California freshwater shrimp survey that was conducted on August 25, 1995. These frogs were found in a deep pool (four feet) surrounded by dense riparian vegetation located at the southernmost tip of the two Tolay site configurations (Maps B-3 and B-4). The pool was approximately 8 feet wide by 20 feet long, with duckweed covering the surface.

Bloomfield

A habitat assessment for special-status stream amphibians was conducted at the proposed Bloomfield storage reservoir site on September 13, 1994. Two intermittent drainages at the northern end of the site converge near the center of the site to form the main creek channel. This main channel is dammed in two separate places, forming freshwater ponds (Map B-6). The ponds, as well as the main drainage, are permanent water sources that support fairly dense emergent and submergent vegetation. The vegetation consists of duckweed (*Lemna* spp.), tules (*Scirpus* spp.), cattails (*Typha* spp.), and some scattered willows. This habitat was considered unsuitable for foothill yellow-legged frog; however, it did provide potentially suitable habitat for California red-legged frog.

California red-legged frog surveys were conducted on October 3, 1994. Two adults were observed on this first night of surveys. The first frog was observed at the southernmost boundary of the construction zone, along the main drainage. This individual was found in a mat of grass near the water's edge (Map B-6). The second frog was located at the southern section of the site, directly below the largest pond (Map B-6). This individual was in a large pool surrounded by bulrushes and covered with duckweed. Many bullfrogs (over 200) were observed along the main drainage at this site.

Carroll Road

A habitat assessment for special-status stream amphibians was conducted at the proposed Carroll Road site on August 18, 1994. The site contains two intermittent streams that drain from the northeast and northwest corners of the site respectively, before they merge to form the main perennial stream that flows just west of the centerline of the site. The main stem of the stream, which has deep, naturally channelized banks that deter cattle usage, contains dense willow thickets, a lush understory of horsetails, ferns, Himalayan blackberry, and poison oak. There are several pools present within the stream that range from shallow (less than 1 foot) to fairly deep (3 to 5 feet). These perennial pools have rocky bottoms, are well-shaded, and appear to have good water quality (water is very clear and not cloudy with sediment). The main stream channel was considered potentially suitable habitat for California red-legged frog, but not for foothill yellow-legged frog (stream flow too sluggish).

Three freshwater stock ponds are located on the site (Map B-6). One pond is found in a side drainage at the northwest corner of the site. This small pond is heavily used by cattle, and little vegetation other than short, grazed annual grasses is present. The other two ponds are located near the northeast corner of the site. One pond, which has a large island and fountain associated with it, is located just west of the house. Vegetation around the pond consists mainly of planted, ornamental trees and a lawn. The other pond is located in the drainage directly east of a large barn. This pond is fairly large and deep, with minimal vegetation other than grazed annual grasses near its shoreline. None of these ponds were considered suitable habitat for either foothill yellow-legged frog or California red-legged frog.

California red-legged frog surveys were conducted on September 13, 14, and 15, 1994 along the main stream channel at the Carroll Road site. Several rough-skinned newts (*Taricha granulosa*), bullfrogs, and Pacific tree frogs were seen, but no California red-legged frogs were observed.

Huntley

A habitat assessment for special-status stream amphibians was conducted at the proposed Huntley storage reservoir site on February 27, 1995. The site contains one large stock pond (approximately 250 feet by 200 feet) in the southeast corner, and a main drainage that flows through the center (Map B-7). The vegetation surrounding the pond is primarily grazed annual grassland, with a small patch of tules present in the northwest section of the pond. The vegetation along the main drainage consists of a dense eucalyptus grove at the northern end, a dense willow thicket at the center, and an open area with scattered patches of rushes throughout the southern portion of the drainage.

As a result of the habitat assessment, it was determined that no suitable foothill yellow-legged frog habitat was present on-site. However, the primary drainage

that runs through the site was considered potentially suitable habitat for California red-legged frog.

Starting on April 26, 1995, California red-legged frog surveys were conducted at the Huntley site. During the first night, four adult red-legged frogs were observed in pools along the main drainage, just south of the center of the site (Map B-7). This part of the drainage is characterized by dense patches of rushes and tall grasses with a few scattered willows present. Four red-legged frogs, one adult and three newly-metamorphosed individuals, were observed on August 22, 1995 during California freshwater shrimp surveys. These frogs were found along the banks of the drainage in an area with dense willow thickets, just north of the center of the site (Map B-7).

Two Rock

Due to site access issues, two separate habitat assessments for special-status stream amphibians were conducted at the proposed Two Rock storage reservoir site. The first habitat assessment was conducted on August 24, 1994 throughout all parcels except the easternmost one. This remaining parcel was assessed on March 2, 1995. The Two Rock site is bisected by a major stream that flows in an east-west direction. Several side drainages of varying size feed into this central drainage. There are two well-developed drainages present in the northwest quarter of the site. Each of these drainages is surrounded by well-developed mixed-riparian and willow riparian plant communities. Dense emergent vegetation consisting primarily of sedges, rushes, and horsetails was found in areas with deeper pools. The main channel has been dammed in several places, forming large freshwater ponds that support stands of tules and cattails. Patches of willow riparian surround the ponded areas and the remainder of the drainage. Emergent vegetation along the main drainage includes rushes and sedges. In addition to these drainages, there are several stock ponds located throughout the site (Map B-1).

The habitat described above was considered potentially suitable for California red-legged frog. The only area that was considered suitable habitat for foothill yellow-legged frog was a side drainage that is in line with and directly north of the proposed dam. This drainage had a shallow, rocky substrate, with faster-flowing water in the steeper areas. The clarity of the water within this drainage indicated high water quality.

Initial surveys were conducted for California red-legged frog and foothill yellow-legged along the suitable drainages and freshwater stock ponds on August 24, 1994 (except the easternmost parcel). On the first night of surveys, eight red-legged frogs, including four adults and four juveniles, were observed along the main channel (Map B-1). Two additional red-legged frog juveniles were observed

in the main drainage directly west of the dam site and outside of the construction zone (Map B-1). During the second survey on April 26, 1995 at the easternmost parcel, two adult red-legged frogs were observed (Map B-1). One newly-metamorphosed red-legged frog was observed along the main drainage, approximately in the center of the Two Rock site, on August 21, 1995 during California freshwater shrimp surveys (Map B-1).

The side drainage that was considered suitable habitat for foothill yellow-legged frog was surveyed for three consecutive nights (August 24, 25, and 26, 1994), but no yellow-legged frogs were observed.

Valley Ford

A habitat assessment for special-status stream amphibians was conducted at the proposed Valley Ford storage reservoir site on August 11, 1994. This site contains a central intermittent drainage and two side drainages located in the northeastern and northwestern corners, respectively. Each of the drainages have been dammed to form a freshwater stock pond (Map B-6). The stock ponds along the two side drainages (approximately 50 feet wide by 50 feet long) are comparatively smaller than the pond that is found in the northernmost portion of the site along the main drainage. The vegetation surrounding the two smaller stock ponds is sparse, and little, if any, emergent vegetation is present. However, the larger pond (250 feet wide by 500 feet long) has well-developed willow riparian vegetation at the northern end. The southern end is heavily impacted by cattle and is surrounded by grazed annual grassland. The habitat observed was considered unsuitable for foothill yellow-legged frog, but potentially suitable for California red-legged frog.

A survey for red-legged frogs at the proposed Valley Ford storage reservoir site was conducted on September 14, 1994. During this first night of surveys, one adult California red-legged frog was observed in a large freshwater pond located in the northeastern drainage of the Valley Ford site. This individual was observed in the water among a stand of willows located in the northeastern corner of the pond (Map B-6).

VERNAL POOL HABITAT ASSESSMENTS AND SURVEYS

Introduction

Vernal Pool Crustaceans

HBA wildlife biologists conducted habitat assessments for listed and candidate species including vernal pool fairy shrimp, Conservancy fairy shrimp, longhorn fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander during the fall and early winter of 1994-1995. All of these species potentially inhabit or breed in vernal pools in the vicinity of the Santa Rosa Subregional Long-Term Wastewater Project in Sonoma County.

Vernal pool fairy shrimp, Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool tadpole shrimp inhabit vernal pools and other seasonal wetlands that result from the inundation of shallow depressions that have a subsurface layer of clay, hardpan, rock, or other impermeable substance which prevents the water from percolating down into the surrounding soil. Such depressions become inundated during rain events and pooling persists for at least two to six weeks. The fairy shrimp and tadpole shrimp hatch from encysted eggs that are buried in the soil of the pool floor. The shrimp grow to adulthood, breed, lay eggs and then die during the weeks that the pools are inundated. After the shrimp release their encysted eggs, the eggs become buried in the mud as the pool dries and hatch during a later inundation period one or more years later (Denton Belk, personal communication). Not all of the encysted eggs that are stored in the soil hatch out in any given year. These eggs may persist and remain viable for many years.

The following information regarding vernal pool crustaceans was provided by Dr. Denton Belk on December 1995. The activity season for fairy shrimp (members of the genus Branchinecta) and tadpole shrimp generally occurs between November and May; however, the exact timing within that period may vary greatly due to climatic conditions. Although it is difficult to predict exactly when a species will appear in a given pool, fairy shrimp and tadpole shrimp tend to appear when temperatures are cooler. The life span of fairy shrimp may encompass eight weeks for Conservancy fairy shrimp, but is usually less for vernal pool fairy shrimp and longhorn fairy shrimp. If cool conditions persist, vernal pool fairy shrimp have been known to go through a second hatch during the same season. The activity period of the vernal pool tadpole shrimp begins when the eggs hatch, within the first two weeks of a pools' inundation, and lasts until a pool dries. Vernal pool tadpole shrimp are known to produce multiple generations within a single season.

California Tiger Salamander

California tiger salamanders also breed and lay eggs primarily in vernal pools and other temporary ponds. They sometimes use permanent human-made ponds if predatory fish are absent. Streams are rarely used for reproduction (Zeiner et. al 1988). California tiger salamanders may travel up to a mile to reach their

breeding ponds (Stebbins 1985, Zeiner et al. 1988, Jennings and Hayes 1995). Due to the potential distance between locations of breeding sites and refuge sites, unobstructed (i.e., no roads or other man-made barriers crossing their path) travel corridors between refuge and breeding sites are critically important (Jennings and Hayes 1995).

During the non-breeding season, California tiger salamanders live in grasslands and open oak woodlands or savannas, where rodents such as California ground squirrel and Botta's pocket gopher are common. The burrows of these rodents provide important refuge sites for California tiger salamander. The salamanders spend most of the year in their burrows, only coming out at night during the rainy season to feed or to migrate to their breeding sites (Shaffer 1993, Jennings and Hayes 1995).

The breeding season of California tiger salamander, which generally occurs sometime between November and February, begins after the breeding pools have been inundated. The salamanders undertake nocturnal migrations from their burrows during one or more warm, rainy nights to the pools where they will breed and deposit their eggs. The pools that are used by California tiger salamander for breeding must remain inundated for 10 weeks or more, as this is the minimum time required for the larvae to complete metamorphosis. After breeding, the adults migrate back to their burrows but will continue to come out at night to feed throughout the rainy season. Once the young salamanders have undergone metamorphosis, they will spend time anywhere from a few hours to a few days near the margin of the drying pool before making a mass migration of up to a mile to appropriate refuge sites (Jennings and Hayes 1995).

Study Methodology

An initial habitat assessment that addressed the vegetation types, topographic relief, and physical characteristics that would allow for vernal pool formation was conducted for each storage reservoir site prior to initiation of the field surveys. This initial habitat assessment was conducted by examining aerial photographs and topographic maps (1:500) of the proposed storage reservoir sites. Site visits in areas that contained suitable vegetation types, topography, and substrates were conducted following the first heavy rains of the 1994-1995 wet season. Wildlife biologists visited each storage reservoir site to determine if vernal pools were present. If vernal pools were located, the pools were visually examined for evidence of special-status species and mapped on aerial maps.

Criteria for mapping vernal pools were based on the definition of vernal pools provided by the U.S. Fish and Wildlife Service (USFWS) in their Draft Protocol "Interim Guidelines for Surveys for the Endangered Conservancy Fairy Shrimp (*Branchinecta conservatio*), Longhorn Fairy Shrimp (*Branchinecta longiantenna*), Riverside Fairy Shrimp (*Streptocephalus woottoni*), Vernal Pool Tadpole Shrimp (*Lepidurus packardi*), and the Threatened Vernal Pool Fairy Shrimp (*Branchinecta lynchi*), November 16, 1994." This protocol defines a vernal pool as follows:

> "Vernal pools are ephemeral wetlands that form in shallow depressions underlain by a substrate near the surface that restricts the percolation of water. They may be characterized by a barrier to overland flow that causes water to collect and pond. These depressions fill with rainwater during the fall and winter and may remain inundated until spring or early summer, sometimes filling and emptying numerous times during the wet season. With average rainfall patterns, vernal pools are characterized by an annual plant community dominated by wetland species."

Based on this definition, any seasonal pool was treated as a vernal pool for purposes of this study. However, since no plant species typical of true vernal pools were observed in any of the pools sampled, these pools were not classified as vernal pools for the vegetative mapping that was conducted. Freshwater ponds and stock ponds that could serve as potential breeding sites for California tiger salamander were also identified and mapped.

At the sites containing pools, a wet sampling series, as defined by the USFWS protocol, was conducted. A wet sampling series consists of site visits every two weeks, starting when the pools begin to hold an inch of water and continuing until the end of the season when the pools dry out. For this particular season, the last of the pools dried up by May 5, 1995.

California tiger salamander surveys followed the draft protocol that was developed by John Brode, Staff Herpetologist, CDFG. This protocol was modeled closely after the "Sampling Procedures for Determining Presence or Absence of the Santa Cruz Long-toed Salamander" which were developed jointly by the USFWS and CDFG. The California tiger salamander survey protocol calls for dipnetting or seining for adults in pools and ponds between February and March. In addition, two surveys are required for salamander larvae during one sampling season (i.e., between March 15 and April 1, and between April 15 and May 1).

During site visits to conduct surveys, biologists (possessing appropriate state and federal permits) sampled pools for the presence of both vernal pool crustaceans and California tiger salamander larvae. Sampling was accomplished by passing a "D" style dipnet through the pool, starting as close to the center as possible and moving the net towards the shore. The net was pulled across the bottom of the pool with a gentle "bouncing" motion to prevent mud or other detritus from collecting in the net and obscuring the captured specimens. The net was then removed from the pool and the contents examined. The frequency of sampling points at a given pool varied with the size of the pool. In smaller pools (generally less than 20 feet in diameter) sampling points (which consist of two to three passes of the net) were made every two to five feet around the circumference of the pool. In a larger pool (generally 20 feet or more in diameter) sampling points were made every 10 to 20 feet around the circumference of the pool.

Due to the similarity in life histories and habitat requirements, surveys for California tiger salamander were conducted concurrently with surveys for vernal pool crustaceans. The sampling methodology used for vernal pool crustaceans meets or exceeds the

requirements of the state and federal agencies for California tiger salamander surveys. All amphibian species that were collected in the nets were examined and identified by a herpetologist in the field and then released.

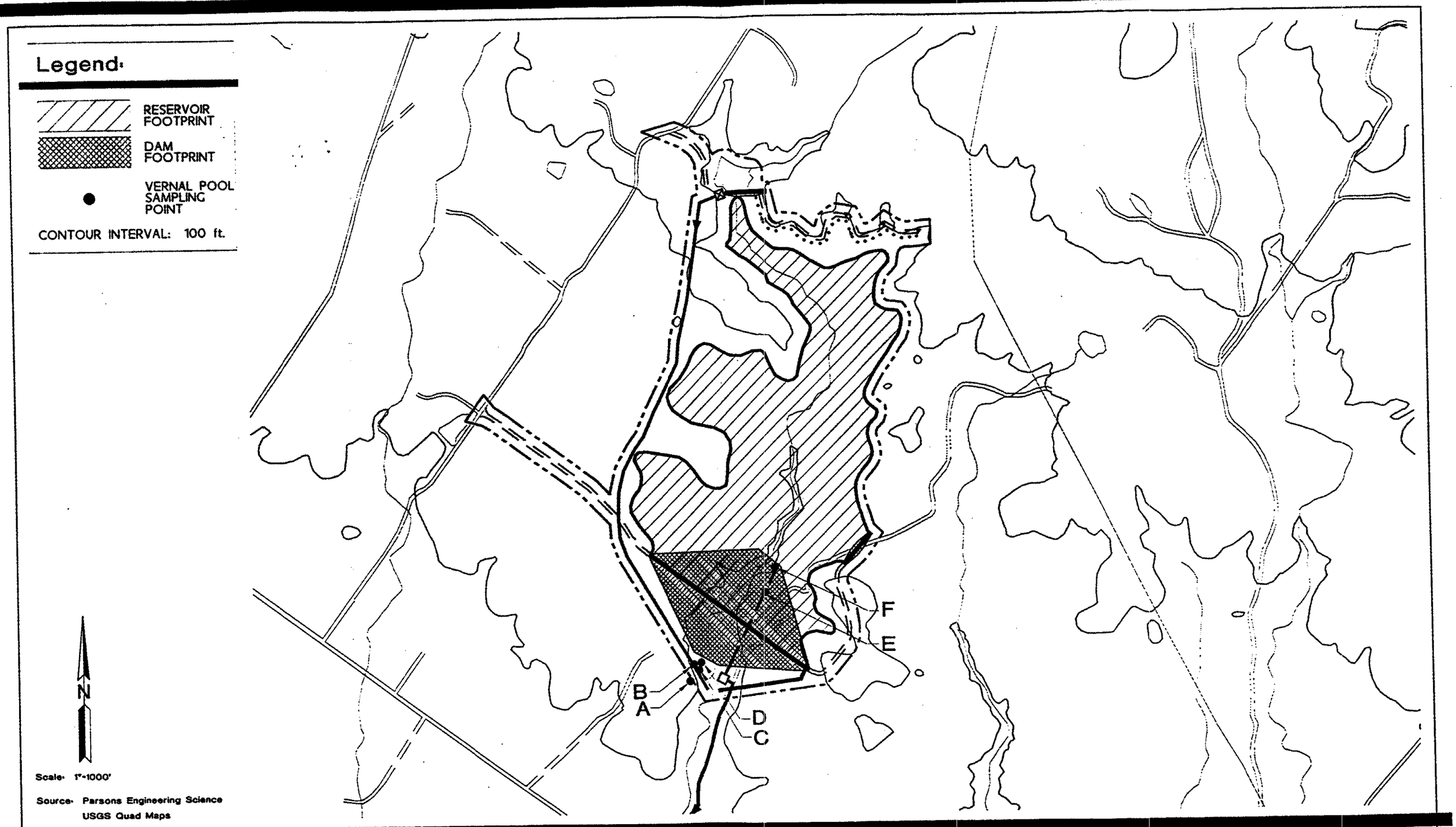
A representative sample of the invertebrates found in a given pool at each proposed storage reservoir site were transferred to a jar containing water from the pool. The specimens were anesthetized by pouring a small amount of carbonated water into the jar, after which they were fixed with a 70 percent ethanol solution and taken back to the lab for positive identification. Specimens were examined under a dissecting microscope and identified using species identification keys appropriate to the taxonomic group being examined. Identification references included: *Aquatic Insects of California* (Usinger 1968), *Fresh-Water Invertebrates of the United States, 3rd Edition - Protozoa to Mollusca* (Pennak 1989), and *Draft Key to the Anostraca (Fairy Shrimps & Brine Shrimps) of California, April 3,* (Belk 1994).

Results

The following are summaries of the vernal pool habitat assessments and surveys conducted for each storage reservoir site.

Adobe Road

A vernal pool habitat assessment was conducted at the proposed Adobe Road storage reservoir site on November 30, 1994. Four seasonal pools were found at the bottom of a slide area located below the houses on the southwest corner of the site (Figure 2.3-1). These pools are formed by natural depressions, with the largest pool (Pool A) measuring 20 feet wide by 10 feet long and 1.5 feet deep. The other three pools (Pools B, C, and D) were of similar size, measuring approximately five feet wide by six feet long and less than one foot deep. The vegetation associated with these pools consists primarily of annual grasses, as well as some scattered sedges and rushes. In addition to these seasonal pools, there are two small, rectangular stock ponds (Pools E and F), each about 30 feet wide by 30 feet long and 3 feet deep. These ponds are located directly east of the main drainage, approximately near the center of the site (Figure 2.3-1). Both of these stock ponds have minimal wetland plant species and are heavily used by cattle. The heavy cattle usage leads to murky water and poor water quality; however, the stock ponds were identified as having potential, although marginal, habitat to support California tiger salamander.



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VERNAL POOL
SAMPLING POINTS
ADOBE ROAD RESERVOIR

Figure 2.3-1

No special-status vernal pool crustaceans or California tiger salamander larvae were caught during any of the surveys. Invertebrates that were prevalent throughout the sampling season included amphipods (*Hyalella azteca*), damselfly (*Ischnura* spp.) larvae, backswimmers (*Notonecta* spp.), waterboatmen (*Hesperocorixa* spp.), mayfly larvae (*Baetis* spp.), and water fleas (*Daphnia* spp.). In addition, the seasonal pools and the stock ponds contained large numbers (ranging from 50 to over 100) of Pacific tree frog larvae.

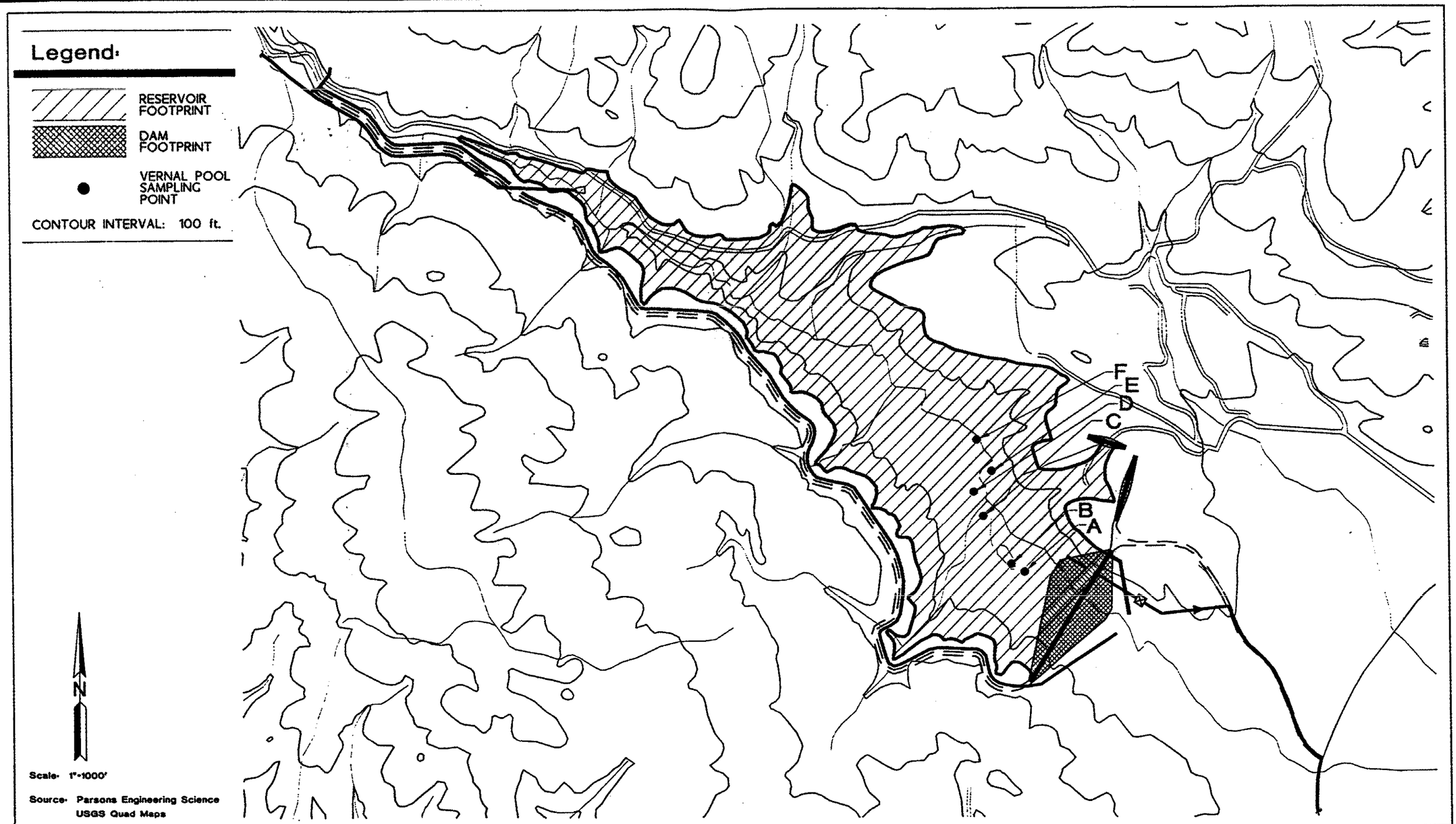
Lakeville Hillside

No suitable habitat for California tiger salamander or vernal pool crustaceans was identified at the proposed Lakeville Hillside storage reservoir site during the November 30, 1994 habitat assessment.

Sears Point

A vernal pool habitat assessment was conducted at the proposed Sears Point storage reservoir site on December 14, 1994. A total of six seasonal pools of varying sizes were found at the site. There were two large pools, both formed by small earthen berms that capture sheetflow from the hillside, located directly west of Tolay Creek and within the southwestern corner of the site (Figure 2.3-2). The largest pool (Pool B) was 250 feet long and 125 feet wide, with a maximum depth of 5 feet. Due to the depth of this pool, emergent vegetation composed of sedges and aquatic forbs did not appear until the pool began to dry up. The other pool (Pool A), which is directly southeast of this pool, was roughly half the size and less than one foot deep. This pool had dense emergent vegetation composed primarily of inundated annual grasses and forbs, sedges, and some scattered rushes. Both of these pools were being used by cattle, so the water clarity was poor. Each of the remaining four pools (Pools C, D, E, and F) were formed by oxbows off of the main Tolay Creek drainage, close to the center of the site (Figure 2.3-2). There was no emergent vegetation associated with these pools, and the only surrounding vegetation was grazed annual grasses. The average size of these pools was approximately 7 feet wide by 20 feet long, with a maximum depth of 3.5 feet. These pools became very anaerobic as the sampling season progressed, as evidenced by the red coloration of the water and the odor being emitted.

No special-status vernal pool crustaceans or California tiger salamander larvae were caught during any of the surveys. However, large numbers of California linderiella (over 100) were caught during the dipnetting surveys in all of the pools, except the northernmost pool (Pool F). The numbers of linderiella continued to decrease until finally none were captured during the April 21, 1995 visit. Other invertebrates captured during the sampling period included amphipods, clam shrimp (*Cyzicus californicus*), damselfly larvae, backswimmers, waterboatmen, mayfly larvae, and water fleas. Over 200 Pacific tree frog larvae were also observed in the large pool, and smaller numbers were prevalent in each of the other pools as well.



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VERNAL POOL SAMPLING POINTS
SEARS POINT RESERVOIR

Figure 2.3-2

Tolay (Confined and Extended)

A vernal pool habitat assessment was conducted at both of the proposed Tolay storage reservoir sites on November 30, 1994. The Tolay Valley historically was a large, natural, shallow lake that was fed by upper Tolay Creek and emptied into lower Tolay Creek. The lake was drained and much of the lake bed has since been cultivated. However, there was a large amount of seasonal pooling, both natural and formed by cultivation, observed in shallow depressions near the center of the site. In fact, nearly the entire valley floor was flooded during the 1994-95 wet season. This large shallow lake eventually was split into four large pools (Pools A, B, C, and D) separated by roadways as the season progressed. These large pools (covering several acres and having an average depth of 2.5 feet) had no associated vegetation, as they were located in plowed fields (Figures 2.3-3 and 2.3-4). One of the pools (Pool D) did contain a flooded pumpkin patch. The surrounding hills were also assessed, but the terrain was too steep to allow for seasonal pooling.

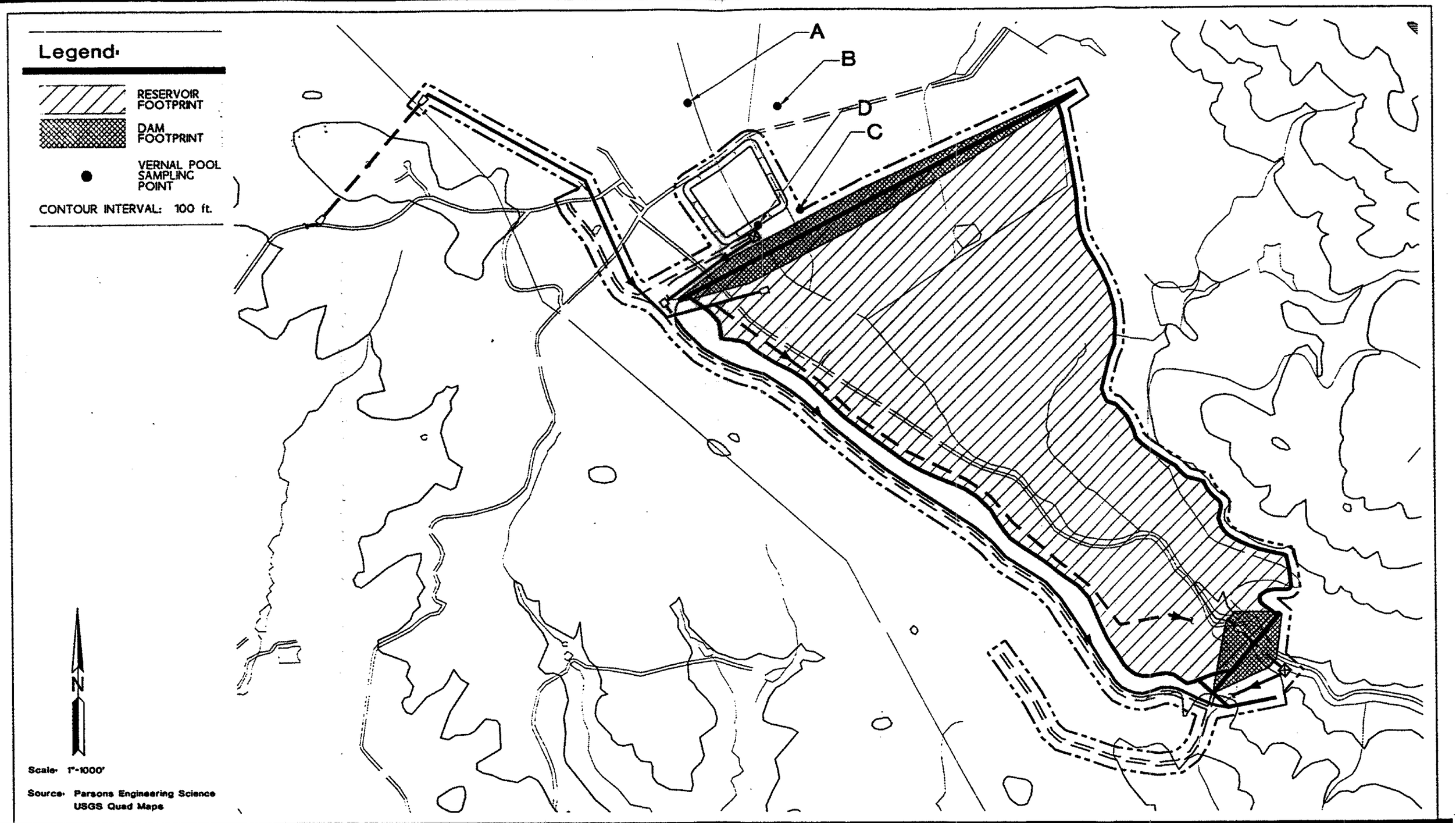
No special-status vernal pool crustaceans or California tiger salamander larvae were caught during any of the surveys. However, large numbers of California linderiella (over 100) were caught during the first dipnetting surveys within each of the pools. The numbers of linderiella continued to decrease until finally none were captured during the March 24, 1995 visit. Other invertebrates captured during the sampling period included amphipods, clam shrimp, damselfly larvae, backswimmers, waterboatmen, mayfly larvae, and water fleas. Over 100 Pacific tree frog larvae were also observed in each of the pools throughout the sampling period.

Bloomfield

No suitable habitat for California tiger salamander or vernal pool crustaceans was identified at the proposed Bloomfield storage reservoir site during the March 30, 1995 habitat assessment.

Carroll Road

A vernal pool habitat assessment was conducted at the proposed Carroll Road storage reservoir site on March 17, 1995. One large stock pond (Pool A), which measured 50 feet wide by 50 feet long and 3 feet deep, was found near the northwest boundary of the site, within an ephemeral drainage that had been dammed (Figure 2.3-5). This pool contained dense aquatic weedy vegetation, but had rather poor water quality due to heavy cattle usage.



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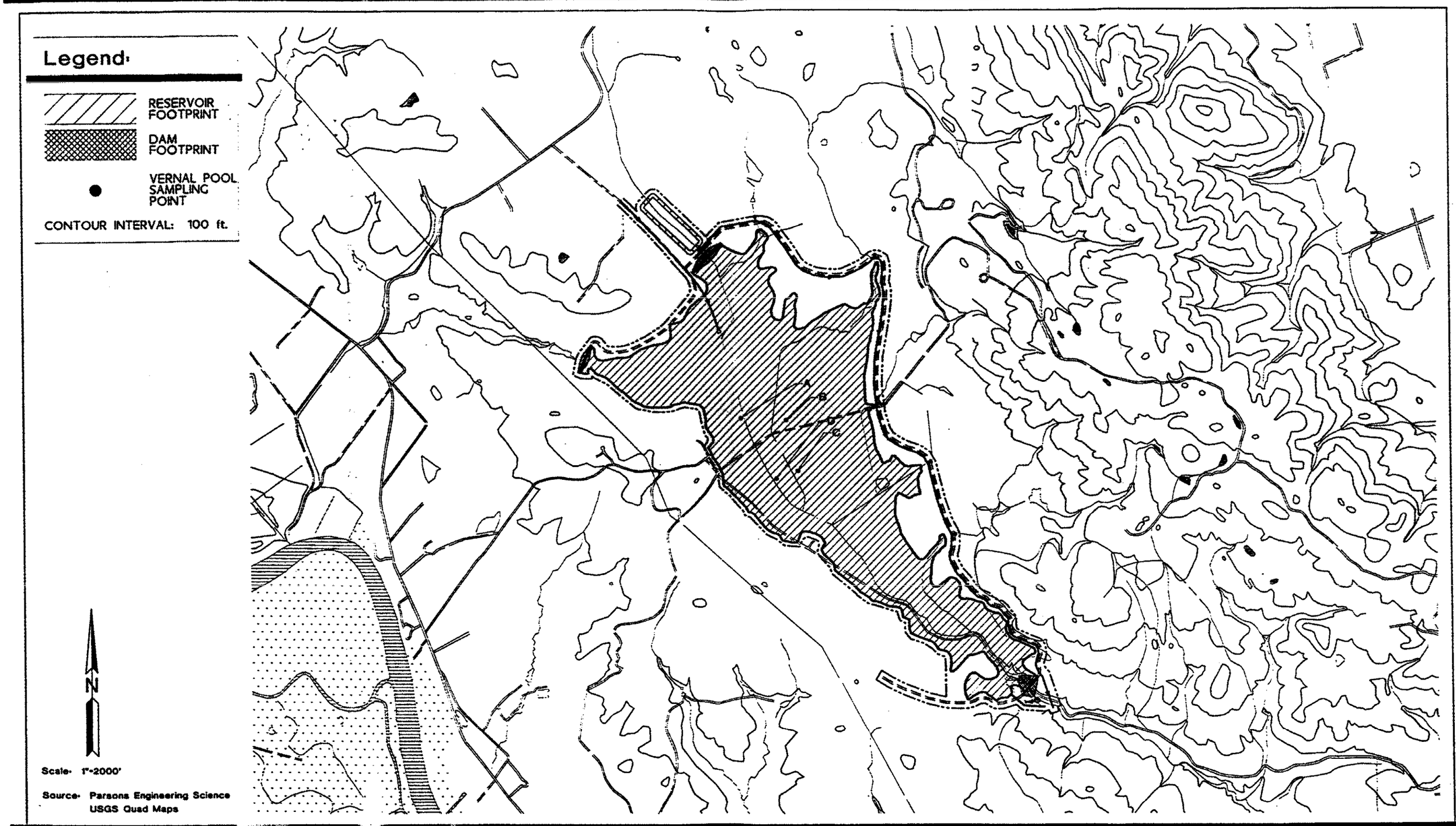
VERNAL POOL
SAMPLING POINTS
TOLAY CONFINED RESERVOIR

Figure 2.3-3



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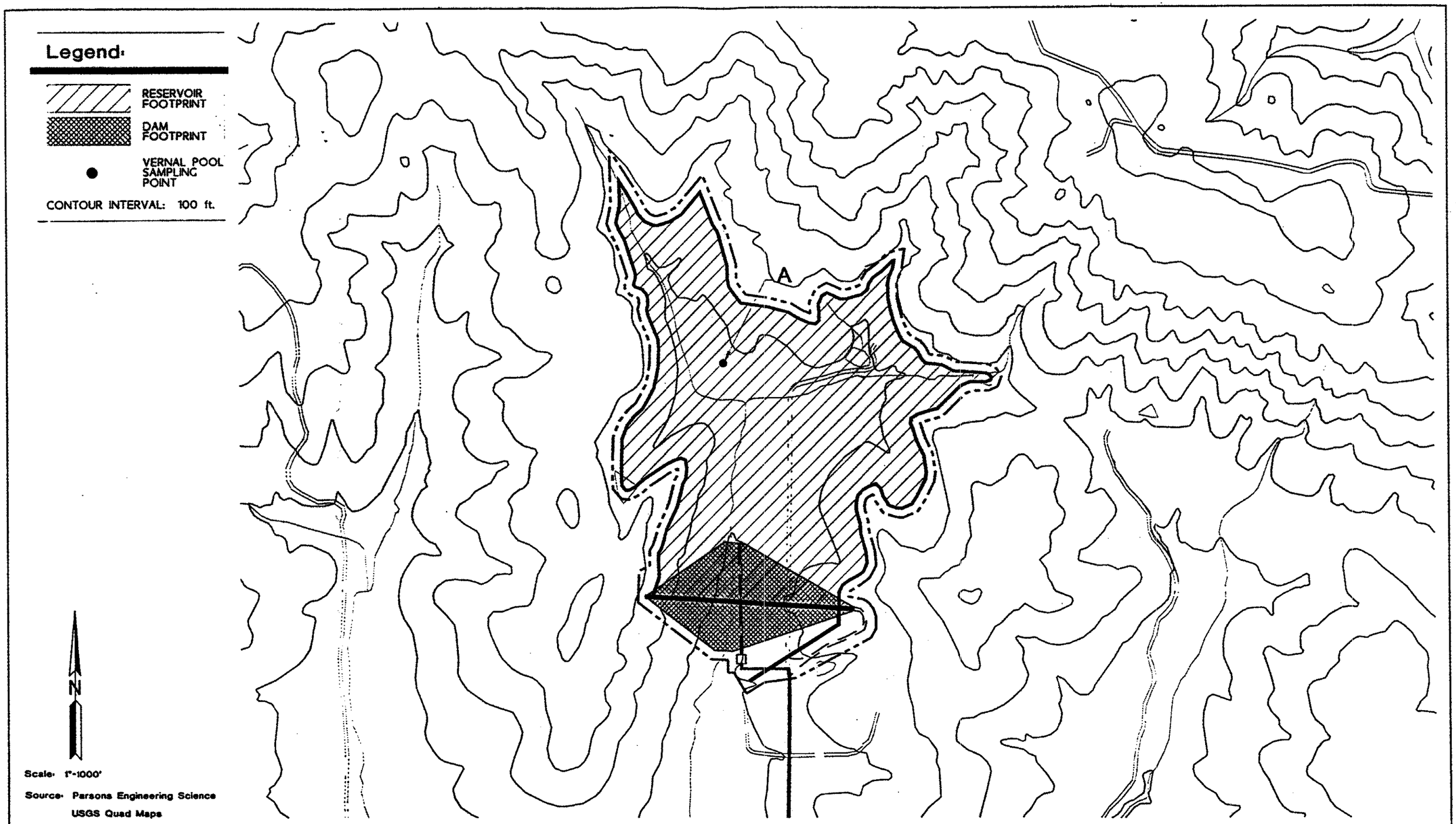
VERNAL POOL SAMPLING POINTS
TOLAY EXTENDED RESERVOIR

Figure 2.3-4



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VERNAL POOL SAMPLING POINTS CARROLL ROAD RESERVOIR

Figure 2.3-5

No special-status vernal pool crustaceans or California tiger salamander larvae were caught during any of the surveys. Invertebrates that were captured during each of the surveys included amphipods, damselfly larvae, backswimmers, waterboatmen, mayfly larvae, and diticid beetle larvae (*Dytiscus* spp.). Two California newt (*Taricha torosa*) larvae were observed during the May 5, 1995, visit and over 100 Pacific tree frog larvae were observed throughout the sampling season.

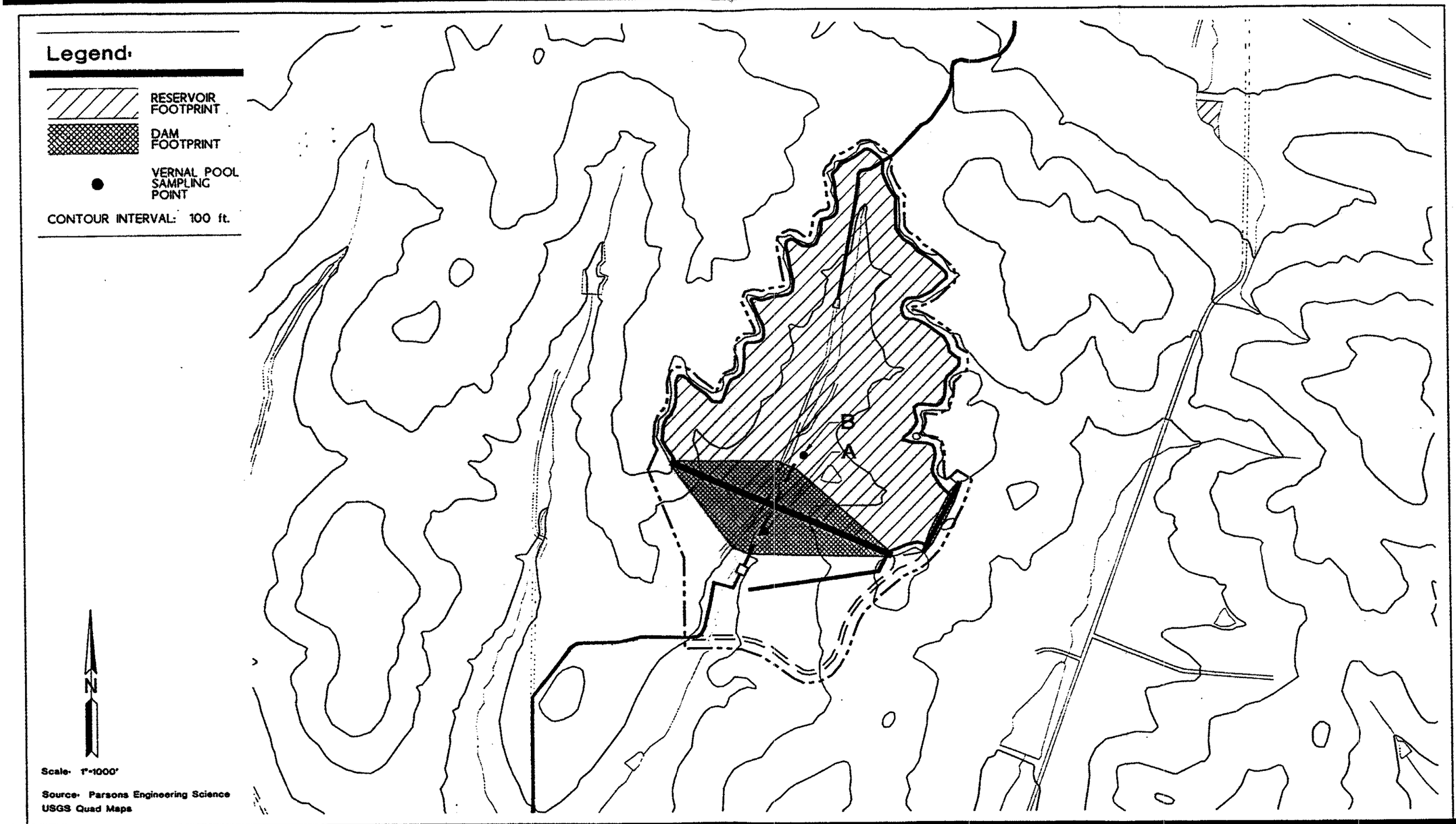
Huntley

A vernal pool habitat assessment was conducted at the proposed Huntley storage reservoir site on February 27, 1995. Two seasonal pools were found along the main drainage, within the southeastern section of the site (Figure 2.3-6). The largest pool (Pool A), which was created by an old bulldozer scrape, was 15 feet wide by 30 feet long and about 2 feet deep at the center. The smaller pool (Pool B), which measured 10 feet wide by 10 feet long and 2 feet deep, was formed by a natural depression that was located below the stock pond spillway, also within the southeastern section of the site. Both pools contained clear water and emergent vegetation primarily consisting of rushes, sedges, and buttercups.

No special-status vernal pool crustaceans or California tiger salamander larvae were caught during any of the surveys. Approximately 10 adult Pacific tree frogs and over 100 tree frog larvae were observed in the large pool during the first survey on March 16, 1995. Four additional adult tree frogs were observed in the smaller pool. Invertebrates caught during the surveys included amphipods, damselfly larvae, backswimmers, and waterboatmen.

Two Rock

A vernal pool habitat assessment was conducted at the proposed Two Rock storage reservoir site on November 30, 1994. One large-sized pool, Pool A, (approximately 70 feet wide by 100 feet long and 2 feet deep) was found in a drainage on the northern hillside, near the center of the site. This pool was created by a small earthen dam, with the primary emergent vegetation consisting of rushes and sedges. The water was very clear, indicating good water quality. A medium-sized pool, Pool B, (25 feet wide by 20 feet long and 3 feet deep) was found just outside of the construction zone (Figure 2.3-7). This pool was formed by water flowing through a pipe that was protruding vertically out of the ground. A few scattered rushes and sedges, along with inundated annual grasses, comprised the vegetation associated with this pool. Three small pools (Pools C, D, and E) were found in a grassy swale near the center of the proposed construction zone. These pools appeared to be formed by old cattle wallows and were small in size (4 feet wide by 3 feet long and less than 1 foot deep). The primary vegetation associated with these small pools was inundated annual grasses and forbs. All of the pools described above were considered to provide suitable habitat for vernal pool crustaceans and California tiger salamander.



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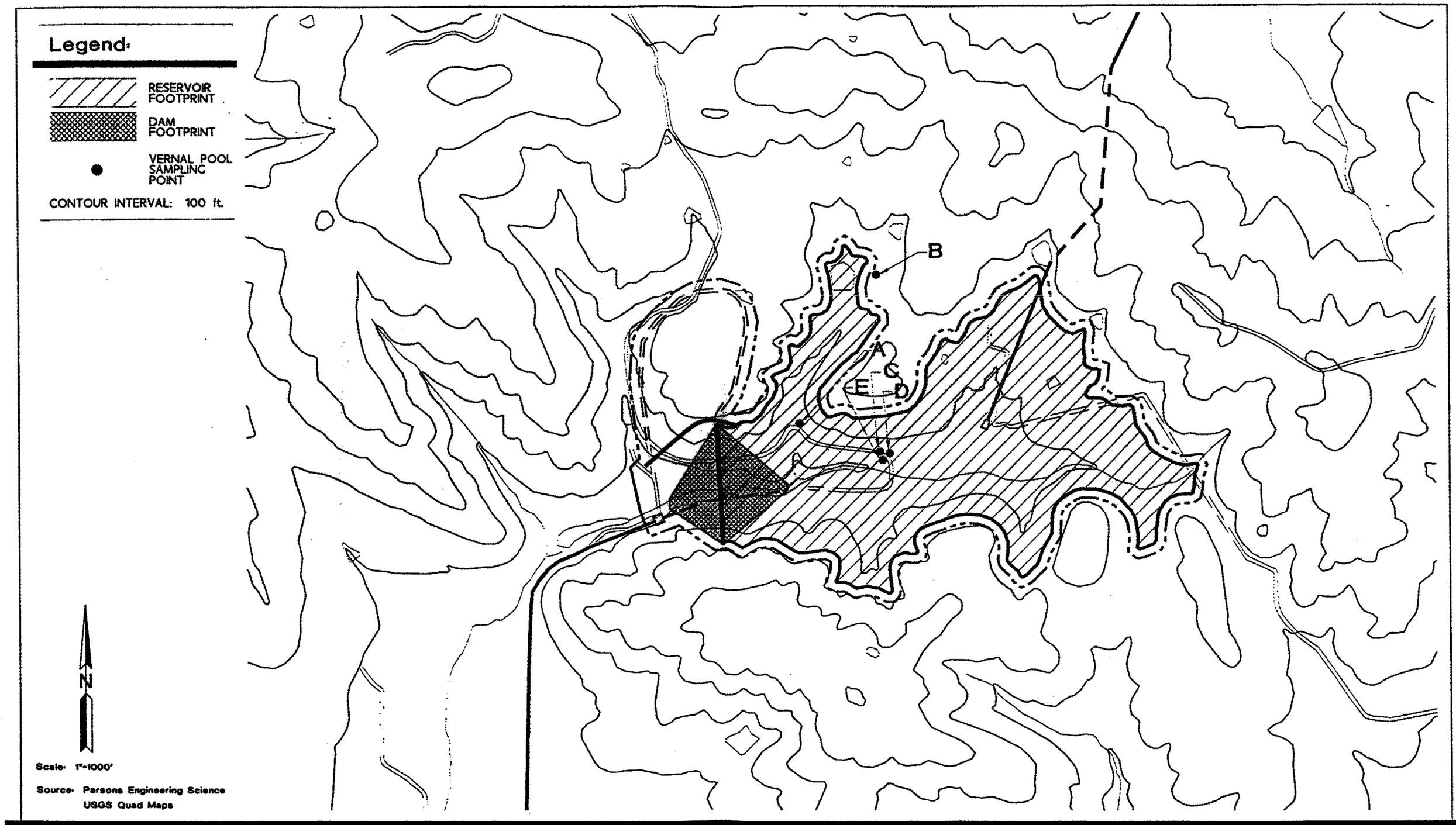
VERNAL POOL SAMPLING POINTS HUNTLEY RESERVOIR

Figure 2.3-6



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VERNAL POOL
SAMPLING POINTS
TWO ROCK RESERVOIR

Figure 2.3-7

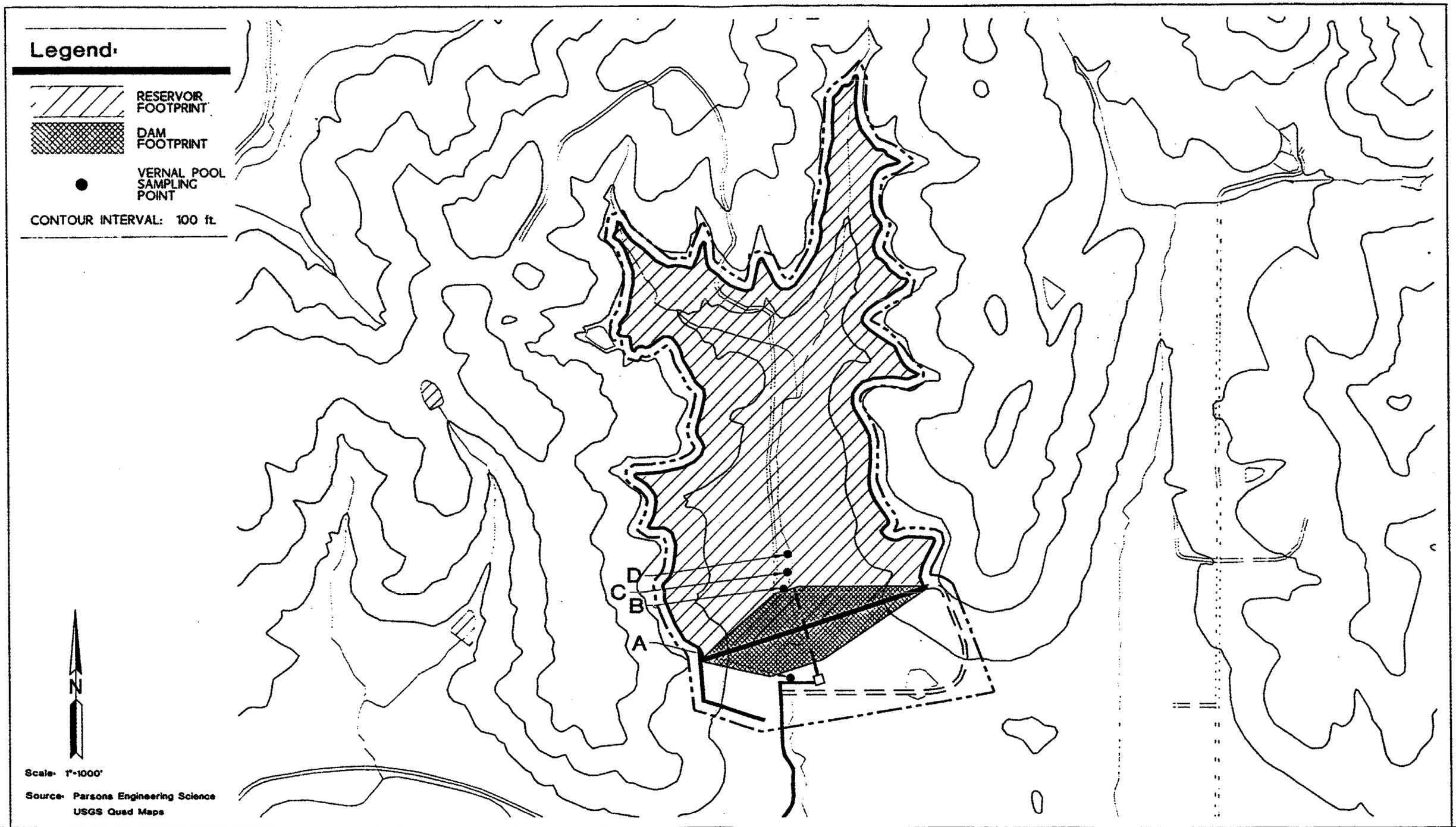
No special-status vernal pool crustaceans or California tiger salamander larvae were caught during any of the surveys. The four pools created by the cattle wallows tended to have low invertebrate diversity (less than three species each), which may be the result of the anaerobic conditions of the pools due to large amounts of cattle waste. The other pools had higher invertebrate diversity (greater than three species each) and supported large numbers of Pacific tree frog larvae (over 25 per pool). The largest pool also contained adult California newts during the first visit, and the same pool had over ten newt larvae during the March 23, 1995 survey. Invertebrates caught throughout the sampling period included amphipods, damselfly larvae, backswimmers, waterboatmen, mayfly larvae, and diticid beetle larvae.

Valley Ford

A vernal pool habitat assessment was conducted at the proposed Valley Ford storage reservoir site on November 30, 1994. The site contained one large seasonal pool (Pool A) measuring 45 feet wide by 60 feet long and 2 feet deep located below the proposed dam site, and three smaller pools (Pools B, C, and D) averaging 10 feet wide by 10 feet long and 1 foot deep located along the road that bisects the site. Each of these pools is identified in Figure 2.3-8.

No special-status vernal pool crustaceans or California tiger salamander larvae were caught during any of the surveys. Invertebrates that were captured within all the pools during each visit included clam shrimp, amphipods, damselfly larvae, backswimmers, waterboatmen, mayfly larvae, diticid beetle larvae, water flea, and red water mites (*Arrenurus* spp.). In addition, large numbers (over 100) of Pacific tree frogs were observed in each pool.

Table 2.3-10 summarizes the results of the vernal pool habitat assessments and the dipnetting surveys for each storage reservoir site.



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VERNAL POOL SAMPLING POINTS VALLEY FORD RESERVOIR

Figure 2.3-8

Table 2.3-10

Summary of Vernal Pool Surveys

Storage Reservoir Site	Date of Habitat Assessment	Number of Pools On-Site	Dates Surveyed[1]	Summary of Aquatic Organisms Captured
Adobe Road	November 30, 1994	4 seasonal pools 2 small stock ponds	February 1, 1995 February 17, 1995 March 2, 1995 March 24, 1995 April 7, 1995 April 21, 1995 May 5, 1995	Pacific tree frog larvae amphipod damselfly larvae backswimmer waterboatmen mayfly larvae water flea
Lakeville Hillside	November 30, 1994	None	N/A	N/A
Sears Point	December 14, 1994	6 seasonal pools	February 2, 1995 February 17, 1995 March 24, 1995 April 21, 1995 May 5, 1995	Pacific tree frog larvae California linderiella clam shrimp amphipod damselfly larvae backswimmer waterboatmen mayfly larvae water flea

Table 2.3-10

Summary of Vernal Pool Surveys

Storage Reservoir Site	Date of Habitat Assessment	Number of Pools On-Site	Dates Surveyed[1]	Summary of Aquatic Organisms Captured
Tolay (Confined and Extended)	November 30, 1994	1 extensive shallow lake within the Tolay Valley floor (later separated by roads into 4 pools)	February 1, 1995 February 17, 1995 March 2, 1995 March 24, 1995 April 7, 1995 April 21, 1995 May 5, 1995	Pacific tree frog larvae California linderiella amphipod clam shrimp damselfly larvae backswimmer waterboatmen mayfly larvae water flea
Bloomfield	March 30, 1995	None	N/A	N/A
Carroll Road	March 17, 1995	1 shallow stock pond	March 17, 1995 April 21, 1995 May 5, 1995	California newt larvae Pacific tree frog larvae amphipod damselfly larvae backswimmer waterboatmen mayfly larvae diticid beetle larvae
Huntley	February 27, 1995	2 seasonal pools	March 16, 1995 April 7, 1995 April 21, 1995 May 5, 1995	Pacific tree frog adults and larvae amphipod damselfly larvae backswimmer waterboatmen

Table 2.3-10

Summary of Vernal Pool Surveys

Storage Reservoir Site	Date of Habitat Assessment	Number of Pools On-Site	Dates Surveyed[1]	Summary of Aquatic Organisms Captured
Two Rock	November 30, 1994	5 seasonal pools	January 30, 1995 February 17, 1995 March 2, 1995 March 23, 1995 April 7, 1995 April 21, 1995	Pacific tree frog larvae amphipod damselfly larvae backswimmer waterboatmen mayfly larvae diticid beetle larvae California newt
Valley Ford	November 30, 1994	4 seasonal pools	January 30, 1995 February 17, 1995 March 2, 1995 April 7, 1995 April 21, 1995	Pacific tree frog larvae clam shrimp amphipod damselfly larvae backswimmer waterboatmen mayfly larvae diticid beetle larvae water flea red water mite

Source: Harland Bartholomew & Associates, 1996

Notes:
1 - Due to legal issues associated with site access, as well as the extremely wet weather conditions, it was difficult to maintain a consistent bi-weekly survey schedule.

CALIFORNIA FRESHWATER SHRIMP SURVEYS

Introduction

Larry Serpa, a freshwater invertebrate specialist with The Nature Conservancy, with assistance from an HBA wildlife biologist, conducted surveys for special-status aquatic invertebrates at the ten proposed storage reservoir sites. Focused surveys were conducted for California freshwater shrimp, a federally endangered species (USFWS 1995). In addition, observations of other invertebrates were recorded. These species included the Tomales isopod and San Francisco forktail damselfly (*Ischnura gemina*) (USFWS 1995).

California freshwater shrimp occur in permanent waters in low gradient freshwater streams with heavy riparian or other vegetative cover that hangs into the water. The shrimp hide in the submerged roots and branches along treelined undercut banks.

Within the project area, California freshwater shrimp have been found in Stemple Creek and Salmon Creek (both coastal) as well as Blucher Creek and Green Valley Creek (Russian River tributaries).

Tomales isopod can be found in submerged vegetation, but is more likely to be found in muddy substrates of ponds, streams, and marshes. The isopod is only found where fish are absent, or where they are protected from fish predation by dense vegetation. No precise localities were known for the species until 1974 (Bowman 1974). It is now known from Mendocino, Sonoma, Marin, San Francisco, and San Mateo counties.

Study Methodology

Each of the ten proposed storage reservoir sites was surveyed for California freshwater shrimp. Downstream of each storage reservoir site, the entire length of each stream was surveyed until it converged with another stream. All fair, good, and excellent habitat was sampled for shrimp. Habitat quality was rated by a combination of features known to be important to California freshwater shrimp, including water depth, presence or absence of undercut banks, and the quality and quantity of tree roots and herbaceous vegetation hanging into the water. The following criteria were used to evaluate habitat quality for California freshwater shrimp.

Poor Habitat

- Water usually less than 6 inches deep, but could be much deeper if there is a sheer bank of earth or rock.
- Very little or no roots, twigs, branches, or vegetation hanging into the water.

Fair Habitat

- Water usually more than 6 inches deep, but could be shallower if the habitat was otherwise very well-developed.

- At least one of the following features present: some herbaceous vegetation, hair-like fine roots, coarse roots (>0.2 inches diameter), twigs, or branches in the water, or an undercut bank extending inward away from the stream for more than 6 inches.

Good Habitat

- Water 12 to 50 inches deep.

- Usually at least two of the following features present: hair-like fine roots, coarse roots (>0.2 inches diameter), blackberries with adventitious roots, undercut banks (>6 inches), or abundant herbaceous vegetation. A very well-developed section of fine roots or blackberries with adventitious roots would qualify as good habitat, even without the complementary presence of one of the other features noted.

Excellent Habitat

- Water 12 to 35 inches deep.

- Usually at least three of the following features present: hair-like fine roots, coarse roots (>0.2 inches diameter), blackberries with adventitious roots, or undercut banks >6 inches. Only one of the above would be needed if found in combination with a very well-developed section of fine roots or blackberries with adventitious roots.

A submerged 15-inch diameter aerial insect net was used to sweep underwater portions of the roots and other vegetation along the sides of the stream pools. The adjacent water column was also sampled on return strokes, since disturbed shrimp have a tendency to move out slightly away from the vegetation before they slowly swim to a new destination. The long bag of the insect net ensures that any shrimp captured are unable to escape the net, and also subjects them to less force during the collection process than they would experience in a dip net.

The contents of the net bag were periodically emptied into a plastic pan, and the obscuring detritus was carefully removed and placed on the net bag, so as not to harm any potentially captured organisms. The materials in the pan were closely scrutinized for shrimp. Although usually translucent and difficult to see at first, if shrimp are present they can almost always be detected by movement. The detritus on the net was also examined for shrimp before it was discarded back into the steam. Bottom sediments were also sampled periodically for the Tomales isopod.

Open areas of streams without tree cover were searched for the San Francisco forktail damselfly. Adult damselflies were caught with an aerial insect net as they flew, or were swept from streamside vegetation.

Results

The following are summaries of the California freshwater shrimp habitat assessments and surveys conducted for each storage reservoir site.

Adobe Road

No rare invertebrates or suitable habitat were found at the proposed Adobe Road storage reservoir site.

Lakeville Hillside

No rare invertebrates or suitable habitat were found at the proposed Lakeville Hillside storage reservoir site.

Sears Point

No rare invertebrates or suitable habitat were found at the proposed Sears Point storage reservoir site.

Tolay (Confined and Extended)

No rare invertebrates or suitable habitat were found at the proposed Tolay storage reservoir sites.

Bloomfield

There was no suitable habitat for California freshwater shrimp at the proposed Bloomfield storage reservoir site. The San Francisco forktail damselfly was observed at this location, representing a new occurrence record for this species. Of the five specimens of *Ischnura* collected within the inundation zone, there were four *Ischnura gemina* and one *Ischnura cervula*. Of thirteen *Ischnura* collected downstream from the site, twelve were *Ischnura gemina* and one was *Ischnura perparva*.

Carroll Road

There was no suitable habitat for the California freshwater shrimp at the proposed Carroll Road storage reservoir site. The Tomales isopod was found at this site, representing a new occurrence record for this species. The isopods were collected in an unusual microhabitat. They were found in the stream gorge, where a drop of over one meter caused the water to run fast against the rock wall (Map B-6). The crustaceans were clinging onto willow roots extending out into the water. A few were also found immediately upstream. During the rainy season they would be washed out of this area, and so they must also occur elsewhere on the property.

The San Francisco forktail damselfly was found in the primary drainage that bisects the Carroll Road site. Of the ten specimens collected, nine were *Ischnura gemina* and one was *Ischnura cervula*.

Huntley

There was no suitable habitat for the California freshwater shrimp at the proposed Huntley storage reservoir site. Most of the upper portion of the stream was completely dry. The lower part of the stream contained isolated pools and had good sunlight exposure, and San Francisco forktail damselfly were found along this reach. Of the six *Ischnura* collected, four were *Ischnura gemina* and two were *Ischnura perparva*.

Two Rock

The proposed Two Rock storage reservoir site is located near the headwaters of Stemple Creek, a known California freshwater shrimp stream. Although suitable habitat for the California freshwater shrimp was present on site, no shrimp were found. The best habitat, with excellent willow roots extending into pools, occurs along the eastern boundary of the site, but no shrimp were found at this location. Some good habitat was also present within the other tributaries on site, which empty into the main stream that feeds Stemple Creek. These stream sections were also surveyed in 1991 (including the tributaries), and no California freshwater shrimp were found at the site (Serpa 1991).

The Tomales isopod, formerly only known from one of the tributaries at the Two Rock site (Serpa 1991), was found in the main stream on all three parcels during this study (Map B-1). The drainage located at the eastern boundary of the Two Rock site provided a new occurrence record for the San Francisco forktail damselfly (one individual). *Ischnura cervula*, which is much more common, was also present along this eastern drainage.

Valley Ford

No suitable habitat for California freshwater shrimp was observed at the proposed Valley Ford storage reservoir site. However, Tomales isopod was observed at this site, establishing a new location record for this species. Isopods were fairly abundant at a point along the northeastern drainage just before it flows into a freshwater pond (Map B-6). The isopods were found within the aquatic vegetation and mud substrate. They were much less common in the pond, where only one specimen was captured. The scarcity of isopods was probably due to fish predation in the pond.

Table 2.3-11 summarizes the survey results, quality of habitat at each site, date each site was surveyed, and other rare invertebrates observed during the California freshwater shrimp surveys.

Table 2.3-11

Summary of California Freshwater Shrimp Surveys

Storage Reservoir Site	Survey Date	Quality of Habitat	Number of Shrimp Observed	Other Sensitive Invertebrates Observed
Adobe Road	August 24, 1995	Excellent willow roots No alders - indicating lack of permanent water	0	None
Bloomfield	August 22, 1995	No suitable habitat	0	San Francisco forktail damselfly
Carroll Road	August 23, 1995	No suitable habitat	0	San Francisco forktail damselfly Tomales isopod
Huntley	August 24 and 25, 1995	No suitable habitat	0	San Francisco forktail damselfly
Lakeville Hillside	August 24, 1995	No suitable habitat	0	None
Sears Point	August 25, 1995	Isolated pools with excellent willow roots No alders - indicating lack of permanent water	0	None
Tolay (Confined and Extended)	August 25, 1995	Isolated pools with good to excellent willow roots No alders - indicating lack of permanent water	0	None
Two Rock	August 21, 1995	Excellent willow roots extending into pools (eastern drainage only) Good habitat on rest of site	0	San Francisco forktail damselfly Tomales isopod
Valley Ford	August 23, 1995	No suitable habitat	0	Tomales isopod

Source: Harland Bartholomew & Associates, 1996

NORTHWESTERN POND TURTLE SURVEYS

Introduction

HBA wildlife biologists conducted surveys for northwestern pond turtle at all of the proposed storage reservoir sites. The northwestern pond turtle was originally petitioned to be federally listed as endangered or threatened, but the USFWS found on August 4, 1993 that the species did not meet either the definition of an endangered or a threatened species (50 Federal Register, pp. 42717-42718). Prior to February 28, 1996, the species was listed as a federal category 2 candidate species, but the USFWS dissolved the category 2 candidate status on this date. The species is listed as a species of special concern by the CDFG (1995).

Suitable habitat for northwestern pond turtle includes permanent, slow-moving streams and rivers, sloughs, ponds and marshes. Riparian and emergent marsh vegetation are important habitat features which provide both protective cover and basking sites. Nearby woodland, forest, or chaparral components are also important for cover since this particular species will often travel considerable distances (over 325 feet) from the water to lay their eggs (Zeiner et al. 1988).

Study Methodology

Habitat assessments for northwestern pond turtle were done in conjunction with the special-status stream amphibian habitat assessments. Surveys for northwestern pond turtles were conducted concurrently with other compatible biological surveys including, riparian bird surveys, stream amphibian habitat assessments, and California freshwater shrimp surveys. The goal of the northwestern pond turtle surveys was to identify areas of potential habitat, determine presence of the species, and obtain a count of individuals observed. The surveys were accomplished by scanning suitable habitat along waterways with binoculars or the naked eye, searching for pond turtles. In addition, Merritt Smith Consulting biologists recorded pond turtle observations during the aquatic habitat assessments (Merritt Smith Consulting 1995c). All turtle observations were recorded and mapped on aerial photographs (1:500) of the proposed storage reservoir sites.

Results

The following are summaries of the northwestern pond turtle habitat assessments and surveys conducted for each storage reservoir site.

Adobe Road

The main drainage at the proposed Adobe Road storage reservoir site has well-developed riparian vegetation and streambed characteristics that indicate it may have perennial water flow. However, changes in land use and habitat alterations (i.e., cattle grazing) have rendered the stream dry for most of the year. Therefore, while northwestern pond turtles may have historically occurred at this site, there is no longer any suitable habitat present nor were any northwestern pond turtles

observed. There are also three stock ponds on site; however, each of these is devoid of vegetation and heavily degraded by cattle. Consequently, these ponds would not provide suitable habitat for pond turtles and no pond turtles were observed.

Lakeville Hillside

There is a small stock pond located in the northeastern corner of the proposed Lakeville Hillside storage reservoir site, with a well-developed riparian corridor along the drainage that flows into this pond. No northwestern pond turtles were observed at this site during the biological field surveys.

Sears Point

The Tolay Creek drainage at the proposed Sears Point storage reservoir site has well-developed riparian vegetation and streambed characteristics that indicate a historical pattern of perennial water flow. However, changes in land use and habitat alterations (i.e., cattle grazing) have rendered the stream dry for most of the year. Therefore, while northwestern pond turtle may have historically occurred at this site, there is no longer any suitable habitat present nor were any northwestern pond turtles observed.

Tolay (Confined and Extended)

There are two ponds (artificial impoundments) at the proposed Tolay storage reservoir sites that provide suitable habitat for northwestern pond turtle. These ponds have well-developed tule stands around their perimeters. One northwestern pond turtle was observed walking along an access road located within the northernmost portion of the Tolay Confined and Extended sites (Maps B-3 and B-4).

Bloomfield

The proposed Bloomfield storage reservoir site contains a permanent, slow-moving stream with well-developed submergent and emergent marsh vegetation. This stream could support northwestern pond turtle; however, no northwestern pond turtles were observed during the surveys.

Carroll Road

The proposed Carroll Road storage reservoir site contains a natural stream and three artificial ponds. Due to cattle grazing there is little or no vegetation more than one inch high within approximately 100 feet of the pond located at the western end of the site. However, four adult northwestern pond turtles were observed at this pond. One northwestern pond turtle was observed by the pond located near the house at the east end of the site, and one adult was observed in the main drainage at approximately the center of the site (Map B-6).

Huntley

The proposed Huntley storage reservoir site contains a natural drainage with associated vegetation that grades from eucalyptus to willows, and finally, into open patches of rushes. Although this drainage dries out in the summer months, three turtles were observed during the spring when water was still present (Map B-7). There is one stock pond located in the southeast corner of the site that had some associated submergent vegetation (Map B-7). Five pond turtles were observed at this pond, basking on a bed of dense moss.

Two Rock

The proposed Two Rock storage reservoir site contains nine stock ponds and several drainages. There were 55 northwestern pond turtles of varying age observed at the proposed Two Rock storage reservoir site. These occurrences were distributed throughout the site but were mainly located in or directly adjacent to the various ponds present on site (Map B-1). These ponds had very well-developed riparian vegetation along their banks, and turtles were observed using the logs and low branches as basking sites. There were also at least two adults in the largest pond that is located on the northern end of the site (Map B-1). Turtles were observed around the perimeter of this pond, which is surrounded by a wide stand of tules. One pond turtle was observed at the easternmost pond, which has minimal associated vegetation (Map B-1).

Twenty-five pond turtles were observed during a riparian bird survey conducted on May 16, 1995. Two turtles were located in the small stock pond in the southeastern corner of the site (Map B-1). A single individual was found in the large drainage that flows from the northern hillside, approximately near the center of the proposed construction zone (Map B-1). Twenty-two turtles were observed in and around the large ponds located along the main drainage, on the westernmost side of the site (Map B-1).

Valley Ford

Five stock ponds are present at the proposed Valley Ford storage reservoir site. The first pond is located in the southeastern portion of the proposed inundation zone and contains riparian and marsh vegetation at the northern end. This pond is circular and approximately 200 feet in diameter. There is a zone of approximately 10 to 25 feet around the shoreline that has no vegetative cover greater than one inch high. This zone then grades into either a tule stand or high grasses that surround the stock pond. The distribution of the surrounding vegetation appears to be the result of fluctuating water levels associated with livestock ranching practices. There were 11 adult northwestern pond turtles observed in this pond (Map B-6).

Two of these ponds were formed by a natural stream that flows during most of the year. These two ponds consist of a large triangular-shaped pond and a smaller, more linear pond that is separated from the triangular impoundment by a

concrete spillway. The southern end of the triangular pond is denuded of vegetation and the shoreline is heavily impacted by cattle. The upper portion and side branch of this pond have steep banks that cattle cannot easily access. As a consequence, the vegetation (willows, oaks, poison oak, rushes) is relatively undisturbed. Twelve adult and subadult northwestern pond turtles were observed among the dense growth of willows that occurs in the side branch and along the upper portion of this pond (Map B-6). The second pond is much narrower and is well vegetated with willows, eucalyptus, and rushes. One adult northwestern pond turtle was observed in this pond (Map B-6).

The remaining two ponds at the Valley Ford site are located just outside of the inundation zone and to the west of the two previous ponds. There is very little vegetation associated with either of these ponds; however, one northwestern pond turtle was observed in the westernmost impoundment (Map B-6).

A single adult was observed in the main drainage that runs through the center of the site (Map B-6). This turtle was located just south of the inundation zone.

The results of the northwestern pond turtle surveys for all the storage reservoir sites are summarized in Table 2.3-12.

Table 2.3-12

Summary of Northwestern Pond Turtle Surveys

Storage Reservoir Site	Dates of Habitat Assessment	Suitable Habitat Present	Acres of Potential Habitat[1]	Number of Turtles Observed
Adobe Road	9/7/94	No	0	0
Bloomfield	9/13/94	Yes	5.8	0
Carroll Road	8/18/94	Yes	7.5	6
Huntley	2/27/95	Yes	3.8	8
Lakeville Hillside	8/12/94	Yes	0	0
Sears Point	9/7/94	No	0	0
Tolay Confined	8/25/94	Yes	13.7	1
Tolay Extended	8/25/94	Yes	15.9	0
Two Rock	8/24/94	Yes	10.9	55
Valley Ford	8/11/94	Yes	5.3	26

Source: Harland Bartholomew & Associates, 1996

Notes:
1 = Occupied habitat refers to the acreage of the pond or stream segment where northwestern pond turtles were observed or potentially known to occur.

AVIAN ASSESSMENTS

Introduction

HBA wildlife biologists conducted avian assessments at each of the proposed storage reservoir sites. These surveys were mainly concerned with special-status bird species (see Table 2.3-1; Special Status Animal Species) associated with riparian habitats; however, all other bird species observed during these surveys were recorded.

Study Methodology

Generalized surveys, which did not focus on one given species, were conducted by biologists to sample the diversity of riparian and upland bird species within each proposed storage reservoir site. Meandering transects were utilized as a field survey method in order to provide one hundred percent visual coverage of the existing riparian corridors and a sample of the upland hills. Binoculars were used for visual identification; identification of songs and calls was also utilized to identify bird species encountered. Burrowing owl habitat assessments were conducted concurrently with other focused surveys, including avian assessments and CWHR sampling transects. The burrowing owl habitat assessments consisted of looking for the presence of ground squirrel colonies and suitable foraging habitat (primarily short to medium height annual grassland) on each site. Burrowing owls rarely dig their own burrows and so are dependent on the burrows of ground squirrels. Therefore, the availability of ground squirrel burrows determines the suitability of a site for burrowing owl habitation. In addition to these focused surveys, biologists also recorded bird species observed during other surveys (i.e., vernal pool sampling, CWHR data collection, etc.). All special-status bird species observations were recorded and mapped on aerial photographs (1:500) of the proposed storage reservoir sites.

Results

The following are the results of the avian assessments, as well as observations of birds made during other surveys, for each proposed storage reservoir site. These results are summarized in Table 2.3-13. The table also identifies bird species that are designated as riparian obligate breeders by the National Audubon Society/Riparian Habitat Joint Venture (RHJV) project (Riparian Habitat Joint Venture, National Audubon Society 1995). The goal of the RHJV is to conserve, increase, and improve riparian habitat for California's native resident birds and neotropical migrants (birds that nest in North America and winter in Mexico and Central and South America). Riparian obligate species also serve as indicators of the type and quality of riparian habitat in a given area. Following Table 2.3-13 each storage reservoir site is described in terms of the following elements:

- habitat present on site;
- discussions on observed bird species (special-status species/riparian obligate species); and
- results of burrowing owl habitat assessments.

Table 2.3-13

Summary of Bird Species Observed at the Storage Reservoir Sites

Common Name	Scientific Name	Adobe Road	Lakeville Hillside	Sears Point	Tolay	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
Cooper's hawk	*Accipiter cooperi*			X	X	X				
Sharp-shinned hawk	*Accipiter striatus*						X			X
White-throated swift	*Aeronautes saxatalis*			X						
Red-winged blackbird	*Agelaius phoeniceus*		X	X	X	X	X	X	X	X
Tricolored blackbird	*Agelaius tricolor*				X					
Grasshopper sparrow	*Ammodramus savanarrum*								X	
Northern shoveler	*Anas clypeata*				X					
Cinnamon teal	*Anas cyanoptera*					X				
Mallard	*Anas platyrhynchos*			X	X	X		X	X	X
Gadwall	*Anas strepera*				X					
American pipit	*Anthus rubescens*							X		
Scrub jay	*Aphelocoma coerulescens*	X		X		X	X	X	X	X
Golden eagle	*Aquila chrysaetos*		X	X	X				X	
Great blue heron	*Ardea herodias*				X	X			X	X
Cedar waxwing	*Bombycilla cedrorum*						X		X	
Canada goose	*Branta canadensis*							X		
Great horned owl	*Bubo virginianus*	X	X	X		X	X	X	X	
Bufflehead	*Bucephala albeola*					X	X	X		
Red-tailed hawk	*Buteo jamaicensis*	X	X	X	X	X	X	X	X	X
Red-shouldered hawk[1]	*Buteo lineatus*	X	X	X			X	X		
California quail	*Callipepla californica*	X		X	X	X	X	X	X	X

Table 2.3-13

Summary of Bird Species Observed at the Storage Reservoir Sites

Common Name	Scientific Name	Adobe Road	Lakeville Hillside	Sears Point	Tolay	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
Anna's hummingbird	*Calypte anna*		X		X	X	X	X	X	
Pine siskin	*Carduelis pinus*				X		X	X		
Lesser goldfinch	*Carduelis psaltria*									X
American goldfinch[1]	*Carduelis tristis*	X		X	X	X	X	X	X	
House finch	*Carpodacus mexicanus*	X	X	X	X	X	X		X	X
Purple finch	*Carpodacus purpureus*				X		X		X	
Great egret	*Casmerodius albus*				X					
Turkey vulture	*Cathartes aura*	X	X	X	X	X	X	X	X	X
Hermit thrush	*Catharus guttatus*				X					
Swainson's thrush[1]	*Catharus ustulatus*	X							X	
Belted kingfisher[1]	*Ceryle alcyon*						X			
Wrentit	*Chamaea fasciata*	X			X				X	
Killdeer	*Charadrius vociferus*	X		X	X	X	X			X
Lark sparrow	*Chondestes grammacus*			X		X	X		X	
Northern harrier	*Circus cyaneus*			X	X					X
Northern flicker	*Colaptes auratus*	X	X				X	X	X	X
Rock dove	*Columba livia*	X		X			X		X	
Olive-sided flycatcher	*Contopus borealis*			X						
Western wood-pewee	*Contopus sordidulus*			X		X	X		X	
American crow	*Corvus brachyrhynchos*	X		X	X		X	X	X	X
Common raven	*Corvus corax*		X	X		X		X	X	X

Table 2.3-13

Summary of Bird Species Observed at the Storage Reservoir Sites

Common Name	Scientific Name	Adobe Road	Lakeville Hillside	Sears Point	Tolay	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
Steller's jay	*Cyanocitta stelleri*	X		X		X			X	
Yellow-rumped warbler	*Dendroica coronata*		X			X	X	X		X
Yellow warbler[1]	*Dendroica petechia*								X	
White-tailed kite	*Elanus leucurus*	X	X		X					
Pacific-slope flycatcher	*Empidonax difficilis*								X	
Horned lark	*Eremophila alpestris*			X	X			X	X	
Brewer's blackbird	*Euphagus cyanocephalus*	X	X	X	X	X	X	X	X	X
Merlin	*Falco columbarius*	X		X						
Prairie falcon	*Falco mexicanus*									X
American kestrel	*Falco sparverius*	X	X	X		X	X	X	X	X
American coot	*Fulica americana*				X				X	
Common moorhen	*Gallinula chloropus*								X	
Cliff swallow	*Hirundo pyrrhonota*			X	X				X	
Barn swallow	*Hirundo rustica*			X	X	X	X		X	
Northern oriole	*Icterus galbula*			X	X	X	X		X	
Varied thrush	*Ixoreus naevius*	X								
Dark-eyed junco	*Junco hyemalis*	X	X	X	X	X	X	X	X	
Loggerhead shrike	*Lanius ludovicianus*					X	X	X		X
California gull	*Larus californicus*								X	

Table 2.3-13

Summary of Bird Species Observed at the Storage Reservoir Sites

Common Name	Scientific Name	Adobe Road	Lakeville Hillside	Sears Point	Tolay	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
Acorn woodpecker	*Melanerpes formicivorus*	X								
Lincoln's sparrow	*Melospiza lincolnii*				X	X				
Song sparrow[1]	*Melospiza melodia*			X	X	X	X	X	X	
Northern mockingbird	*Mimus polyglottos*					X	X		X	
Brown-headed cowbird	*Molothrus ater*			X	X	X	X		X	
Ash-throated flycatcher	*Myiarchus cinerascens*			X					X	
Black-crowned night-heron	*Nycticorax nycticorax*								X	
Plain titmouse	*Parus inornatus*	X		X	X	X			X	
Chestnut-backed chickadee	*Parus rufescens*					X		X	X	
House sparrow	*Passer domesticus*			X			X		X	
Savannah sparrow	*Passerculus sandwichensis*	X				X	X			X
Fox sparrow	*Passerella iliaca*				X				X	
Lazuli bunting	*Passerina amoena*								X	
Double-crested cormorant[1]	*Phalacrocorax auritus*				X					
Nuttall’s woodpecker	*Picoides nuttallii*	X	X	X			X		X	X
Downy woodpecker[1]	*Picoides pubescens*			X					X	
Hairy woodpecker	*Picoides villosus*								X	

Table 2.3-13

Summary of Bird Species Observed at the Storage Reservoir Sites

Common Name	Scientific Name	Adobe Road	Lakeville Hillside	Sears Point	Tolay	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
California towhee	*Pipilo crissalis*	X	X	X	X	X	X	X	X	
Rufous-sided towhee	*Pipilo erythrophthalmus*	X		X			X	X	X	X
Western tanager	*Piranga ludoviciana*								X	
Pied-billed grebe	*Podilymbus podiceps*						X		X	X
Bushtit	*Psaltriparus minimus*	X		X		X	X	X	X	
Ruby-crowned kinglet	*Regulus calendula*	X	X			X	X			
Black phoebe[1]	*Sayornis nigricans*		X	X		X	X	X	X	X
Allen's hummingbird	*Selasphorus sasin*	X		X	X		X	X	X	
Mountain bluebird	*Sialia currucoides*								X	
Western bluebird	*Sialia mexicana*	X		X	X	X	X		X	X
Western burrowing owl	*Speotyto cunicularia hypugea*				X					
Northern rough-winged swallow	*Stelgidopteryx serripennis*						X		X	
Western meadowlark	*Sturnella neglecta*	X	X	X	X	X	X	X	X	X
European starling	*Sturnus vulgaris*	X	X	X	X	X	X	X	X	X
Tree swallow[1]	*Tachycineta bicolor*			X		X	X		X	
Violet-green swallow	*Tachycineta thalassina*			X	X	X	X		X	
Bewick's wren	*Thyromanes bewickii*			X		X			X	
Greater yellowlegs	*Tringa melanoleuca*				X					X
House wren	*Troglodytes aedon*			X					X	

Table 2.3-13

Summary of Bird Species Observed at the Storage Reservoir Sites

Common Name	Scientific Name	Adobe Road	Lakeville Hillside	Sears Point	Tolay	Bloomfield	Carroll Road	Huntley	Two Rock	Valley Ford
American robin	*Turdus migratorius*	X		X	X	X	X	X	X	
Western kingbird	*Tyrannus verticalis*			X	X	X			X	X
Barn owl	*Tyto alba*						X		X	
Orange-crowned warbler	*Vermivora celata*								X	
Warbling vireo[1]	*Vireo gilvus*								X	
Hutton's vireo	*Vireo huttoni*								X	
Wilson's warbler[1]	*Wilsonia pusilla*								X	
Mourning dove	*Zenaida macroura*	X	X	X	X	X	X	X	X	X
Golden-crowned sparrow	*Zonotrichia atricapilla*	X	X			X	X	X		
White-crowned sparrow	*Zonotrichia leucophrys*		X				X	X		
TOTAL SPECIES OBSERVED PER SITE		**36**	**24**	**52**	**47**	**47**	**53**	**36**	**73**	**30**
Total Riparian Obligate Breeders Per Site		*3*	*2*	*6*	*3*	*4*	*6*	*4*	*9*	*1*

Source: Harland Bartholomew & Associates, 1996

Notes:
This table does not address habitat suitability.
X - At least one individual of this species was observed at this particular site.
1 - These species are designated as riparian obligate breeders by the National Audubon Society's Riparian Habitat Joint Venture project.

Adobe Road

The proposed Adobe Road storage reservoir site is comprised primarily of annual grassland and a well-developed mixed-riparian system. A total of thirty-six (36) different bird species were observed at the site. Of these 36 bird species, 2 are special-status species and 3 are riparian obligate species. The two special-status species observed were white-tailed kite and merlin (Map A-2). The three riparian obligate species observed were red-shouldered hawk, American goldfinch, and Swainson's thrush.

Although no burrowing owls were observed during habitat assessments or focused surveys for other species, the annual grassland present on site provides suitable foraging habitat, and the presence of numerous ground squirrels indicates that potential nesting habitat is also present.

Lakeville Hillside

The proposed Lakeville Hillside storage reservoir site is located within a fairly steep canyon that is composed primarily of annual grassland, interspersed with willow riparian and eucalyptus grove. A total of twenty-four (24) different bird species were observed at the site. Of these 24 bird species, 2 are special-status species and 2 are riparian obligate species. The two special-status species observed were white-tailed kite and golden eagle (Map A-3). The two riparian obligate bird species observed were black phoebe and red-shouldered hawk.

The Lakeville Hillside site supports suitable foraging habitat (i.e., annual grassland with ground squirrels and burrows) for wintering burrowing owl populations, but no owls or sign were observed. A single burrowing owl was observed near the southwestern portion of the proposed Tolay reservoir sites, which is less than one mile east of the Lakeville Hillside site.

Sears Point

The proposed Sears Point storage reservoir site contains extensive annual grassland, bisected by a mixed-riparian woodland present along the Tolay Creek drainage. Patches of coastal live oak woodland persist in several of the side drainages. A total of fifty-two (52) different bird species were observed at the site. Of these 52 species, five are special-status species and six are riparian obligate species. The five special-status species observed were Cooper's hawk, golden eagle, northern harrier, horned lark, and merlin (Map A-5). The six riparian obligate species observed were red-shouldered hawk, American goldfinch, song sparrow, downy woodpecker, black phoebe, and tree swallow.

Ground squirrels or their burrows were not observed on the proposed Sears Point storage reservoir site. However, many of the upland portions of the Sears Point site appeared to be suitable for ground squirrels and burrowing owl habitation, and ground squirrels were observed in similar habitat on the proposed Tolay

storage reservoir sites, less than 1.5 miles northwest of the Sears Point site. In addition, during burrowing owl surveys conducted by Marin Audubon Society for the Institute of Bird Population Studies, two pairs of burrowing owls were observed less than two miles west and southwest of the Sears Point site in 1993 (Eric Ruhlen, personal communication).

Tolay (Confined and Extended)

The proposed Tolay storage reservoir sites (Tolay Confined and Tolay Extended) are comprised mainly of cropland (oat hay and row crops), with mixed grassland (both annual and native grasses) prevalent around the periphery of the valley floor. Tolay Creek, which has been channelized throughout much of the valley, is the central drainage that flows through the site. The southernmost portion of the creek, which has remained in a natural state, has a well-developed mixed-riparian woodland. A total of forty-seven (47) different bird species were observed at the two sites. Of these 47 bird species, 8 are special-status species and 3 are riparian obligate species. The special-status species observed were Cooper's hawk, tricolored blackbird, golden eagle, northern harrier, white-tailed kite, horned lark, double-crested cormorant, and western burrowing owl (Maps A-3 and A-4).

A single burrowing owl was observed near the southwestern portion of the Tolay Valley on November 30, 1994. It was determined that this burrowing owl was part of a wintering population since it was not observed during any of the subsequent visits to the site during the spring. The three riparian obligate species observed were American goldfinch, song sparrow, and double-crested cormorant.

Bloomfield

The proposed Bloomfield storage reservoir site is comprised primarily of annual grassland. The major drainage, which flows through the center of the site, is dammed in several places, forming perennial freshwater ponds. Isolated patches of willow-dominated riparian woodland are located at several sites throughout the drainage. There are some small patches of coastal scrub and mixed-hardwood forest along the northern reaches of the site. A total of forty-seven (47) different bird species were observed at the site. Of these 47 bird species, 2 are special-status species and 4 are riparian obligate species. The two special-status species observed were Cooper's hawk and loggerhead shrike (Map A-6). The four riparian obligate species observed were American goldfinch, song sparrow, black phoebe, and tree swallow.

Extensive flooding occurred on the valley floor of the proposed Bloomfield reservoir storage site during the winter of 1994-1995, which probably destroyed many burrows and killed many ground squirrels. There are ground squirrel burrows present on the higher portions of hillsides at the Bloomfield site that could potentially provide nesting habitat and refuge for burrowing owls, however, and the annual grassland present on site provides suitable foraging habitat.

Carroll Road

The proposed Carroll Road storage reservoir site contains primarily annual grassland, mixed with willow-dominated riparian woodland along the drainage that flows through the center of the valley floor. A total of fifty-three (53) different bird species were observed at the site. Of these 53 bird species, 2 are special-status species and 6 are riparian obligate breeders. The two special-status species observed were sharp-shinned hawk and loggerhead shrike (Map A-6). The six riparian obligate birds observed were red-shouldered hawk, American goldfinch, belted kingfisher, song sparrow, black phoebe, and tree swallow.

According to ranch manager Jim Jacobs (Jim Jacobs, personal communication), he observed a burrowing owl at the site during the fall of 1994. There were several ground squirrel burrows throughout the site that could provide suitable nesting habitat for burrowing owls, and the annual grassland present on site provides suitable foraging habitat. However, biologists did not observe any burrowing owls at the site.

Huntley

The proposed Huntley storage reservoir site is comprised primarily of annual grassland, with some scattered willow riparian vegetation and a well-developed eucalyptus grove. A freshwater pond is located in the southeastern section of the site. Thirty-six (36) different bird species were observed at the site. Out of these 36 species, 2 are special-status species and 4 are riparian obligate species. The two special-status species observed were horned lark and loggerhead shrike (Map A-7). The four riparian obligate species observed were red-shouldered hawk, American goldfinch, song sparrow, and black phoebe.

Suitable foraging habitat for burrowing owl is present at the Huntley storage reservoir site. A well-established active California ground squirrel colony was observed along a large berm found at the southern end of the site. This berm was formed from soil excavated out of the hillside to create a disposal site for dairy waste several years ago. The burrows were examined for burrowing owl activity, but no owls or sign were observed.

Two Rock

The Two Rock storage reservoir site contains a variety of habitat types such as annual grassland, riparian woodland (mixed and willow-dominated), freshwater pond, and mixed-hardwood forest. A total of seventy-three (73) different bird species were observed at the site. Of these 73 species, 4 are special-status species and 9 are riparian obligate bird species. The four special-status species observed were golden eagle, horned lark, California gull, and yellow warbler (Map A-1). An active golden eagle nest was observed outside of the storage reservoir footprint, near the northwest corner of the site on May 16, 1995. The nest was found in a large douglas-fir tree on a hillside above the eastern arm of a tributary to the main creek (Map A-1). This nest tree is approximately 440 feet amsl and

approximately 750 to 1,000 feet from the nearest construction zone boundary at the Two Rock site. The large stick nest (approximately five to six feet deep and four feet in diameter) was located about 70 to 80 feet above the ground against the main trunk and was supported by four major branches of the tree which diverged from the main trunk at this point. The nest was approximately 20 feet from the top of the tree. The nest appeared to have been used for many years. Two adult golden eagles were observed soaring above the hill just east of the nest site, but no sign of adults or young was observed at the nest. Visibility of the nest was limited and adults and young could have been present below the rim of the nest and not observable. The nine riparian obligate bird species observed were American goldfinch, Swainson's thrush, yellow warbler, song sparrow, downy woodpecker, black phoebe, tree swallow, warbling vireo, and Wilson's warbler.

The site appears to have suitable foraging habitat for burrowing owls. However, any ground squirrels that were present on site may have been flooded out and killed during the exceptionally wet year of 1994-1995. Biologists observed several flooded burrows throughout the vernal pool sampling visits. This destruction of burrows by heavy flooding would preclude use of the site by burrowing owls for nesting. Even during dry years, the site would provide less than suitable nesting habitat for burrowing owls because of heavy cattle grazing. No burrowing owls or their sign were observed at the proposed Two Rock storage reservoir site.

Valley Ford

The proposed Valley Ford storage reservoir site is composed mainly of annual grassland, some scattered willow riparian, and several freshwater ponds. A total of thirty (30) different bird species were observed at the site. Of these 30 bird species, 4 are special-status species and 1 is a riparian obligate species. The four special-status species observed were loggerhead shrike, sharp-shinned hawk, prairie falcon, and northern harrier (Map A-6). The single riparian obligate species observed was black phoebe.

The Valley Ford site supports suitable foraging habitat (i.e., annual grassland with ground squirrels and burrows) for wintering burrowing owl populations, but no owls or sign were observed.

DOWNSTREAM ASSESSMENTS

Introduction

One-time reconnaissance-level assessments were conducted along streams located within accessible parcels downstream of the ten proposed storage sites, to the stream confluence with another water body. These downstream surveys were conducted on August 21, 1995 through August 25, 1995. All survey work discussed below was completed during a single visit to each site.

Study Methodology

Plant Surveys

Botanists walked along the streams located below the proposed dam locations of each storage site looking for special-status plant species. Botanists surveyed approximately 30 feet on either side of the stream.

Plant Community Mapping

All plant communities adjacent to the streams located downstream of each proposed storage site were mapped by a botanist. Plant communities except for grasslands within 100 feet of the stream bank were mapped. The plant community mapping consisted of viewing aerial photographs and then ground-truthing to verify the distinguishable plant communities. The ground-truthing was conducted by walking along the streams and noting the dominant plant species that compose specific communities.

Wildlife Surveys

California freshwater shrimp and Tomales isopod surveys were the only focused wildlife surveys conducted at the downstream sites (for these survey results, refer to earlier section in this chapter). Although no focused surveys were conducted for California red-legged frog and northwestern pond turtle during the downstream assessments, potential habitat for one or both species was noted. All wildlife species observed along each downstream site were recorded by a wildlife biologist.

CWHR Habitat Mapping

The CWHR mapping for downstream sites was similar to the approach used for the storage reservoir sites, except that only those habitat types located within 100 feet of the stream were surveyed.

Refer to the section found earlier in this chapter for specific information on the CHWR habitat classification system and Table 2.3-7 - Special-Status Wildlife Species Associated with CWHR Habitat Types (High Suitability).

Results

The results of habitat assessments and surveys at each downstream location are discussed below by storage reservoir.

Adobe Road

The area downstream of the proposed Adobe Road storage reservoir site was assessed on August 24, 1995. The stream that flows through this site is an unnamed intermittent stream located between the Lynch Creek and Adobe Creek drainages. The riparian system associated with this stream was assessed from the proposed dam site to a point approximately one mile downstream. It was at this point that the stream became a concrete channel flowing through a major subdivision.

The two primary CWHR habitat types found were VRI 3D and VRI 3M (valley foothill riparian); the two corresponding plant communities are willow riparian and mixed-riparian. There is no suitable habitat for California red-legged frog or northwestern pond turtle present. No special-status plant species were observed. Table 2.3-14 below lists the wildlife species observed during the downstream assessment.

Table 2.3-14

Downstream of Adobe Road - Wildlife Observations

Common Name	Scientific Name
Birds	
Scrub jay	*Aphelocoma coerulescens*
Canada goose	*Branta canadensis*
California quail	*Callipepla californica*
House finch	*Carpodacus mexicanus*
Wrentit	*Chamaea fasciata*
Brewer's blackbird	*Euphagus cyanocephalus*
California towhee	*Pipilo crissalis*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Bushtit	*Psaltriparus minimus*
American robin	*Turdus migratorius*
Mourning dove	*Zenaida macroura*
White-crowned sparrow	*Zonotricha leucophrys*
Mammals	
Raccoon	*Procyon lotor*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*

Source: Harland Bartholomew & Associates, 1996

Lakeville Hillside

The area downstream of the proposed Lakeville Hillside storage reservoir site was assessed on August 24, 1995. The unnamed stream that flows through this site is intermittent; however, there are some pools that persist throughout the year. The riparian system associated with this stream was assessed from the proposed dam site to a point approximately 1.25 miles downstream. It was at this point that the stream converged with an irrigation ditch directly south of the Petaluma River.

The primary CWHR habitat types found were AGS 1D and AGS 2D (annual grassland); the corresponding plant community is annual grassland. Most of the stream has been heavily degraded by cattle grazing. There is minimal riparian vegetation present, except for a few scattered willows and Himalayan blackberry brambles. No special-status plant species were observed.

There is no suitable habitat for California red-legged frog or northwestern pond turtle present; however, California red-legged frog was observed upstream within the proposed Lakeville Hillside storage reservoir site.

Table 2.3-15 below lists the wildlife species observed during the downstream assessment.

Table 2.3-15

Downstream of Lakeville Hillside - Wildlife Observations

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
Birds	
Cliff swallow	*Hirundo pyrrhonota*
Mourning dove	*Zenaida macroura*
Mammals	
Raccoon	*Procyon lotor*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*

Source: Harland Bartholomew & Associates, 1996

Sears Point

The area downstream of the proposed Sears Point storage reservoir site was assessed on August 25, 1995. Tolay Creek, the primary drainage that flows through this site, is intermittent. The riparian system associated with this stream

was assessed from the proposed dam site to a point approximately 1.5 miles downstream. It was at this point that the stream converged with a levee directly west of Sonoma Creek.

The primary CWHR habitat types found were AGS 1D, AGS 2D, VRI 4M, and VRI 5S; the corresponding plant communities are annual grassland, willow riparian, and mixed-riparian. Most of the stream has been heavily degraded by cattle grazing. No special-status plant species were observed.

There is no suitable habitat for California red-legged frog or northwestern pond turtle present.

Table 2.3-16 below lists the wildlife species observed during the downstream assessment.

Table 2.3-16

Downstream of Sears Point - Wildlife Observations

Common Name	Scientific Name
Birds	
Great horned owl	*Bubo virginianus*
Red-tailed hawk	*Buteo jamaicensis*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Cliff swallow	*Hirundo pyrrhonota*
Black phoebe	*Sayornis nigricans*
Mourning dove	*Zenaida macroura*
Mammals	
Black-tailed jackrabbit	*Lepus californicus*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*

Source: Harland Bartholomew & Associates, 1996

Tolay Confined / Tolay Extended

The proposed Tolay Confined and Extended storage reservoir sites are located upstream of the proposed Sears Point storage reservoir site. Refer to the results for the Sears Point downstream assessment above.

Bloomfield

The area downstream of the proposed Bloomfield storage reservoir site was assessed on August 22, 1995. The stream that flows through this site is an unnamed intermittent stream, although there are some pools (created by damming of the main channel) that persist throughout the year. The riparian system associated with this stream was assessed from the proposed dam site to a point approximately 0.75 mile downstream. It was at this point that the stream converged with Americano Creek.

The primary CWHR habitat type found was AGS 1D; the corresponding plant community is annual grassland. Most of the stream has been heavily degraded by cattle grazing. There is minimal riparian vegetation present, except for a few scattered willows and Himalayan blackberry brambles. No special-status plant species were observed.

There is potentially suitable habitat for both California red-legged frog and northwestern pond turtle in areas with permanent pooling and associated submergent vegetation (i.e., tules, cattails). California red-legged frogs were observed upstream within the proposed Bloomfield storage reservoir site.

Table 2.3-17 below lists the wildlife species observed during the downstream assessment.

Table 2.3-17

Downstream of Bloomfield - Wildlife Observations

Common Name	Scientific Name
Birds	
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Brewer's blackbird	*Euphagus cyanocephalus*
Barn swallow	*Hirundo rustica*
Black phoebe	*Sayornis nigricans*

Source: Harland Bartholomew & Associates, 1996

Carroll Road

The area downstream of the proposed Carroll Road storage reservoir site was assessed on August 23, 1995. The permanent stream that flows through this site is unnamed. The riparian system associated with this stream was assessed from

the proposed dam site to a point approximately 1.25 miles downstream. It was at this point that the stream converged with Americano Creek.

The primary CWHR habitat types found were AGS 1D and VRI 3M; the corresponding plant communities are annual grassland and willow riparian. Most of the stream has been disturbed by cattle grazing, but patches of the aforementioned habitats/communities still persist. No special-status plant species were observed.

Potentially suitable habitat for both California red-legged frog and northwestern pond turtle is present and northwestern pond turtles were observed upstream within the proposed Carroll Road storage reservoir site.

Table 2.3-18 below lists the wildlife species observed during the downstream assessment.

Table 2.3-18

Downstream of Carroll Road - Wildlife Observations

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
Rough-skinned newt	*Taricha granulosa*
Birds	
Scrub jay	*Aphelocoma coerulescens*
Red-tailed hawk	*Buteo jamaicensis*
American goldfinch	*Carduelis tristis*
Turkey vulture	*Cathartes aura*
Wrentit	*Chamaea fasciata*
American crow	*Corvus brachyrhynchos*
Barn swallow	*Hirundo rustica*
California gull	*Larus californicus*
Ash-throated flycatcher	*Myiarchus cinerascens*
California towhee	*Pipilo crissalis*
Tree swallow	*Tachycineta bicolor*
American robin	*Turdus migratorius*

Source: Harland Bartholomew & Associates, 1996

Huntley

The area downstream of the proposed Huntley storage reservoir site was assessed on August 22, 1995. The intermittent stream that flows through this site is unnamed. The riparian system associated with this stream was assessed from the proposed dam site to a point approximately two miles downstream. It was at this point that the stream converged with Stemple Creek.

The primary CWHR habitat types found were AGS 1D, AGS 2D, VRI 3M, and VRI 4D. The corresponding plant communities are annual grassland and willow riparian. Most of the stream has been moderately disturbed by cattle grazing, but large patches of the aforementioned habitats/communities still persist. No special-status plant species were observed.

Potentially suitable habitat for both California red-legged frog and northwestern pond turtle is present and both species were observed during surveys at the proposed Huntley reservoir site.

Table 2.3-19 below lists the wildlife species observed during the downstream assessment.

Table 2.3-19

Downstream of Huntley - Wildlife Observations

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
Birds	
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Brewer's blackbird	*Euphagus cyanocephalus*
Song sparrow	*Melospiza melodia*
Savannah sparrow	*Passerculus sandwichensis*
California towhee	*Pipilo crissalis*
Western bluebird	*Sialia mexicana*
Mammals	
Coyote	*Canis latrans*
Black-tailed deer	*Odocoileus hemionus*
Raccoon	*Procyon lotor*
Reptiles	
California red-sided garter snake	*Thamnophis sirtalis infernalis*

Source: Harland Bartholomew & Associates, 1996

Two Rock

The area downstream of the proposed Two Rock storage reservoir site was assessed on August 21, 1995. The permanent stream that flows through this site is unnamed. The riparian system associated with this stream was assessed from the proposed dam site to a point approximately three miles downstream. It was at this point that the stream converged with Stemple Creek.

The primary CWHR habitat types found were AGS 1D, AGS 2D, VRI 3M, VRI 4D, and VRI 5D. The corresponding plant communities are annual grassland, mixed-riparian, and willow riparian. Most of the stream has been moderately disturbed by cattle grazing, but large patches of the aforementioned habitats/communities still persist. No special-status plant species were observed.

At least five northwestern pond turtles were observed at various locations downstream of the proposed dam site. Potentially suitable habitat for California red-legged frog is also present (observed during surveys at the proposed Two Rock reservoir site).

Table 2.3-20 below lists the wildlife species observed during the downstream assessment.

Table 2.3-20

Downstream of Two Rock - Wildlife Observations

Common Name	Scientific Name
Amphibians	
Western toad	*Bufo boreas*
Pacific tree frog	*Pseudacris regilla*
Bullfrog	*Rana catesbeiana*
California newt	*Taricha torosa*
Birds	
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
American bittern	*Botaurus lentiginosus*
Red-tailed hawk	*Buteo jamaicensis*
California quail	*Callipepla californica*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Great egret	*Casmerodius albus*

Table 2.3-20

Downstream of Two Rock - Wildlife Observations

Common Name	Scientific Name
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Common crow	*Corvus brachyrhynchos*
Brewer's blackbird	*Euphagus cyanocephalus*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Dark-eyed junco	*Junco hyemalis*
Northern mockingbird	*Mimus polyglottos*
Ash-throated flycatcher	*Myiarchus cinerascens*
Savannah sparrow	*Passerculus sandwichensis*
Nuttall's woodpecker	*Picoides nuttallii*
California towhee	*Pipilo crissalis*
Black phoebe	*Sayornis nigricans*
Tree swallow	*Tachycineta bicolor*
Mammals	
Coyote	*Canis latrans*
Black-tailed deer	*Odocoileus hemionus*
Raccoon	*Procyon lotor*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

Source: Harland Bartholomew & Associates, 1996

Valley Ford

The area downstream of the proposed Valley Ford storage reservoir site was assessed on August 23, 1995. The intermittent stream that flows through this site is unnamed. The riparian system associated with this stream was assessed from the proposed dam site to a point approximately 0.5 mile downstream. It was at this point that the stream converged with Americano Creek.

The primary CWHR habitat types found were AGS 1D and VRI 3M; the corresponding plant communities are annual grassland and willow riparian. Most of the stream has been disturbed by cattle grazing, but patches of the

aforementioned habitats/communities still persist. No special-status plant species were observed.

Potentially suitable habitat for both California red-legged frog and northwestern pond turtle is present. Both of these species were observed upstream within the proposed Valley Ford storage reservoir site.

Table 2.3-21 below lists the wildlife species observed during the downstream assessment.

Table 2.3-21

Downstream of Valley Ford - Wildlife Observations

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
Bullfrog	*Rana catesbeiana*
Birds	
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Brewer's blackbird	*Euphagus cyanocephalus*
Savannah sparrow	*Passerculus sandwichensis*
Mourning dove	*Zenaida macroura*

Source: Harland Bartholomew & Associates, 1996

3. AGRICULTURAL IRRIGATION AREAS

3.1 SETTING

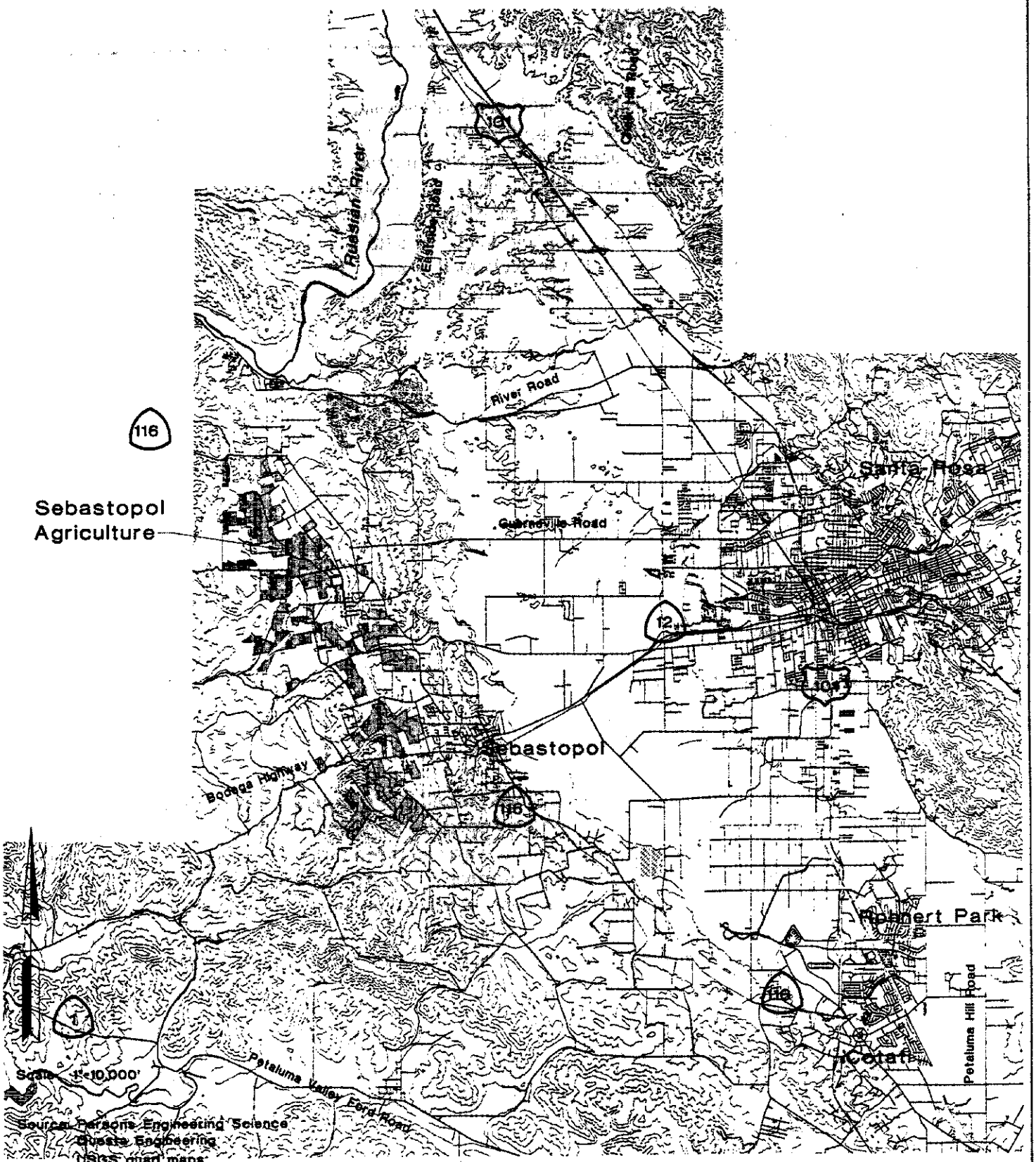
For this analysis approximately 19,400 acres of privately owned potential agricultural irrigation property have been evaluated in the West County area, 2,800 acres in the Sebastopol area, and 16,500 acres in the South County area. These three major potential irrigation areas have different climatic and soil conditions, and the potential water consumption rate is different for each area. Consequently, different acreages are required in each area to provide enough irrigable land. In addition, not all property owners in these areas would be willing to use reclaimed water. Thus, the proposed irrigation acreage must be larger than theoretically required. Agricultural irrigation areas evaluated as part of the project are listed below.

- **Sebastopol** (2,800 acres)
- **South County**
  - Adobe Road (2,500 acres)
  - Bayflats (4,400 acres)
  - East of Rohnert Park (3,000 acres)
  - Lakeville (5,700 acres)
  - North Petaluma Valley (900 acres)
- **West County**
  - Americano Creek (7,200 acres)
  - Miscellaneous (800 acres)
  - Stemple Creek (11,400 acres)

Reclaimed water delivered to these areas would be distributed by additional local distribution pipelines to irrigation systems operated by individual users. The specific location and design of these local distribution system pipelines and the irrigation systems have not been determined. For more information on irrigation management, refer to Chapter 3, Project Description, of the Santa Rosa Subregional Long-Term Wastewater Project EIR/EIS. The three major potential agricultural irrigation areas (Sebastopol, South County, and West County) and their respective subareas are described below.

SEBASTOPOL

The Sebastopol agricultural irrigation area, which encompasses approximately 2,800 acres, is located west and north of Sebastopol (Figure 3.1-1).



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PARSONS

Santa Rosa

Subregional Long-Term Wastewater Project

SEBASTOPOL AGRICULTURE

Figure 3.1-1

The Sebastopol agricultural irrigation area consists primarily of existing agricultural communities. Crops include apple, crabapple, and peach orchards. Squash and other row crops are also grown. Unirrigated areas are used as pasture and primarily consist of annual grasslands, seasonal wetlands, drainages, and riparian communities. Monotypic stands of non-native eucalyptus are also common in the Sebastopol agricultural irrigation area.

The main watersheds of the Sebastopol area are Green Valley Creek and Atascadero Creek. Green Valley Creek is a small stream system that enters the Russian River about one mile downstream from the mouth of the Laguna de Santa Rosa. Recent habitat and fishery surveys indicate that only a small portion of the drainage (near Green Valley Creek Road) still contains habitat adequate for salmonid spawning and rearing. Green Valley Creek supports small runs of steelhead and coho salmon and has a resident population of the federally endangered California freshwater shrimp (Merritt Smith Consulting 1994, 1995b). Atascadero Creek is the main tributary feeding into Green Valley Creek.

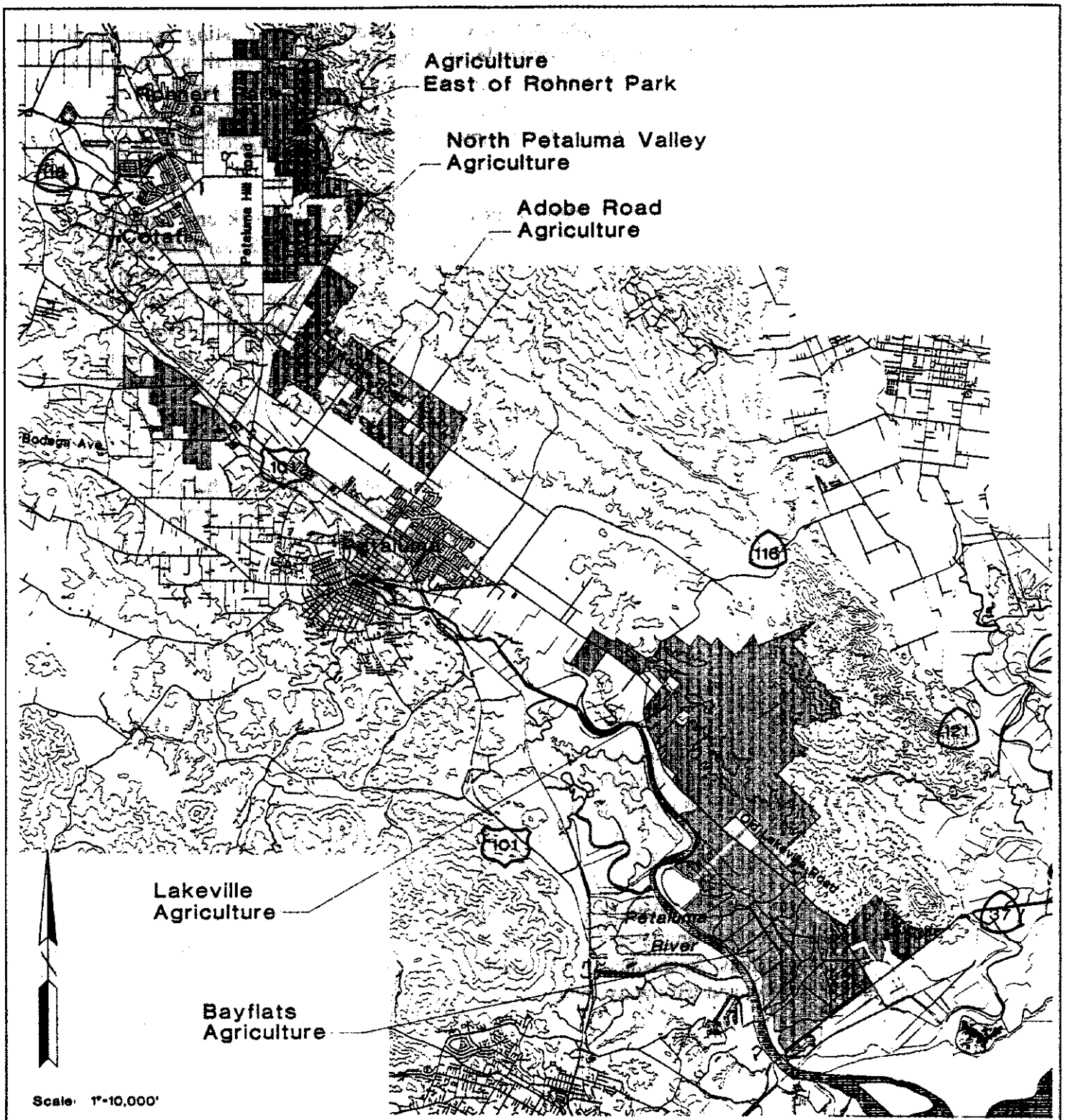
Pitkin Marsh and portions of the Laguna de Santa Rosa are important habitat features found in the Sebastopol area. Special-status plant species known only or primarily from Pitkin Marsh include white sedge, Pitkin Marsh Indian paintbrush, Pitkin Marsh lily, and California beaked-rush. Special-status animal species found in the Sebastopol area include yellow warbler and Cooper's hawk.

SOUTH COUNTY

Adobe Road

The 2,500-acre Adobe Road agricultural irrigation area is contiguous with the East of Rohnert Park agricultural irrigation area at the point where Willow Creek crosses Adobe Road. The Adobe Road area essentially encompasses the land north and south of Adobe Road (extending approximately 0.75 mile on either side) from Willow Creek to East Washington Street (Figure 3.1-2).

The plant communities identified and mapped within the Adobe Road agricultural irrigation area include annual grassland, coast live/interior live oak woodland, cropland, drainage, eucalyptus, freshwater pond, mixed-riparian woodland, non-wooded riparian, orchard, vineyard, and willow riparian.



Source: Parsons Engineering Science
Questa Engineering
USGS quad maps

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Subregional Long-Term
Wastewater Project

SOUTH COUNTY
AGRICULTURE

Figure 3.1-2

Bayflats

The Bayflats agricultural irrigation area encompasses 4,400 acres in southern Sonoma County. The area can be roughly described as being east of the Petaluma River and west of Lakeville Highway, north of State Highway 37 and south of Donahue Slough (Figure 3.1-2).

The proposed Bayflats agricultural irrigation area is located in the floodplain of the Petaluma River north of San Pablo Bay. Historically, the proposed Bayflats irrigation area was tidal salt marsh along northern San Pablo Bay, but much of the area has been drained for agriculture. Soils in the Bayflats area are classified as Reyes soils, which tend to be acidic and saline. Consequently, without extensive soil amendments and water management, oat hay is the only suitable crop that currently can be grown. Oat hay is sown in the fall and harvested in the spring. The fields are left fallow during the rest of the year. The plant communities occurring within the Bayflats agricultural irrigation study area include annual grassland, cropland, drainage, eucalyptus, seasonally wet vegetation, and vernal pool. The dominant plant community throughout this area is cropland.

East of Rohnert Park

The East of Rohnert Park agricultural irrigation area encompasses 3,000 acres. The area is bound to the south by the intersection of Willow Creek and Adobe Road, and is bound to the north where Petaluma Hill Road begins to bend to the west (approximately 0.5 mile north of Crane Canyon Road). Most of the land covered by this particular area occurs on the east side of Petaluma Hill Road, except in the region directly north of the Rohnert Park Expressway, where both the east and west sides of the road are included (Figure 3.1-2).

The plant communities occurring within the East of Rohnert Park agricultural irrigation area include annual grassland, coast live/interior live oak woodland, cropland, drainage, eucalyptus, freshwater pond, willow and mixed-riparian woodland, native grassland, non-wooded riparian, oak-bay-madrone woodland, seasonally wet vegetation, and vernal pool. The dominant plant community throughout this agricultural irrigation area is annual grassland.

Lakeville

The Lakeville agricultural irrigation area encompasses 5,700 acres in the southern Sonoma County region. The area can be roughly described as being located east of Lakeville Highway, north of State Highway 37, and south of State Highway 116 (Stage Gulch Road) (Figure 3.1-2).

The plant communities occurring within the Lakeville agricultural irrigation area include annual grassland, coast live/interior live oak woodland, cropland, drainage, eucalyptus, freshwater pond, willow and mixed-riparian woodland, native grassland, non-wooded riparian, orchard, vineyard, seasonally wet vegetation, vernal pool, and freshwater seep.

The dominant plant community throughout the Lakeville agricultural irrigation area is annual grassland.

North Petaluma Valley

The North Petaluma Valley agricultural irrigation area is comprised of 900 acres. The area generally encompasses land west of U.S. Highway 101 and east of Liberty Road and Jewett Road. The northern boundary is approximately 0.5 mile south of Stemple Creek, and the southern boundary is approximately 0.5 mile north of Skillman Lane (Figure 3.1-2).

The North Petaluma Valley agricultural irrigation area is situated at the headwaters of the Petaluma River. The area encompasses a flat valley surrounded by gently rolling hills at the northern end. The plant communities occurring within the North Petaluma Valley agricultural irrigation area include annual grassland, coast live/interior live oak woodland, cropland, drainage, willow and mixed-riparian woodland, non-wooded riparian, and seasonal wetland. The dominant plant community throughout this area is annual grassland.

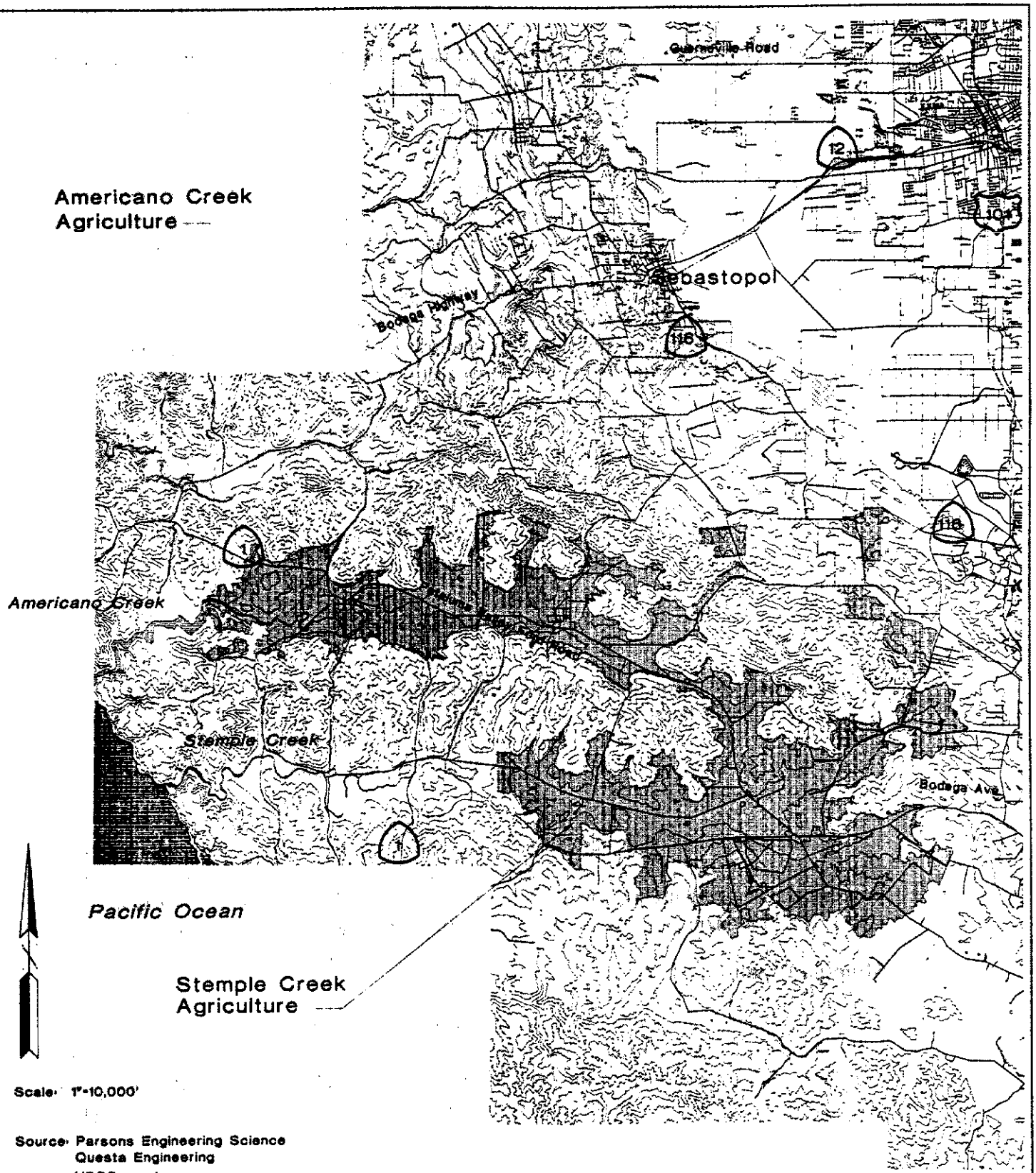
WEST COUNTY

Americano Creek

The Americano Creek agricultural irrigation area encompasses 7,200 acres in the Americano Creek watershed. The area extends both north and south of Petaluma-Valley Ford Road from a point directly east of the Roblar Road/Canfield Road intersection, and west to a point 1.75 miles east of the Bodega Highway/Petaluma-Valley Ford Road intersection (Figure 3.1-3).

The plant communities that occur within the Americano Creek agricultural irrigation area include annual grassland, brackish marsh, cropland, Monterey cypress, drainage, eucalyptus, freshwater pond, freshwater seep, northern coastal scrub, willow and mixed-riparian woodland, native grassland, non-wooded riparian, seasonal wetland, urban, and vernal pool. Monotypic stands of native Monterey cypress and non-native eucalyptus are common in the Americano Creek agricultural irrigation area. The dominant plant community throughout this area is annual grassland.

Americano Creek is approximately 10 miles long and drains approximately 49 square miles in Sonoma and Marin counties. The main channel of Americano Creek has been heavily influenced by livestock grazing and dairy farming (Madrone Associates 1977, California Coastal Commission 1987, Buell and Associates 1988). The Americano Creek streambed is buried in silt and the banks are slumping and eroded (Smith 1988). Heavy grazing pressures have left the riparian vegetation highly fragmented. Though



Source: Parsons Engineering Science
Questa Engineering
USGS quad maps

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WEST COUNTY
AGRICULTURE

Figure 3.1-3

Americano Creek becomes dry each summer, isolated freshwater pools remain within the streambed. Cattle often utilize these pools as a water source, strip the vegetation, and pollute the water with cattle waste. The few remaining unpolluted pools with intact upland vegetation are located in upper tributaries. Spawning runs of steelhead trout and coho salmon have been extirpated (completely eliminated), though three steelhead trout were observed in a tributary of Americano Creek during field surveys conducted in support of this document. California freshwater shrimp also once occurred in the Americano Creek watershed, but have apparently been extirpated (Serpa 1991).

Americano Creek discharges to Bodega Bay through the Estero Americano. This estuary is an eight-mile long tidal embayment that extends inland (Commins et al. 1990). The Estero Americano is narrow and relatively shallow (depth at mean high water varies from two to seven feet). Widths range from a few feet near the upper (landward) end to about 1,000 feet in some locations in the middle reaches of the estuary. The Estero encompasses 300 acres, with adjacent wetland habitats extending over an additional 412 acres. The Estero is connected to Bodega Bay by a narrow inlet channel across the beach. Daily tidal and freshwater action along with southwestern littoral currents sometimes result in sand bar formation at the bay mouth that somewhat restricts tidal exchange with the ocean (USFWS 1981). A mudflat appears in the middle reach of the lower Estero during the winter months and provides important foraging habitat for shorebirds (Commins et al. 1990).

Miscellaneous

The Miscellaneous agricultural irrigation area, which totals 800 acres, includes several different patches of land in an area bordered by State Highway 116 to the west and Lone Pine Road to the north, bordering Roblar Road and Canfield Road to the east, and extending southward along Stony Point Road to the Hammel Road/Mecham Road intersection ((Figure 3.1-3).

The plant communities that occur within the Miscellaneous agricultural irrigation area include annual grassland, cropland, drainage, eucalyptus, freshwater pond, willow and mixed-riparian woodland, non-wooded riparian, seasonal wetland, orchard, vineyard, and urban. The dominant plant community throughout this area is annual grassland.

Stemple Creek

The Stemple Creek agricultural irrigation area encompasses approximately 11,400 acres in the Stemple Creek watershed. The area covers land north and south of Stemple Creek, extending from a point east of the Middle Two Rock Road/Petaluma-Valley Ford Road intersection westward to a point approximately 0.75 mile east of Gericke Road (Figure 3.1-3).

The plant communities occurring within the Stemple Creek agricultural irrigation area include annual grassland, cropland, drainage, eucalyptus, freshwater pond, willow and mixed-riparian woodland, native grassland, non-wooded riparian, northern coastal scrub, seasonal wetland, urban, and vernal pool. Monotypic stands of native Monterey cypress

and Monterey pine, and non-native eucalyptus are also common. The dominant plant community throughout this area is annual grassland.

The Stemple Creek watershed is located immediately south of the Americano Creek watershed. This watershed originates just east of Petaluma and empties into the Pacific Ocean through the Estero de San Antonio. It encompasses 50 square miles, almost all of which is in agricultural production. Though historically perennial, Stemple Creek is now intermittent (Prunuske Chatham 1994). The mainstem and tributaries of Stemple Creek have been heavily influenced by livestock ranching and other agricultural operations. On the eastern and western ends of the watershed, near Petaluma and Dillon Beach, rural residential development is encroaching on the watershed.

San Antonio Creek, like Americano Creek, has become degraded through historic cattle utilization (Merritt Smith Consulting 1995b). Most of the mainstem flows through dairy farms and other livestock operations, resulting in fragmentation of riparian vegetation and eroded streambanks. The streambed is primarily composed of silt, and the pools that persist during the summer are typically trampled and polluted by cattle.

Near the community of Fallon, Stemple Creek becomes an estero and flows about seven miles to the west, crossing under State Highway 1 on its way to the Pacific Ocean. Estero de San Antonio, an embayed river mouth, lies within the northern two miles of Marin County (USFWS 1981). The 93 acres of open water of the Estero reaches a depth of approximately 20 feet and may vary in width from 20 feet to almost 200 feet. Similar to the Estero Americano, the Estero de San Antonio intermittently includes a sand bar at the bay mouth that somewhat restricts tidal exchange with the ocean. The Estero de San Antonio has not been observed to develop hypersaline conditions, due in part to the restricted tidal exchange and also to the freshwater inflow from Stemple Creek. Much of the wetland habitat along the Estero de San Antonio is considered to be seasonal brackish marsh (Madrone Associates 1977). The wetlands of the Estero de San Antonio encompass about 191 acres of the watershed (Commins et al. 1990).

3.2 BOTANICAL STUDY METHODOLOGIES AND RESULTS

Due to the large acreages associated with the agricultural irrigation component, one-time reconnaissance-level surveys were conducted for plant species on all sites where access was granted. The surveys were conducted during the following periods: South County (April 26 through May 19, 1995 and October 2 through October 17, 1995), West County (May 18, 1995 through June 16, 1995), and Sebastopol (June 26, 1995 through July 14, 1995).

For inaccessible sites, a single off-site analysis was conducted from the adjacent public road ROWs. An inaccessible site is defined as a site at which the landowner did not grant permission to access a property for biological surveys. This off-site analysis was conducted for the irrigation areas within a time period spanning August 17, 1995 through October 30, 1995.

On accessible parcels, botanists from Sycamore Environmental conducted field surveys to identify locations of all special-status plants and plant communities, map plant communities, and to collect plant data for a floristic diversity analysis. Off-site surveys consisted of observing parcels from vantage points, such as adjacent public road ROWs, to map plant communities. Detailed plant species lists could not be compiled for parcels evaluated via off-site surveys.

CALIFORNIA NATURAL DIVERSITY DATABASE OCCURRENCES

Study Methodology

The approach used to analyze CNDDB plant species and natural plant community occurrences for agricultural irrigation areas is similar to the approach discussed in Section 2.2 - Botanical Study Methodologies and Results for Storage Reservoirs.

Results

Sebastopol

The special-status plant species identified within the Sebastopol agricultural irrigation were Sonoma alopecurus, Vine Hill manzanita, Sebastopol meadowfoam, yellow larkspur, California beaked rush, swamp harebell, and Sonoma spineflower.

Adobe Road

No special-status plant species or natural plant communities were identified within the Adobe Road agricultural irrigation area.

Bayflats

Marin knotweed was the only special-status plant species identified within the Bayflats agricultural irrigation area:

East of Rohnert Park

No special-status plant species or sensitive natural plant communities were identified within the East of Rohnert Park agricultural irrigation area.

Lakeville

No special-status plant species were identified within the Lakeville agricultural irrigation area but coastal salt marsh, a sensitive natural plant community, was identified.

North Petaluma Valley

No special-status plant species or sensitive natural plant communities were identified within the North Petaluma Valley agricultural irrigation area.

Americano Creek

Fragrant fritillary and showy Indian clover were special-status plant species identified within the Americano Creek agricultural irrigation area. Coastal salt marsh, a sensitive natural plant community, was also identified.

Miscellaneous

Showy Indian clover and Sebastopol meadowfoam were special-status plant species identified within the Miscellaneous agricultural irrigation area. No sensitive natural plant communities were identified.

Stemple Creek

Showy Indian clover was the only special-status plant species identified within the Stemple Creek agricultural irrigation area. Northern vernal pool was also identified.

PLANT SURVEYS

Study Methodology

Prior to conducting botanical surveys, a field notebook that included key characteristics, descriptions, illustrations, and habitat notes for each of the 183 special-status plant species that potentially occur in the project study area was compiled. CNDDB/RareFind overlays were obtained from CDFG for the USGS quadrangles covering the agricultural irrigation areas. All RareFind occurrences for each quad were displayed on these

overlays. The overlays were used to identify known populations of special-status plants and plant communities occurring on or near the proposed agricultural irrigation parcels.

On-site botanical surveys consisted of botanists compiling a list of all observed plant species, mapping vegetation, and searching for sensitive plant communities. Botanists walked transects on each parcel with an aerial photograph blueline and a parcel map. The transects were 25 to 100 feet wide and spaced to achieve 100 percent coverage of each parcel.

Plants that could not be identified in the field were collected for later identification in the lab. Voucher specimens were collected for most native species observed in the field, a process recommended by the California Botanical Society (Ferren et al. 1995). Voucher specimens were also collected for many non-native species. All voucher specimens were pressed, mounted, and labeled, and are maintained for reference. Duplicate specimens will be given to Sonoma State University and the University of California at Berkeley.

Separate plant species lists were compiled for each proposed agricultural irrigation parcel where an on-site survey was conducted, as requested by CDFG - Yountville, Region 3. Records of all species found in the project study area were entered in a Microsoft Access® data base.

Results

Special-status plant species observed during pedestrian surveys of the agricultural irrigation areas are identified below. A complete list of observed plant species is located in Sycamore Environmental's Agricultural Irrigation Technical Memorandum: Botanical Resources (Volume 3, Appendix B).

Sebastopol

No special-status plant species were observed on the Sebastopol agricultural irrigation area parcels that were surveyed.

Adobe Road

No special-status plant species were observed on the Adobe Road agricultural irrigation area parcels that were surveyed.

Bayflats

No special-status plant species were observed on the Bayflats agricultural irrigation area parcels that were surveyed.

East of Rohnert Park

One special-status plant species, Sebastopol meadowfoam, was observed on the East of Rohnert Park agricultural irrigation area parcels that were surveyed. This occurrence is located just north of Rohnert Park Expressway, within a drainage present in a fallow field adjacent to a residential area (Map D-9). Only a single

specimen of Sebastopol meadowfoam, surrounded by several of common meadowfoam (*Limnanthes douglasii* ssp. *douglasii*) was observed on May 15, 1995 at this location.

Lakeville

No special-status plant species were observed on the Lakeville agricultural irrigation area parcels that were surveyed.

North Petaluma Valley

No special-status plant species were observed on the North Petaluma Valley agricultural irrigation area parcels that were surveyed.

Americano Creek

Hayfield tarplant was the only special-status plant species observed on the Americano Creek agricultural irrigation area parcels that were surveyed. Two populations of hayfield tarplant were observed on parcels within the Americano Creek agricultural irrigation area. These populations consisted of scattered individual plants, with each population occupying an area less than 100 feet wide by 100 feet long (Maps D-3 and D-4).

Miscellaneous

No special-status plant species were observed on the Miscellaneous agricultural irrigation area parcels that were surveyed.

Stemple Creek

Ten populations of hayfield tarplant were observed on parcels within the Stemple Creek agricultural irrigation area (Maps D-7 and D-8). These populations ranged in size from small populations consisting of a few individual plants to larger populations consisting of scattered plants in an area approximately 100 feet wide by 250 feet long. A population of Gairdner's yampah was also observed within the Stemple Creek agricultural irrigation area (Maps D-7 and D-8). This population consisted of less than five plants in an area approximately 5 feet wide by 5 feet long.

PROTECTED TREE RESOURCES

Study Methodology

Tree species protected under the Sonoma County Tree Ordinance 4014 (June 13, 1989) were identified during pedestrian surveys of the agricultural irrigation areas. Trees, as defined by the ordinance, must have a dbh of over nine inches. The surveys conducted for this project determined the presence or absence of protected tree resources, but did not attempt to quantify the numbers of such trees present at each site. Results from the

tree survey were used to evaluate significance of potential impacts and to determine proper mitigation measures.

Results

Nine protected tree species were observed in the agricultural irrigation areas. Table 3.2-1 below lists the eleven tree species protected by this ordinance and indicates if they occur in a particular agricultural irrigation area.

Table 3.2-1

Protected Tree Resources Observed at Agricultural Irrigation Areas

Tree	Sebastopol	Adobe Road	Bayflats	Lakeville	North Petaluma Valley	East of Rohnert Park	Americano Creek	Stemple Creek	Miscellaneous
Big-leaf maple	X	--	--	X	--	X	X	X	--
Blue oak	--	--	--	--	--	--	--	--	--
California bay	X	X	--	X	--	X	X	X	--
California black oak	X	X	--	--	--	X	X	--	--
Coast live oak	X	X	--	X	X	X	X	X	--
Coast redwood	X	X	--	--	--	--	--	--	--
Interior live oak	--	--	--	--	--	--	--	X	--
Oregon oak	X	X	--	X	X	X	--	X	X
Oracle oak	--	--	--	--	--	--	--	--	--
Pacific madrone	--	X	--	--	--	X	X	--	--
Valley oak	X	X	--	--	--	X	--	--	--
Total Species[1]	7	7	0	4	2	7	5	5	1

Source: Sycamore Environmental, 1996

Notes:
1 = Does not reflect the total number of protected trees at each site.

PLANT COMMUNITY MAPPING

Study Methodology

Plant communities were mapped during both on- and off-site surveys. For on-site surveys, botanists walked transects on each parcel with an aerial photograph blueline and a parcel map. The transects were 25 to 100 feet wide and spaced to achieve 100 percent coverage of each parcel. The boundaries of different plant communities were mapped onto blueline copies of aerial photographs. The field maps were digitized into AutoCAD® using 7.5-minute USGS quadrangle maps as base maps following completion of field work. Acreages of plant communities were calculated using ArcINFO™.

Some sites in the project study area, including some portions of the Bayflats, were mapped in the office. Areas mapped in the office included sections of parcels that were not visible from roads during off-site surveys, portions of parcels that were not considered suitable for irrigation, and sections of parcels not evaluated during on-site and off-site surveys. The on and off site Bayflats mapping was verified by comparing the vegetation mapping to digitally imaged color slides of the Bayflats component.

Results

Plant communities occurring in each of the nine agricultural irrigation areas are described below. Table 3.2-2 presents acreages of plant communities for each agricultural area. Results of plant community mapping are presented in Maps D-1 through D-13.

Table 3.2-2

Plant Community Acreages - Agricultural Irrigation Areas (In Acres)

Plant Community	Sebastopol	Adobe Road	Bayflats	East of Rohnert Park	Lakeville	North Petaluma Valley	Americano Creek	Miscellaneous	Stemple Creek
Annual Grassland	312	1,161.4	660.3	1,203	2,131.5	332.5	3,142.3	220	4,338.2
Brackish Marsh	--	--	--	--	--	--	0.09	--	--
Coast Live Oak & Interior Live Oak Woodland	35.4	0.7	--	63	11.8	4.2	--	0.4	0.3
Cropland	201.6	164.5	2,111	335	669	47	696.9	237.7	1,291.3
Drainage	--	0.3	1.7	0.7	4.6	0.6	3.1	--	3.5
Eucalyptus	5.6	4.7	5.6	2.5	113.5	2.8	72.7	27	115.1
Excavated Drainage	--	--	2.7	--	0.4	--	--	--	0.01
Freshwater Marsh	7.5	--	--	--	--	--	--	--	--
Freshwater Pond	0.5	0.03	--	0.06	6.9	--	1.8	0.2	0.6
Freshwater Seep	--	--	--	--	--	--	2.1	--	1.4
Lombardy Poplar	--	0.41	--	--	--	--	--	--	--
Mixed-Riparian Woodland	85.1	1	--	31.1	0.6	2.5	0.2	1.7	1.8
Monterey Cypress	--			--	1.7	--	1.3	--	19.4
Monterey Pine	--	--	--	--	--	--	--	--	13.4
Native Grassland	0.7	--	1.5	4.5	9.5	--	3	--	--
Non-wooded Riparian	--	0.3	--	0.01	0.6	0.04	6	--	1.4
Northern Coastal Scrub	--	--	--	--	--	--	3.9	--	--

Table 3.2-2

Plant Community Acreages - Agricultural Irrigation Areas (In Acres)

Plant Community	Sebastopol	Adobe Road	Bayflats	East of Rohnert Park	Lakeville	North Petaluma Valley	Americano Creek	Miscellaneous	Stemple Creek
Oak-Bay-Madrone Woodland	10.7	--	--	43.1	--	--	--	--	8
Orchard	690.8	15.7	--	6.7	--	--	--	13.5	--
Redwood	14	--	--	--	--	--	--	--	--
Seasonally Wet Vegetation	58.6	--	0.04	5.3	6.4	47.9	52.3	0.3	49.2
Undetermined Wetland Type	--	--	18.4	--	--	--	--	--	--
Urban	81.2	62.6	61.3	70.9	155	86.8	484.8	49.7	660.3
Vernal Pool	--	--	0.2	0.06	0.04	--	0.1	--	--
Vineyard	540.7	--	--	--	74.1	--	--	--	--
Willow Riparian Woodland	7.2	0.1	--	1.4	0.6	1	8.7	0.3	10.7
Total Acreage	2,051.6	1,411.7	2,862.7	1,767.3	3,186.2	525.3	4,479.3	550.8	6,514.6
Communities Per Site	15	12	10	15	16	10	16	10	16

Source: Harland Bartholomew & Associates, Inc., 1996

FLORISTIC ANALYSIS

Study Methodology

The floristic analyses are based on species lists prepared during field surveys. A comprehensive flora for each agricultural irrigation area is presented in Biological Resources Technical Memorandum, Volume III, Appendix B - Sycamore Environmental's Agricultural Irrigation Technical Memorandum: Botanical Resources.

The floras within the nine agricultural irrigation areas were analyzed for species diversity. As discussed previously in this document, the term "floristic diversity" refers to taxonomic richness (i.e., numbers of families, genera, or species present).

Results

Floristic data of vascular plants from all agricultural irrigation study areas were combined to determine the total number of species in each category. A total of 88 families, 274 genera, and 503 species comprise the combined flora. California native species account for 64.6 percent of species identified in the agricultural irrigation areas, and introduced species account for 33.2 percent. Hayfield tarplant and Sebastopol meadowfoam were the only special-status plant species found in the agricultural irrigation areas.

The number of species unique to each agricultural irrigation area is presented in Table 3.2-3. "Unique" is defined as a species occurring in only one of the nine agricultural irrigation area. The greatest number of unique species (72 species) was found in the Americano Creek agricultural irrigation area. There were no unique species found in the Miscellaneous or North Petaluma Valley agricultural irrigation areas.

Table 3.2-3

Number of Unique Plant Species at Each Agricultural Irrigation Area

Agricultural Irrigation Area	Number of Unique Plants
Americano Creek	72
Lakeville	41
Adobe Road	16
Stemple Creek	14
East of Rohnert Park	10
Bayflats	2
Sebastopol	2
North Petaluma Valley	0
Miscellaneous	0

Source: Sycamore Environmental, 1996

The numbers of native and introduced species found in each agricultural irrigation area are presented in Table 3.2-4. The greatest number of native species were found in the Americano Creek agricultural irrigation area (220 native species). The least number of native species were found in the Bayflats (14 native species) and North Petaluma Valley (18 native species) areas.

Table 3.2-4

Number of Native and Introduced Plant Species Found at Each Agricultural Irrigation Area

Agricultural Irrigation Area	Native Species	Introduced Species
Americano Creek	220	136
Lakeville	185	125
Stemple Creek	150	117
East of Rohnert Park	124	99
Adobe Road	102	86
Sebastopol	65	64
Miscellaneous	27	56
North Petaluma Valley	18	41
Bayflats	14	32

Source: Sycamore Environmental, 1996

In addition, an analysis of the grass family, Poaceae, was conducted. Native grasses were collected from all of the agricultural irrigation areas and comprised a significant portion of the grass species collected within annual grasslands. A total of 64 grass species, representing 34 genera, were identified. Native grass species accounted for 35.9 percent of grass species identified in the agricultural irrigation areas, and introduced species accounted for 59.3 percent. A total of 12.7 percent of all species identified were members of the Poaceae family. No special-status grass species were found in the agricultural irrigation areas.

3.3 WILDLIFE STUDY METHODOLOGIES AND RESULTS

Due to the large acreages involved with the agricultural irrigation component, one-time reconnaissance-level surveys were conducted for wildlife species on all sites where access was granted. The surveys were conducted during the following periods: South County (April 26 through May 19, 1995 and October 2 through October 17, 1995), West County (May 18, 1995 through June 16, 1995), and Sebastopol (June 26, 1995 through July 14, 1995).

For inaccessible sites, a single off-site analysis was conducted from the adjacent public road ROWs. An inaccessible site is defined as a site at which the landowner did not grant permission to access a property for biological surveys. This off-site analysis was conducted for the irrigation areas within a time period spanning August 17, 1995 through October 30, 1995.

HBA wildlife biologists conducted pedestrian field surveys to identify locations of all special-status wildlife species, record all wildlife species observations, and to map wildlife habitats. Off-site surveys consisted of observing parcels from vantage points, such as adjacent public road ROWs, to map wildlife habitats. Detailed wildlife species lists could not be compiled for parcels evaluated via off-site surveys.

CALIFORNIA NATURAL DIVERSITY DATABASE OCCURRENCES

Study Methodology

The approach used to analyze CNDDB wildlife species for agricultural irrigation areas is similar to the approach discussed in Section 2.3 - Wildlife Study Methodologies and Results for Storage Reservoirs.

Results

Sebastopol

California freshwater shrimp (2 occurrences) was the only special-status wildlife species identified within the Sebastopol agricultural irrigation area.

Adobe Road

No special-status wildlife species were identified within the Adobe Road agricultural irrigation area.

Bayflats

The special-status wildlife species identified within the Bayflats agricultural irrigation area were pallid bat, western burrowing owl, salt marsh common yellowthroat, salt marsh harvest mouse, California clapper rail, and Monarch butterfly.

East of Rohnert Park

Western yellow-billed cuckoo and foothill yellow-legged frog were the only special-status wildlife species identified within the East of Rohnert Park agricultural irrigation area.

Lakeville

No special-status wildlife species were identified within the Lakeville agricultural irrigation area.

North Petaluma Valley

No special-status wildlife species were identified within the North Petaluma Valley agricultural irrigation area.

Americano Creek

Tidewater goby was the only special-status animal occurrence identified within the Americano Creek agricultural irrigation area.

Miscellaneous

California tiger salamander, northwestern pond turtle, and western yellow-billed cuckoo were the special-status wildlife species identified within the Miscellaneous agricultural irrigation area.

Stemple Creek

No special-status wildlife species were identified within the Stemple Creek agricultural irrigation area.

CWHR HABITAT MAPPING

Study Methodology

The methodology for the CWHR habitat mapping was similar to that utilized for the storage reservoir sites, except that only those CWHR habitat types located within irrigable portions of a given site were analyzed. For example, if a site contained a steep, unirrigable slope with an oak woodland, then this woodland was not surveyed because it was assumed that it would not be affected by the irrigation. However, if the woodland

was present downslope from a potentially irrigable area, then it was analyzed since it could be potentially affected by the irrigation run-off.

For inaccessible parcels, an off-site visual assessment was conducted. Since actual sample points could not be studied, the biologist estimated the species present, size and coverage of vegetation, and canopy closure. Where possible, habitat elements were also noted.

Acreages for each CWHR habitat type were estimated by using the plant community/CWHR habitat type crosswalk, in conjunction with field notes to determine the growth stage.

Results

The results of the CWHR habitat analysis are summarized by agricultural irrigation area in Table 3.3-1. Table 3.3-2 lists special-status wildlife species that have potential to occur within a particular CWHR habitat type and that have high probability for utilizing a particular habitat foraging and/or reproduction. A discussion of the wildlife species associated with each habitat type is found within Section 2.3 - Wildlife Study Methodologies and Results.

Table 3.3-1

Summary of CWHR Habitat Types Found at Each Agricultural Irrigation Area (In Acres)

Habitat Type	Sebastopol	Adobe Road	Bayflats	East of Rohnert Park	Lakeville	North Petaluma Valley	Americano Creek	Miscellaneous	Stemple Creek
AGS 1D/2D	371.3	1,161.7	682.1	1,213.6	2,152	381	3,202.9	220.3	4,392.3
FEW 2D	7.5	--	--	--	--	--	--	--	--
LAC 2M	0.5	0.03	--	0.06	6.9	--	1.8	0.2	0.6
CSC 3M	--	--	--	--	--	--	3.9	--	--
EUC	5.6	4.7	5.6	2.5	113.5	2.8	72.7	27	115.1
COW 4D	35.4	0.7	--	63	11.8	4.2	--	0.4	0.3
SEW 1D	--	--	--	--	--	--	0.09	--	--
RED 4D	14	--	--	--	--	--	--	--	--
CRP	210.6	164.5	2,111	335	669	47	696.9	237.7	1,291.3
OVN	1,231.5	15.7	--	6.7	74.1	--	--	13.5	--
MHW 4D	10.7	--	--	43.1	--	--	--	--	8
URB	81.2	62.6	61.3	70.9	155	86.8	484.8	49.7	660.3
VRI 3M	7.2	0.1	--	1.4	0.6	1	8.7	0.3	10.7
VRI 4M	85.1	1	--	31.1	0.6	2.5	0.2	1.7	1.8
TOTALS	2,060.6	1,411	2,860	1,767.4	3,182.4	525.3	4,472	550.8	6,480.4

Source: Harland Bartholomew & Associates, 1996

Table 3.3-2

Special-Status Terrestrial Wildlife Species Associated with CWHR Habitat Types (High Suitability)

Wildlife Species	Observed During Surveys	Annual Grassland	Coastal Scrub	Coastal Oak Woodland	Cropland	Montane Hardwood	Valley Foothill Riparian
Pallid bat	No	F	--	F	--	--	--
Ringtail	No	--	--	--	--	--	F, R
White-tailed kite	Yes	F	--	R	F	--	R
Northern harrier	Yes	F, R	--	--	F	--	--
Ferruginous hawk	No	F	--	--	F	--	--
Golden eagle	Yes	F	--	R	--	R	--
Prairie falcon	Yes	F	--	--	--	--	--
Long-billed curlew	Yes	F	--	--	--	--	--
Loggerhead Shrike	Yes	F	--	F, R	--	--	--
Tricolored blackbird	Yes	F	--	--	F	--	--
Sharp-shinned hawk	Yes	--	F	F	--	F, R	F
Cooper's hawk	Yes	--	F	F, R	--	F, R	F, R
Merlin	Yes	--	--	--	--	--	F
Western burrowing owl	Yes	F, R			F, R		
Yellow warbler	Yes			F			F, R
Yellow-breasted chat	No			F			F

Source: Harland Bartholomew & Associates, Inc., 1996

Notes:
F = high suitability for foraging
R = high suitability for reproduction

WILDLIFE SURVEYS

Study Methodology

Two or three wildlife biologists, depending upon the size of the parcel, walked meandering transects to achieve full coverage for each agricultural irrigation parcel that could be accessed. While no focused special-status wildlife surveys were conducted at the agricultural irrigation sites, potential habitat for special-status species was noted. During off-site visits to parcels where access was denied, biologists would view the area from public road ROWs with binoculars to determine what habitats were present.

All wildlife species observed during both on-site and off-site surveys were recorded on separate field sheets for each site. Wildlife species lists for each of the three major agricultural irrigation regions (Sebastopol, South County, and West County) are included in Appendix C.

Results

Special-status wildlife species that were observed during site visits at the agricultural irrigation areas are listed Table 3.3-3. These special-status species occurrences are also depicted on the agricultural irrigation maps (Maps D-1 through D-13). The following tables do not include the special-status wildlife species observed on proposed storage reservoir sites that overlap with potential agricultural irrigation areas.

Table 3.3-3

Special-Status Wildlife Species Occurrences at the Agricultural Irrigation Areas

Species	Number Observed	Date Observed	Specific Agricultural Area
Amphibians			
California red-legged frog	1	5/4/95	Lakeville
	1	6/13/95	Americano Creek
Birds			
Double-crested cormorant	1	6/5/95	Stemple Creek
	1	9/6/95	Stemple Creek
Horned lark	1	10/6/96	Bayflats
	1	10/5/95	Bayflats
	1	5/16/95	Lakeville/Bayflats
	1	6/13/95	Americano Creek
	1	5/22/95	Stemple Creek
	3	5/12/95	Lakeville/Bayflats
Loggerhead shrike	1	5/16/95	East of Rohnert Park

Table 3.3-3

Special-Status Wildlife Species Occurrences at the Agricultural Irrigation Areas

Species	Number Observed	Date Observed	Specific Agricultural Area
	1	5/17/95	East of Rohnert Park
	1	5/17/95	East of Rohnert Park
	1	5/18/95	Lakeville
	1	6/27/95	Sebastopol
	1	6/26/95	Sebastopol
	1	6/27/95	Sebastopol
	1	6/26/95	Sebastopol
Long-billed curlew	1	10/6/95	Bayflats
Merlin	1	10/6/95	Bayflats
Northern harrier	2	10/16/95	Adobe Road
	1	10/6/95	Bayflats
	1	10/5/95	Bayflats
Osprey	1	7/7/95	Sebastopol
Sharp-shinned hawk	1	6/9/95	Stemple Creek
	1	9/7/95	Stemple Creek
Short-eared owl	1	10/6/95	Bayflats
	1	5/23/95	Stemple Creek
Tricolored blackbird	1	5/22/95	Stemple Creek
	1	9/6/95	Stemple Creek
Western burrowing owl	1	10/6/95	Bayflats
White-tailed kite	1	10/6/95	Bayflats
	1	10/5/95	Bayflats
	1	7/6/95	Sebastopol
	1	8/30/95	East of Rohnert Park
Yellow warbler	1	5/23/95	Stemple Creek
Reptiles			
Northwestern pond turtle	1	5/19/95	Stemple Creek
	5	5/22/95	Stemple Creek
	1	5/23/95	Stemple Creek
	4	6/1/95	Stemple Creek
Northwestern pond turtle	5	6/2/95	Americano Creek

Table 3.3-3

Special-Status Wildlife Species Occurrences at the Agricultural Irrigation Areas

Species	Number Observed	Date Observed	Specific Agricultural Area
	7	6/9/95	Stemple Creek
	2	6/13/95	Americano Creek
	5	6/16/95	Americano Creek
	8	6/20/95	Stemple Creek
	2	6/27/95	Sebastopol
	1	7/7/95	Sebastopol
	2	6/26/95	Sebastopol

Source: Harland Bartholomew & Associates, 1996

4. PIPELINES AND PUMP STATIONS

4.1 SETTING

This chapter provides an analysis of biological resources associated with the pipeline and pump station components of the Santa Rosa Subregional Long-Term Wastewater Project. The discussions in this chapter are organized into the following sections: Storage Reservoirs and Agricultural Irrigation Area pipelines, Russian River discharge pipelines and outfall structure, Urban Irrigation pipelines, and Geysers Steamfield recharge pipelines and storage tanks.

Pipelines and associated pump stations would be required to deliver water from the treatment plant to various components (Russian River discharge, Geysers Steamfield recharge, storage reservoirs, urban irrigation areas, and agricultural irrigation areas) of the Santa Rosa Subregional Long-Term Wastewater Project.

The pipelines would typically be buried about three feet deep and generally follow public road rights-of-way (ROW). Construction would occur in one lane or shoulder of the road, usually within 30 feet from the road centerline, varying from 10 to 20 feet from the edge of the pavement. However, where topographic or other physical constraints (such as proximity to buildings, fences or vegetation) occur, the pipeline alignment may be moved closer to the centerline. An exception to this would be the pipeline segments associated with Pine Flat Road, a component of the Geysers project alternative. Due to the steepness of the banks adjacent to the road, extensive grading of up to 300 feet from the edge of the pavement would be required. In addition to these roadway pipelines, there would also be some pipelines located within private property or along existing private roads.

Pump stations would be located on either private or publicly owned property, adjacent to public roads where possible, and would vary in pad size from 800 square feet to 3,200 square feet. Chapter 3, Project Description, of the EIR/EIS contains more specific information regarding pump station and pipeline construction.

More specific discussions of component settings are provided below.

STORAGE RESERVOIRS AND AGRICULTURAL IRRIGATION AREAS

Transmission pipelines are required to transport reclaimed water from the existing Laguna Plant to the proposed storage reservoir sites, while irrigation distribution lines would convey water from these storage sites (via an irrigation pump station) to the corresponding agricultural irrigation areas (Figures 4.1-1a through 1c). These pipeline alignments would primarily follow public road ROWs, except for short cross-country sections that enter the proposed storage reservoir sites.

A new pump station would be located adjacent to the existing reclamation system pump station at the Meadow Lane Ponds across from the existing Laguna Plant. This new pump station is required to deliver reclaimed water to the storage reservoir sites. To

distribute stored water from the reservoirs to the agricultural irrigation areas, one pump station would be required near the foot of each reservoir dam. In addition to these pump stations, the proposed Tolay Extended, Tolay Confined, Sears Point, and Adobe Road storage reservoirs would also require a stormwater pump station to divert runoff around and downstream of the reservoir. Booster pump stations would also be required to pump water up to the higher elevation zones of the irrigation distribution system. Installation of a small booster pump station would be required to irrigate many of the private parcels in West County or South County. The locations of these pump stations have not been determined; however, they would be located on private agricultural parcels. The pumps are typically less than three feet tall and three feet in diameter.

Vegetation communities and wildlife habitats associated with the ten proposed storage reservoirs and the nine agricultural irrigation areas are previously described in this document. The pipelines and pump stations associated with these components would involve similar vegetation communities and wildlife habitats.

URBAN IRRIGATION

The Urban Irrigation component is associated largely with commercial, industrial, and residential areas. This particular component is separated into two distinct systems, the Fountaingrove system and Bennett Valley/East Santa Rosa system. Both pipeline systems originate from the West College Ponds facility, with one line heading north to the Fountaingrove Golf and Country Club, and the other line heading east to the Bennett Valley Golf Course (Figure 4.1-1b). A separate pump station for each system would be located adjacent to the West College Ponds. In addition, a booster pump station would be required for the Fountaingrove system. This particular pump station would be located adjacent to the Fountaingrove Business Park. The pipelines associated with both the Fountaingrove and Bennett Valley/East Santa Rosa systems would be located largely within public ROWs, except for the segments leading out of the West College Ponds. Chapter 3, Project Description, of the EIR/EIS contains more specific information regarding the Urban Irrigation component.

The Fountaingrove system is primarily associated with urban vegetation and wildlife habitat. There are patches of mixed-riparian vegetation located near the Fountaingrove Golf and Country Club, but these patches occur outside of the 30-foot construction buffer zone. There are some scattered oaks, including coast live oak and interior live oak, that occur near the Fountaingrove pipeline system, as well as several small drainages that have either been channelized or heavily denuded of vegetation. The Bennett Valley/East Santa Rosa system is similar to the Fountaingrove system in terms of vegetation communities and associated wildlife habitat types. The areas traversed by the pipeline route are primarily urban; however, three primary tributaries (Santa Rosa Creek, Spring Creek, and Matanzas Creek) containing mixed-riparian vegetation would be crossed. The portion of Santa Rosa Creek included within the project area has been channelized for flood control purposes; consequently, much of the natural vegetation has been removed.

RUSSIAN RIVER DISCHARGE

The proposed routing of the direct discharge pipeline to the Russian River (Figure 4.1-1b), would involve the construction of new pipelines, as well as the utilization of an existing pipeline that extends from the existing Delta Pond. The new pipeline alignment follows public road ROWs or city easements except for a short cross-country section to the river outfall structure. This outfall structure is located approximately 0.75 mile west of Eastside Road, within the Kaiser Sand and Gravel quarry area. The structure consists of a vault with a valve to maintain pressure in the pipeline, 40 feet of 54-inch pipe to stabilize flow downstream of the valve, a concrete baffle outlet structure to anchor the pipe and reduce foaming and turbulence prior to discharge to the river, a flap on the end of the discharge pipe; and concrete erosion control wings and ramp into the river channel. An overall 100-foot by 100-foot permanent construction disturbance zone was assumed for the entire discharge outfall structure. Two existing pump stations, the Delta Pond pump station and the North Pipeline Denner Ranch booster pump station, would deliver water from the Delta Pond or pump water directly from the existing Laguna Plant to the outfall structure on the east bank of the Russian River.

The area between the Russian River discharge point and the Delta Pond is essentially a region that has been devoted to agriculture over the years. Vegetation communities present include annual grassland, pasture, cropland, willow riparian, and mixed-riparian, each of which may intergrade with urban areas (i.e., homes, farms, schools). The primary watershed associated with this project component is Mark West Creek.

GEYSERS STEAMFIELD RECHARGE

A transmission pipeline is required to transport reclaimed water from the existing Delta Pond to the distribution tanks in the Geysers Steamfield recharge area (Figure 4.1-2). The pipeline alignment follows public road ROWs, except for cross-country sections at the top of Pine Flat Road, to the two proposed storage/distribution tanks and from the storage tanks to the Geysers Steamfield area (Figures 4.1-1a and 1b).

In addition to the aforementioned pipeline, a series of four pump stations is required to transport water approximately 35 miles from the Delta Pond to the Geysers area northeast of Healdsburg. The first station would be located at the Delta Pond and the second near the junction of Pine Flat Road and State Highway 128. From this latter location, two additional pump stations would lift the water to two separate storage tanks proposed to be built on a ridge above the Geysers Steamfield area. The water would then be gravity-fed through distribution lines to injection wells located throughout the northwest portion of the Geysers Steamfield.

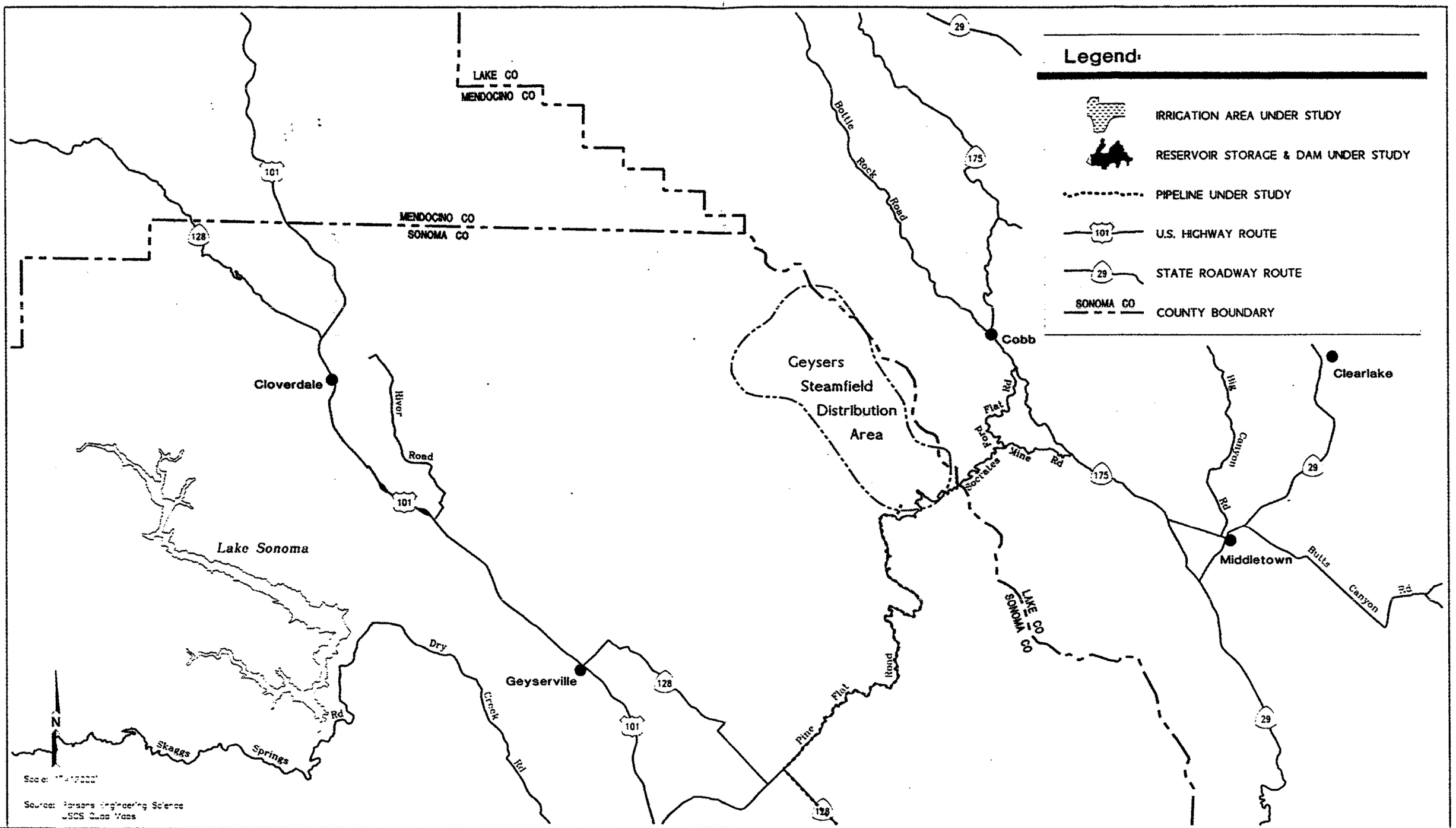

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Figure 4.1-1a

PROPOSED PIPELINES IN STUDY AREA

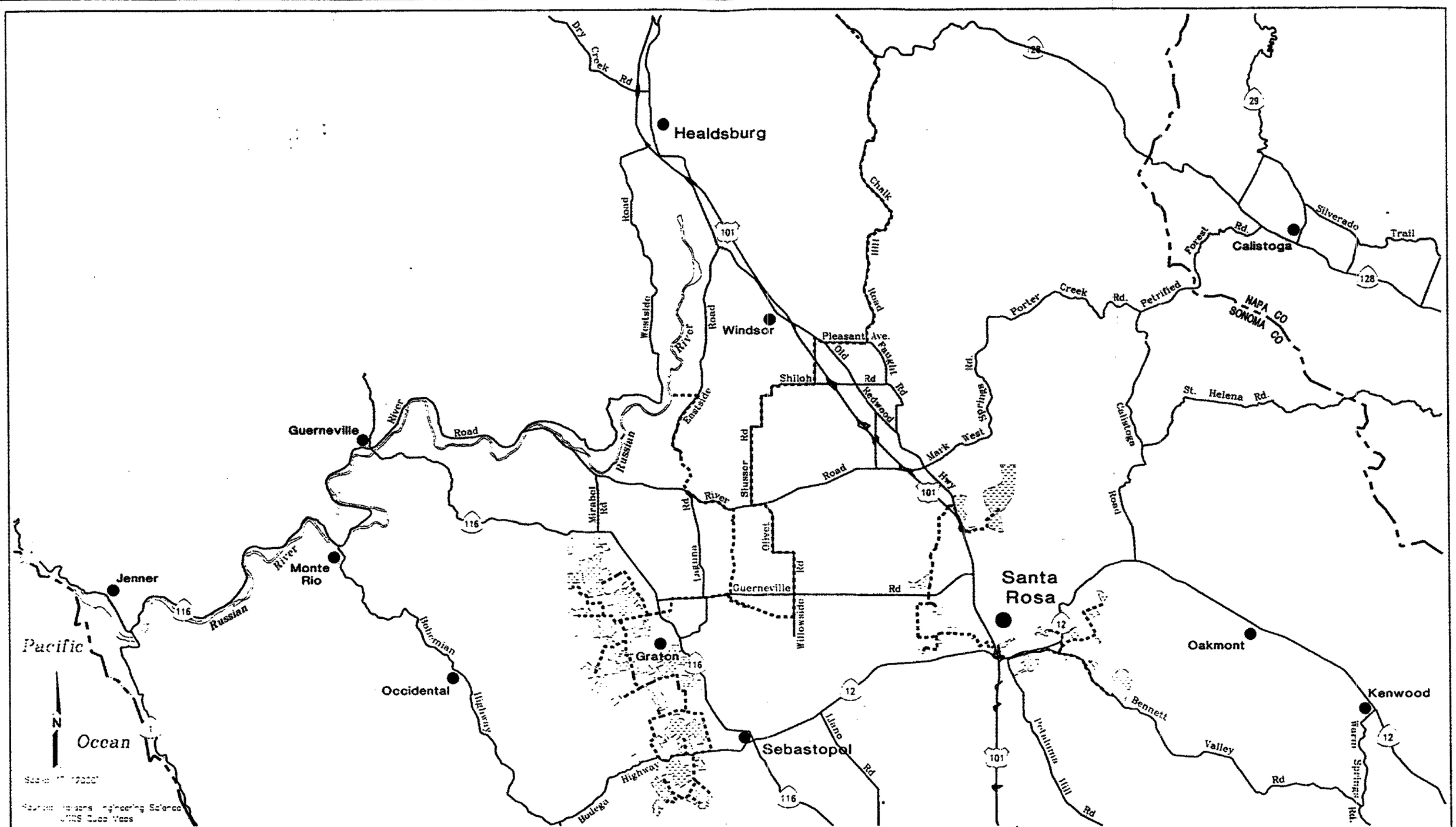

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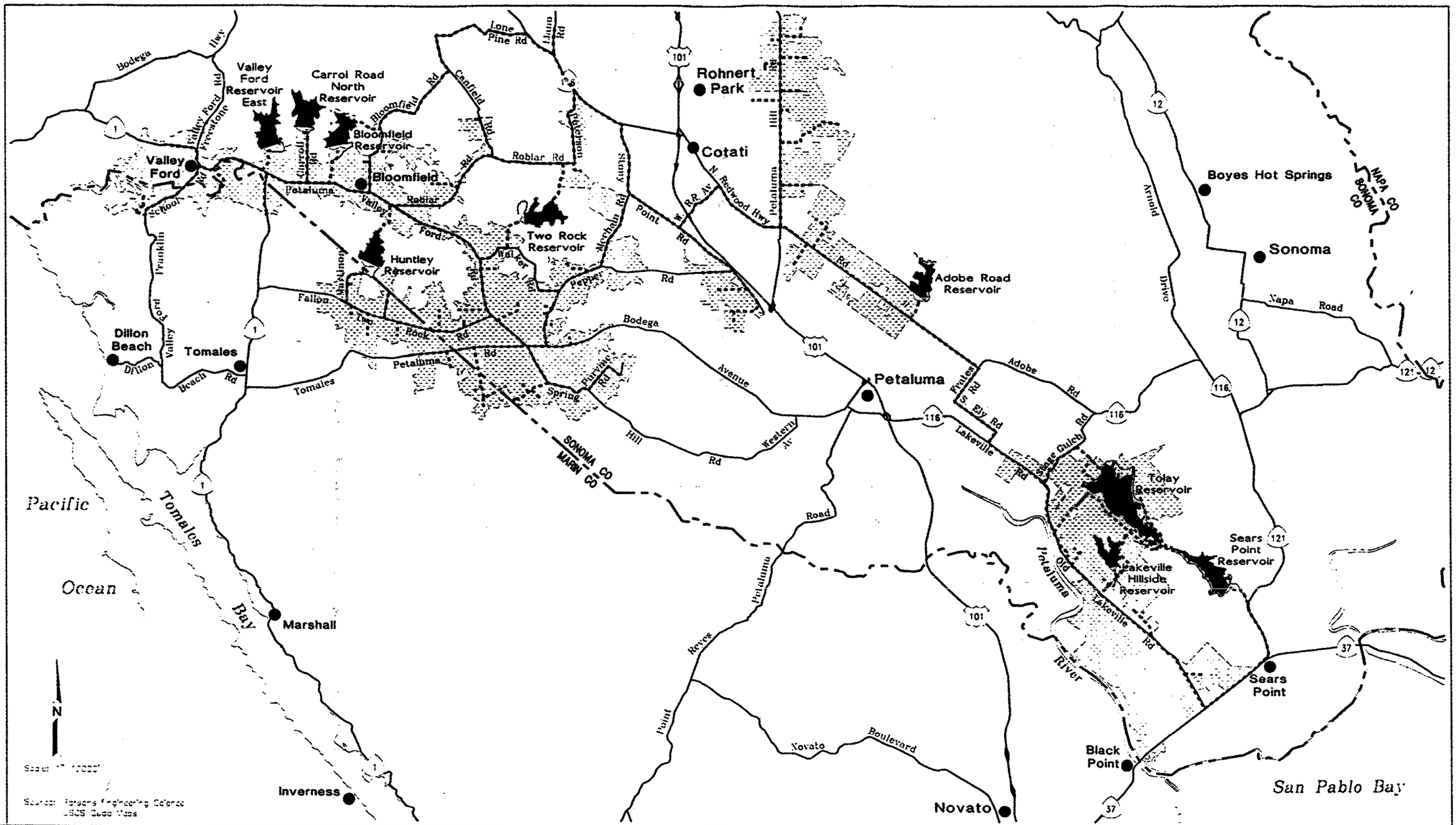
Figure 4.1-1b
PROPOSED
PIPELINES IN STUDY AREA



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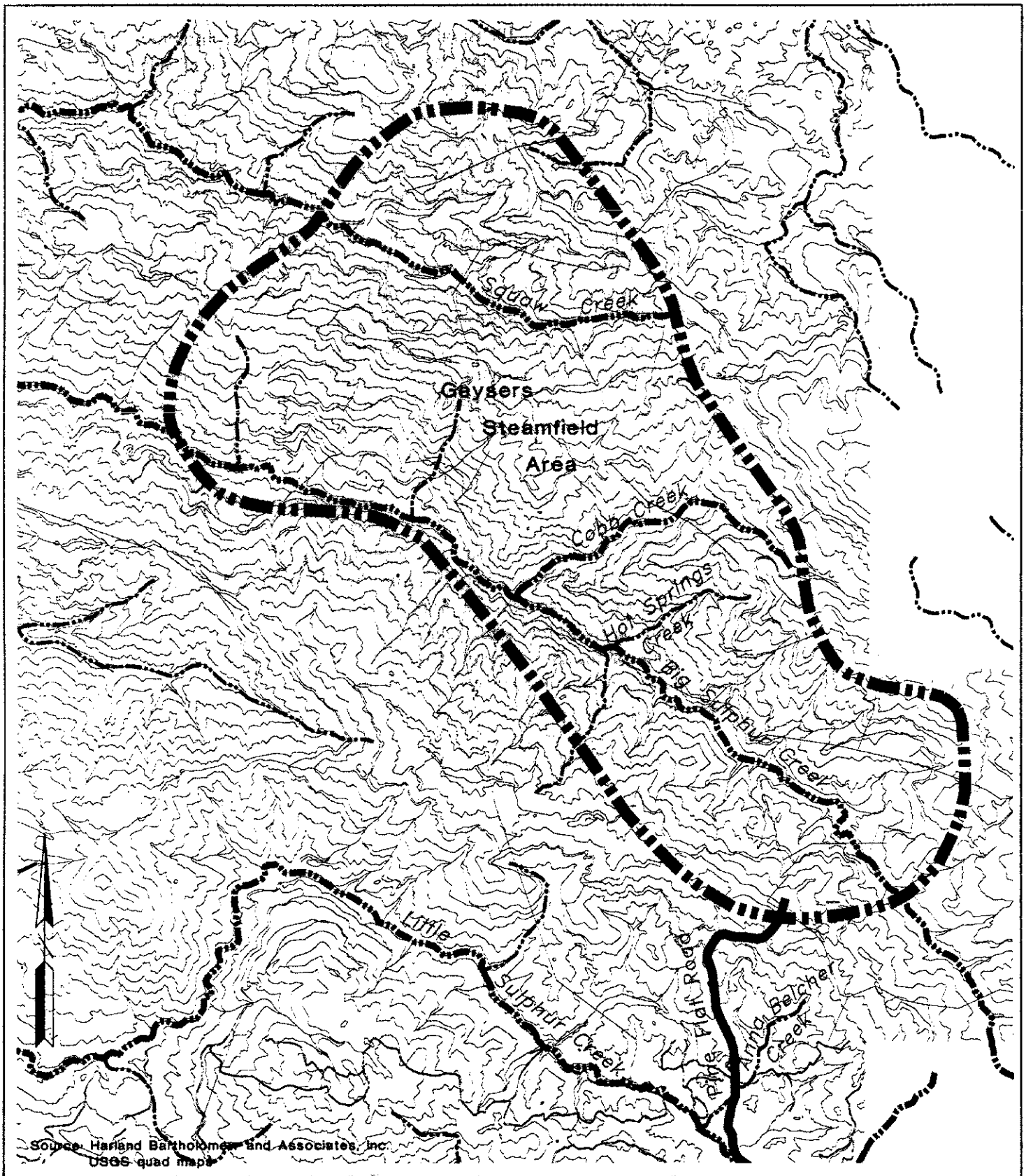
Santa Rosa Subregional Long-Term Wastewater Project

Figure 4.1-1c
PROPOSED PIPELINES IN STUDY AREA



Source: Harland Bartholomew and Associates, Inc.
USGS quad maps

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Santa Rosa

Subregional Long-Term
Wastewater Project

GEYSERS
STEAMFIELD AREA

Figure 4.1-2

The area from the Delta Pond up to Pleasant Avenue near Windsor includes annual grassland, pasture, cropland, willow riparian, and mixed-riparian, each of which may intergrade with urban areas (i.e., homes, farms, schools). The Pleasant Avenue and Chalk Hill Road section contains several vineyards, with oak woodland interspersed along the northern reaches of Chalk Hill Road. The Pine Flat Road section is primarily composed of dense oak-bay-madrone woodland which grades into annual grassland, mixed-riparian, and mixed chaparral depending upon the elevation and soil regime.

Near the end of Pine Flat Road, the pipeline leaves the roadway and extends cross-country up to a ridge that would support the two storage tanks mentioned earlier. From these tanks, distribution pipelines would lead downhill to the injection well sites located within the Geysers Steamfield. The area referred to as the Geysers Steamfield is located in the Mayacmas Mountains of northern Sonoma County, near the Lake County border. This generally oval-shaped area encompasses approximately 13.2 square miles and is bounded by the following landmarks: Caldwell Pines to the north, Socrates Mine to the south, Eagle Rock to the west, and Geysers Rock at the Lake County/Sonoma County border to the east.

The Geysers Steamfield area is composed of annual and native grassland, chaparral, oak-bay-madrone woodland, oak woodlands, and riparian woodland communities. Serpentinite outcroppings are a unique habitat feature of the Geysers area. The principal drainage in the Geysers Steamfield area is Big Sulphur Creek, which is a tributary to the Russian River. The elevation range for the Sonoma County portion of the Geysers Steamfield area is from about 4,400 feet amsl near Cobb Mountain to less than 1,000 feet amsl in the lower portions of the Big Sulphur Creek drainage (Sonoma County 1989). Several smaller tributaries are also present within the Geysers Steamfield Recharge area and along the proposed pipeline route, including Little Sulphur Creek, Squaw Creek, Anna Belcher Creek, Cobb Creek, Hurley Creek, Deer Creek, Sausal Creek, Hoot Owl Creek, Maacama Creek, Franz Creek, Brooks Creek, and Pool Creek.

4.2 BOTANICAL STUDY METHODOLOGIES AND RESULTS

Study methodologies varied slightly among the various components due primarily to site access availability. All public ROWs were walked and later assessed from a vehicle to determine vegetation communities and wildlife habitats that were present within the proposed pipeline construction zone. When possible, private property associated with cross-country pipelines was assessed from a public ROW off-site location. The Geysers Steamfield distribution pipe line routes were not assessed by vehicle because there were no adjacent roads. Specific study methodologies for each component are further discussed below.

CALIFORNIA NATURAL DIVERSITY DATABASE OCCURRENCES

Study Methodology

The approach used to analyze CNDDB plant species and natural plant community occurrences for pipeline routes proposed for the storage reservoirs and agricultural irrigation, Russian River discharge, Urban Irrigation, Geysers Steamfield, and pump station areas is similar to the approach discussed in Section 2.2 - Botanical Study Methodologies and Results for Storage Reservoirs. The only difference is that all occurrences within 30 feet of a pipeline were noted, instead of occurrences located within 100 feet.

Results

Storage Reservoir and Agricultural Irrigation Area Pipelines

The following special-status plant species were identified within pipeline segments associated with Sebastopol agricultural irrigation area: Vine Hill manzanita, yellow larkspur, Sonoma alopecurus, Sonoma spine flower, and white sedge. No sensitive natural plant communities were identified.

No special-status plant species were identified for pipelines in the South County agricultural irrigation areas. However, two sensitive natural plant communities, coastal brackish marsh and northern coastal salt marsh, were identified.

The following special-status plant species were identified within pipeline segments associated with West County agricultural irrigation areas: Sonoma alopecurus, Sebastopol meadowfoam, and showy Indian clover (3 occurrences). Coastal brackish marsh was also identified.

Russian River Discharge Pipelines and Outfall Structure

No special-status plant species or sensitive natural plant communities were identified within the Russian River discharge pipeline or outfall structure.

Urban Irrigation Pipelines

No special-status plant species or sensitive natural plant communities were identified within the Urban Irrigation pipeline segments.

Geysers Steamfield Recharge Pipelines

Socrates Mine jewel-flower, Mount Saint Helena morning-glory, and three occurrences of Burke's goldfields were the only special-status plants identified within pipeline segments associated with the Geysers Steamfield recharge component. No sensitive natural plant communities were identified.

Pump Stations

No special-status plant species or sensitive natural plant communities were identified within the proposed pump station sites.

PLANT SURVEYS

Study Methodology

The pipeline study methodology consisted of field surveys in which biologists walked along public ROWs associated with proposed pipeline segments and recorded all observed plant species. Cross-country pipeline routes on private property were visually assessed, where possible, from an off-site location along the available public ROW. Pedestrian surveys of the proposed pipeline segments were conducted between April and July of 1995.

Surveys were also conducted along all the proposed distribution lines located within the Geysers Steamfield area (only lines associated with the Santa Rosa Subregional Long-Term Wastewater Project) during July 18-21, 1995 and August 15, 1995. In this area, two botanists walked approximately 30 feet on either side of the proposed distribution pipelines (60-foot-wide transects), examining the area for any sign of special-status plant species and compiling a comprehensive species list.

Extensive special-status plant surveys were not conducted at the pump station locations due to limited site access. However, pump station sites were assessed for potential to support special-status plant species.

Results

Special-status plant species observed during pedestrian surveys of the pipeline segments are identified below. Complete lists of observed plant species are located in Sycamore

Environmental's Wastewater Transmission Pipeline Technical Memorandum (Volume 3, Appendix C) and Geysers Technical Memorandum: Botanical Resources (Volume 3, Appendix D).

Storage Reservoir and Agricultural Irrigation Area Pipelines

The only special-status plant species observed along the pipeline routes proposed for the storage reservoirs and agricultural irrigation areas was hayfield tarplant. This species was found on July 17, 1995 along pipeline segment W-55 S, which is located along Seavey Road in the West County region (Map E-17). The population consisted of less than 20 plants located within an area approximately 10 feet wide by 10 feet long.

Russian River Discharge Pipelines and Outfall Structure

No special-status plant species were observed along the proposed pipeline route or outfall structure associated with the Russian River discharge component.

Urban Irrigation Pipelines

No special-status plant species were observed along proposed pipeline segments associated with the Urban Irrigation component.

Geysers Steamfield Recharge Pipelines

Two special-status plant species were observed by Sycamore Environmental botanists in the Geysers Steamfield during field surveys. These observations included two populations of green monardella and one population of serpentine bird's beak.

The populations of green monardella were observed along distribution pipeline corridors within the steamfield area. Each population consisted of 2 to 3 plants in an area less than 2 feet wide by 2 feet long.

The population of serpentine bird's beak was also observed along a pipeline corridor within the steamfield area. The population consisted of less than 5 plants in an area approximately 2 feet wide by 2 feet long.

A second population of serpentine bird's beak was observed along Pine Flat Road (pipeline segment G-3) in the Geysers study area. The population consisted of less than 5 plants in ruderal roadside vegetation near chaparral habitat.

A population of Rincon manzanita was observed along Pine Flat Road. This population consisted of one plant within the a chaparral plant community.

Table 4.2-1 summarizes each of the observed special-status plant species occurrences by pipeline segment. The locations for each of the occurrences are noted on Maps E1-E5.

Table 4.2-1

Special-Status Plant Species Occurrences - Geysers Pipeline Segments

Species	Status	Date Observed	Pipeline Segment
Serpentine bird's beak	CNPS List 4	8/15/95	G-3
	CNPS List 4	7/20/95	Steamfield
Rincon manzanita	CNPS List 1B	8/15/95	G-3
Green monardella	CNPS List 4	7/20/95	Steamfield
	CNPS List 4	7/20/95	Steamfield

Source: Sycamore Environmental Consultants, 1996

Pump Stations

No special-status plant species were observed during off-road assessments of the proposed pump station sites.

PROTECTED TREE RESOURCES

Study Methodology

Tree species protected under the Sonoma County Tree Ordinance 4014 (June 13, 1989) were recorded during surveys along the pipeline segments, including the Geysers Steamfield distribution pipelines. The surveys conducted for this project determined the presence or absence of protected tree resources, but did not attempt to quantify the numbers of such trees present along each pipeline segment. The number of trees that will be subject to the Sonoma County Tree Ordinance would be determined during site-specific pre-construction surveys once a preferred project alternative has been selected.

Results

Ten of the eleven protected tree species were observed along the pipeline segments. The observed protected tree species were:

- Big-leaf maple
- Blue oak
- California bay
- California black oak
- Coast live oak
- Coast redwood
- Interior live oak
- Oregon oak
- Pacific madrone

- Valley oak

Refer to Sycamore Environmental's Wastewater Transmission Pipeline Technical Memorandum (Volume 3, Appendix C) for more specific information regarding protected tree resources along the pipeline segments.

PLANT COMMUNITY MAPPING

Study Methodology

All plant communities found along the pipeline routes were recorded by a botanist. This task consisted of viewing aerial photographs (1:1,000) and then ground-truthing to verify the distinguishable plant communities. Ground-truthing was conducted on February 23 and 26, 1996 by driving along the public road ROWs associated with the pipeline segments. All plant communities (except for annual grassland, cropland, pasture, and urban) located up to 30 feet from pipeline segments were mapped as a point occurrence. Annual grassland, cropland, pasture, and urban plant community point occurrences were not mapped because of the disturbed nature and lack of native plant species associated with these communities. At each point occurrence the approximate width and extent (perpendicular extension from the alignment) of each plant community was recorded. Each of the point occurrences was then mapped as shown in Maps E1-E21 in Volume 4E.

Due to the larger construction zones and denser vegetation associated with the Pine Flat Road and Geysers Steamfield distribution pipeline segments, the point occurrence method was not used. Instead, plant communities within the Geysers Steamfield area were mapped in the office by delineating entire polygons from vegetation maps provided by UNOCAL (1:1,000). These vegetation maps were then digitized by Sycamore Environmental. Plant community acreages were calculated by overlaying the proposed water storage tanks and distribution pipelines on the digitized basemaps. This plant community mapping is shown on maps included in Volume 4E.

Plant community mapping was not conducted at the pump station locations due to the limited acreages involved. However, the pump station sites were assessed for any unique plant communities such as oak woodlands, riparian woodlands, wetlands, and vernal pools. Plant communities that could be identified from the road were recorded.

Results

Results of the plant community mapping are discussed below.

Storage Reservoir and Agricultural Irrigation Area Pipelines

Plant communities found within proposed pipeline routes associated with the storage reservoirs and agricultural irrigation areas include urban, annual grassland, cropland, orchard, vineyard, mixed-riparian, drainage, seasonal wetland, excavated drainage, non-wooded riparian, willow riparian, vernal pool,

and brackish marsh. Table 4.2-2 lists the point occurrences for each plant community (except for urban, cropland, and annual grassland) and the approximate acreages of each mapped community within 30 feet of pipeline segments. This information is presented by region, including Sebastopol, South County, and West County. The storage reservoirs and agricultural irrigation areas within each region are identified earlier within this document.

Table 4.2-2

Plant Communities Along the Storage Reservoir/Agricultural Irrigation Area Pipelines

Plant Community	Number of Point Occurrences	Approximate Acreage[1]
Sebastopol		
Mixed-riparian	15	4.37
Willow Riparian	3	0.1
Oak Woodland	3	1.72
Oak-Bay-Madrone Woodland	1	0.34
Seasonal Wetland	1	0.34
Non-wooded Riparian	1	.01
South County		
Mixed-riparian	6	0.78
Willow Riparian	10	0.29
Drainage	10	0.09
Excavated Drainage	3	0.03
Seasonal Wetland	12	6.4
Non-wooded Riparian	15	0.27
Vernal Pool	2	0.04
West County		
Mixed-riparian	1	0.02
Willow Riparian	34	3.6
Drainage	2	0.02
Excavated Drainage	3	0.03
Seasonal Wetland	19	9.36
Non-wooded Riparian	11	.19
Brackish Marsh	1	.96

Source: Harland Bartholomew & Associates, 1996

1 = Approximate acreages are calculated by multiplying the width of the community type by 30 feet (construction zone) and dividing by 43,560 feet to get an acreage.

Russian River Discharge Pipelines and Outfall Structure

Plant communities found along the proposed pipeline segments associated with the Russian River discharge component include urban, annual grassland, cropland, mixed-riparian, willow riparian, oak woodland, and oak-bay-madrone woodland. Table 4.2-3 lists the number of point occurrences for each plant community within 30 feet of pipeline segments (except for urban, cropland, and annual grassland) and the approximate acreages of each mapped community.

Table 4.2-3

Plant Communities Along the Russian River Discharge Pipeline

Plant Community	Number of Point Occurrences	Approximate Acreage[1]
Willow Riparian	2	0.22
Mixed-riparian	4	1.44
Oak-Bay-Madrone Woodland	2	6.5
Oak Woodland	1	1.38

Source: Harland Bartholomew & Associates, 1996

1 = Approximate acreages are calculated by multiplying the width of the community type by 30 feet (construction zone) and dividing by 43,560 feet to get an acreage.

The predominant plant community associated with the Russian River discharge outfall structure is mixed-riparian woodland. Typical tree species associated with this mixed-riparian community include big-leaf maple, Fremont's cottonwood, California bay-laurel, and coast live oak. The other plant community present is annual grassland.

Urban Irrigation Pipelines

Plant communities found within proposed pipeline routes associated with the Urban Irrigation component include urban, annual grassland, mixed-riparian, non-wooded riparian, and drainage. Table 4.2-4 lists the number of points for each plant community within 30 feet of pipeline segments (except for urban, cropland, and annual grassland) and the approximate acreages of each mapped community.

Table 4.2-4

Plant Communities Along the Urban Irrigation Pipelines

Plant Community	Number of Point Occurrences	Approximate Acreage[1]
Mixed-riparian	2	0.08
Non-wooded Riparian	8	0.13
Drainage	3	0.01

Source: Harland Bartholomew & Associates, 1996

1 = Approximate acreages are calculated by multiplying the width of the community type by 30 feet (construction zone) and dividing by 43,560 feet to get an acreage.

Geysers Steamfield Recharge Pipelines

Plant communities found within proposed pipeline routes associated with the Geysers Steamfield recharge project component include urban, annual grassland, cropland, orchard, vineyard, mixed-riparian, chaparral, drainage, seasonal wetland, excavated drainage, non-wooded riparian, oak woodland, oak-bay-madrone woodland, and willow riparian. In addition, four communities unique to the project area were identified. These communities are the canyon live oak series, foothill pine series, knobcone pine series, and McNab cypress series. More specific information regarding plant communities in the Geysers Steamfield area is contained in Sycamore Environmental's Geysers Technical Memorandum: Botanical Resources (Volume 3, Appendix D).

Table 4.2-5 lists each plant community (except for urban, cropland, and annual grassland) and the approximate acreages of each mapped community.

Table 4.2-5

Plant Communities Along the Geysers Steamfield Recharge Pipelines

Plant Community	Approximate Acreage
Mixed-riparian	1.09
Willow Riparian	0.85
Oak-bay-madrone Woodland	29.8
Oak Woodland	15.3
Knobcone Pine Series	3.8
Foothill Pine Series	3.2
Canyon Live Oak Series	2.3
McNab Cypress Series	0.7
Chaparral	13.8
Total	70.8

Source: Harland Bartholomew & Associates, 1996

Note:

Pump Stations

The plant communities observed at each pump station are listed in Table 4.2-6.

Table 4.2-6

Pump Station Design Characteristics and Plant Communities

Pump Station	Location	Number of Pumps[1]	Building Size[2]	Pad Size[3]	Associated Plant Communities
S	Meadowlane Ponds	4	20' X 60'	40’ X 80’	Annual Grassland
TASW	Tolay Extended Backdam	3, Inside	20' X 60'	40’ X 80’	Pasture
TCSW	Tolay Confined Backdam	3, Inside	20' X 60'	40’ X 80’	Cropland/Drainage
ARSW	Adobe Road Stormwater Dam	3, Inside	20' X 60'	40’ X 80’	Annual Grassland
T	Tolay Dam	5, Inside	20' X 60'	40’ X 80’	Annual Grassland
SP	Sears Point Dam	5, Inside	20' X 40'	40’ X 80’	Pasture
L	Lakeville Hillside Dam	4, Inside	20' X 40'	40’ X 80’	Annual Grassland
AR	Adobe Road Dam	5, Inside	20' X 60'	40’ X 80’	Annual Grassland/Mixed-riparian
TR	Two Rock Dam	3 or 4, Inside	20' X 40'	40’ X 80’	Annual Grassland/Mixed-riparian
B	Bloomfield Dam	4, Inside	20' X 40'	40’ X 80’	Annual Grassland/Mixed-riparian
CR	Carroll Road Dam	4, Inside	20' X 40'	40’ X 80’	Pasture
VF	Valley Ford Dam	4, Inside	20' X 40'	40’ X 80’	Annual Grassland
H	Huntley Dam	4, Inside	20' X 40'	40’ X 80’	Annual Grassland/Pasture
SEB	Delta Pond	4, Outside	20' X 20'	40’ X 80’	Annual Grassland/Willow Riparian
FGS	West College Ponds	2, Outside	20' X 20'	40’ X 80’	Adjacent to Existing Facilities
FGB	Redwood Highway, North of Fountaingrove Parkway	2, Inside	20' X 20'	30’ X 50’	Urban
BVS	West College Ponds	2, Outside	20' X 20'	40’ X 80’	Adjacent to Existing Facilities
BVB	Sonoma County Fairgrounds	2, Inside	20' X 20'	30’ X 50’	Urban
G1	Delta Pond	4, Outside	20' X 40'	40’ X 80’	Annual Grassland/Willow Riparian
G2	HWY 128 @ Pine Flat Road	5, Inside	30' X 60'	one acre	Vineyard

Table 4.2-6

Pump Station Design Characteristics and Plant Communities

Pump Station	Location	Number of Pumps[1]	Building Size[2]	Pad Size[3]	Associated Plant Communities
G3	Pine Flat Road	5, Inside	30' X 60'	one acre	Oak-Bay-Madrone Woodland
G4	Pine Flat Road	5, Inside	30' X 60'	one acre	Oak-Bay-Madrone Woodland/Chaparral/Mixed-riparian
D Existing	Delta Pond	1 or 2, Inside	EXISTING	40’ X 80’	Annual Grassland
DR Existing	Denner Ranch	1 or 3, Outside	NONE	40’ X 80’	Vineyard
SBPS-2	Petaluma Hill Road	2, Inside	10' X 10'	20’ X 40’	Cropland
SBPS-3	Petaluma Hill Road	2, Inside	10' X 10'	20’ X 40’	Annual Grassland
SBPS-7	Petaluma Hill Road	5, Inside	20' X 60'	30’ X 90’	Annual Grassland
SBPS-8	Petaluma Hill Road	2, Inside	20' X 20'	30’ X 50’	Cropland
SBPS-9	East Railroad Avenue	2, Inside	10' X 10'	20’ X 40’	Annual Grassland
SBPS-10	Adobe Road	6, Inside	20' X 60'	30’ X 90’	Annual Grassland/Drainage
SBPS-11	Adobe Road	3, Inside	20' X 20'	30’ X 50’	Pasture
SBPS-12	Lakeville Road	4, Inside	20' X 60'	30’ X 90’	Pasture/Eucalyptus
WBPS-1	Martinoni Road	2, Inside	10' X 10'	20’ X 40’	Annual Grassland
WBPS-3	Seavey Road	2, Inside	10' X 10'	20’ X 40’	Cropland
WBPS-4	Spring Hill Road	2, Inside	20' X 20'	30’ X 50’	Pasture
WBPS-5	Pepper Road	4, Inside	20' X 60'	30’ X 90’	Annual Grassland/Pasture
WBPS-6	Valley Ford Road	2, Inside	20' X 20'	30’ X 50’	Annual Grassland/Pasture
WBPS-7	Canfield Road	2, Inside	20' X 20'	30’ X 50’	Annual Grassland

Table 4.2-6

Pump Station Design Characteristics and Plant Communities

Pump Station	Location	Number of Pumps[1]	Building Size[2]	Pad Size[3]	Associated Plant Communities
WBPS-8	Valley Ford Road	2, Inside	20' X 20'	30’ X 50’	Annual Grassland
LBPS-1	Green Valley Road	2, Inside	10' X 10'	20’ X 40’	Orchard
LBPS-2	Graton Road	3, Inside	20' X 60'	30’ X 90’	Vineyard
LBPS-3	Bodega Highway	2, Inside	20' X 20'	30’ X 50’	Urban/Orchard
LBPS-4	Burnside Road	2, Inside	20' X 20'	30’ X 50’	Orchard

Source: Parsons Engineering Science, Inc., August 1995/Harland Bartholomew & Associates, 1996

1 Includes one stand-by pump (i.e., the total number of pumps that could be operating at any one time is one less than the number listed). Pumps are located inside or outside of buildings, as indicated.

2 All buildings to be masonry construction, single story, with peaked metal roofing panels. Buildings will house pump control panels, instrumentation, and pumps (where indicated). Buildings housing pumps will include noise attenuation insulation features.

3 Pad size refers to the area that will be covered by a particular pump station.

FLORISTIC ANALYSIS

Study Methodology

A detailed floristic analysis, such as Sycamore Environmental performed for the *Agricultural Irrigation* and *Reservoir* technical memoranda (Biological Resources Technical Memorandum, Volume 3, Appendix B) was not conducted for the pipeline corridors. This is due to the fact that the present study involved an evaluation of approximately 176 miles of narrow linear features, which do not lend themselves to meaningful floristic comparisons. However, species lists for each pipeline segment surveyed were compiled and are presented in Appendix B of Volume 3.

Since floristic composition of the Geysers Steamfield area is unlike any other component in the project study area, a floristic summary of collected species collected was prepared.

Results

Floristic data were summarized only for the Geysers Steamfield recharge pipelines and distribution pipelines.

Geysers Steamfield Recharge Pipelines

Floristic data of vascular plants from the Geysers Steamfield were combined to determine the total number of species in each category. A total of 79 families, 236 genera, and 343 species comprise the Geysers Steamfield flora. California native species account for 64.4 percent of species identified in the Geysers Steamfield area, and introduced species account for 32 percent. Green monardella and serpentine bird's beak were the two special-status plant species found in the Geysers Steamfield.

4.3 WILDLIFE STUDY METHODOLOGIES AND RESULTS

Study methodologies varied slightly between the various components due primarily to site access availability. All public ROWs were walked and later assessed from a vehicle to determine vegetation communities and wildlife habitats that were present within the proposed pipeline construction zone. When possible, private property associated with cross-country pipelines was assessed from an off-site public ROW. The Geysers Steamfield distribution pipeline routes were not assessed by vehicle because there were no adjacent roads. Specific study methodologies for each component are further discussed below.

CALIFORNIA NATURAL DIVERSITY DATABASE OCCURRENCES

Study Methodology

The approach used to analyze CNDDB wildlife species occurrences for pipeline routes and pump station sites is similar to the approach discussed in Section 2.3 - Wildlife Study Methodologies and Results for Storage Reservoirs. The only difference is that all occurrences within 30 feet of a pipeline were noted, instead of occurrences located within 100 feet.

Results

Storage Reservoir and Agricultural Irrigation Area Pipelines

California freshwater shrimp (two occurrences) was the only special-status wildlife species identified on pipeline routes within the Sebastopol agricultural irrigation area.

The following special-status wildlife species were identified on pipeline routes within the South County agricultural irrigation areas: pallid bat, salt marsh common yellowthroat, California black rail, and monarch butterfly.

The following special-status wildlife species were identified on pipeline routes within the West County agricultural irrigation areas: California freshwater shrimp, western yellow-billed cuckoo (two occurrences), California tiger salamander, northwestern pond turtle, and tidewater goby.

Russian River Discharge Pipeline and Outfall Structure

No special-status wildlife species were identified within the Russian River discharge pipeline or outfall structure.

Urban Irrigation Pipelines

No special-status wildlife species were identified within the Urban Irrigation pipeline segments.

Geysers Steamfield Recharge Pipelines

No special-status wildlife species were identified within the Geysers Steamfield Recharge pipeline segments.

Pump Stations

No special-status wildlife species were identified within the proposed pump station sites.

CHWR HABITAT MAPPING

Study Methodology

An extensive CWHR habitat mapping effort was not conducted due to the limited acreages associated with pipeline routes. However, during the driving survey of the proposed pipeline segments (February 23 and 26 1996), all CWHR habitats (except for annual grassland, cropland, pasture, and urban) located up to 30 feet from the pipeline alignments were mapped as a point occurrence. Annual grassland, cropland, pasture, and urban CWHR habitat type point occurrences were not mapped because of the disturbed nature associated with these habitats. Each point occurrence recorded was referenced to an approximate width and extent (perpendicular extension from pipeline alignment) of the habitat types observed. Vegetation was not measured for height, percent canopy closure, or dbh; however, an approximate determination was made visually from the vehicle to estimate habitat growth stage. Each of the point occurrences was mapped and is presented in Maps E1-E21.

The biologists mapped only those wildlife habitat types located up to 30 feet from either side of the pipeline alignments. However, habitats located within 100 feet of either side of the proposed pipeline corridors were assessed and noted because of the potential for indirect impacts to wildlife outside of the 30-foot pipeline construction zone. These indirect impacts center mainly on potential noise impacts (associated with pipeline construction) on nesting raptors located within 100 feet of either side of the alignment.

Due to the larger construction zones and denser habitat associated with the Pine Flat Road and Geysers Steamfield distribution pipeline segments, the point occurrence method was not used. Instead, the habitat types within the Geysers Steamfield area were mapped in the office by delineating entire polygons in the office from vegetation maps provided by UNOCAL (1:1,000).

CWHR habitat mapping was not conducted at the pump station locations due to the small acreages involved and the fact that these structures would not be placed in areas

containing sensitive biological resources (i.e., riparian woodland, oak woodland, wetlands, etc.).

Results

The results of the CWHR habitat analysis are discussed below. Refer to Section 2.3 - Study Methodologies for a discussion of the wildlife and special-status species that could potentially occur within each of the habitat types found along the proposed pipeline segments.

Storage Reservoir and Agricultural Irrigation Area Pipelines

CWHR habitat types found along proposed pipeline routes associated with the storage reservoirs and agricultural irrigation areas include urban, orchard-vineyard, annual grassland (1D and 2D), cropland, valley foothill riparian (3M, 4M, and 4D), and saline emergent wetland (1D). Table 4.3-1 lists the number of point occurrences for each CWHR habitat type (except for urban, cropland, and annual grassland) and approximate acreages of each habitat type within 30 feet of the pipeline segments. This information is presented by region, including Sebastopol, South County, and West County.

There are widely-spaced oaks (valley and Oregon) present alongside the public ROWs that were mapped as oak woodland vegetation communities. However, due to the wide spacing and low number of trees, these relatively isolated trees were considered habitat elements of annual grassland. Other CWHR habitat types observed alongside the pipeline corridors but outside of the 30-foot construction zone include eucalyptus, coastal scrub, redwood, and fresh emergent wetland.

Table 4.3-1

CWHR Habitat Types Along the Storage Reservoir/Agricultural Irrigation Area Pipelines

CWHR Habitat Type	Number of Occurrences	Approximate Acreage[1]
Sebastopol		
Valley Foothill Riparian 3M	3	0.1
Valley Foothill Riparian 4M	15	4.37
Montane Hardwood 4D	1	0.34
South County		
Valley Foothill Riparian 3M	11	0.29
Valley Foothill Riparian 4M	4	0.66
Valley Foothill Riparian 4D	2	0.12

Table 4.3-1

CWHR Habitat Types Along the Storage Reservoir/Agricultural Irrigation Area Pipelines

CWHR Habitat Type	Number of Occurrences	Approximate Acreage[1]
West County		
Valley Foothill Riparian 3M	34	3.6
Valley Foothill Riparian 4M	1	0.02
Saline Emergent Wetland 1D	1	0.96

Source: Harland Bartholomew & Associates, 1996

1 = Approximate acreages are calculated by multiplying the width of the habitat type by 30 feet (construction zone) and dividing by 43,560 feet to get an acreage.

Russian River Discharge Pipeline and Outfall Structure

CWHR habitat types found along the proposed pipeline route associated with Russian River discharge component include urban, annual grassland (1D and 2D), cropland, valley foothill riparian (3M and 4M), and montane hardwood (4D). Table 4.3-2 lists the number of point occurrences for each CWHR habitat type (except for urban, cropland, and annual grassland) and approximate acreages of each type within 30 feet of the pipeline segments.

Table 4.3-2

CWHR Habitat Types Along the Russian River Discharge Pipeline

CWHR Habitat Type	Number of Occurrences	Approximate Acreage[1]
Valley Foothill Riparian 3M	2	0.22
Valley Foothill Riparian 4M	4	1.44
Montane Hardwood 4D	2	6.5

Source: Harland Bartholomew & Associates, 1996

1 = Approximate acreages are calculated by multiplying the width of the habitat type by 30 feet (construction zone) and dividing by 43,560 feet to get an acreage.

The predominant CWHR habitat type present at the proposed Russian River discharge outfall structure is valley foothill riparian with a growth stage of 4D. Despite the fact that CWHR data was taken from an off-site location, a well-

developed, dense canopy and associated older-growth trees were evident. The adjacent annual grassland habitat had a growth stage ranging from 1D to 2D.

Urban Irrigation Pipelines

The dominant habitat associated with the Urban Irrigation pipelines is urban. Approximately 0.08 acres of valley foothill riparian (VRI 4M) habitat was mapped along Matanzas Creek, near Farmers Lane. Coastal oak woodland, mixed with urban development, was present along Bennett Valley Road but outside of the 30-foot construction zone.

Geysers Steamfield Recharge Pipelines

CWHR habitat types found within proposed pipeline routes associated with the Geysers Steamfield recharge project component include urban, annual grassland, cropland, orchard-vineyard, and valley foothill riparian (3M and 4M), mixed chaparral, closed-cone pine-cypress, montane hardwood, and coastal oak woodland. The oak woodland and canyon live oak plant communities comprise coastal oak woodland habitat.

Closed-cone pine-cypress habitat is comprised of vegetation associated with the knobcone pine series, foothill pine series, and McNab cypress series described earlier in this section. An understory of mixed chaparral is also present within this habitat type. Closed-cone pine-cypress habitats are normally associated with low nutrient or seperntinic soils which are very shallow (Mayer and Laudenslayer 1988). Game species such as band-tailed pigeon and western tree squirrel, and non-game species such as northern flicker, and raccoon, make use of this habitat for feeding and cover. Few species utilize this habitat type for breeding habitat; however, red-tailed hawk and great horned owl will occasionally nest in closed-cone pine forests (Mayer and Laudenslayer 1988). The only special-status species associated with closed-cone pine-cypress habitat is sharp-shinned hawk, which use the habitat for foraging.

In addition to the CWHR habitat types mentioned above, both montane hardwood and coastal oak woodland were present along Chalk Hill Road, but outside of the 30-foot construction zone.

Table 4.3-3 lists each CWHR habitat type (except for urban, cropland, and annual grassland) and the approximate acreages within 30 feet of the pipeline segments.

Table 4.3-3

CWHR Habitat Types Along the Geysers Steamfield Recharge Pipelines

CWHR Habitat Type	Approximate Acreage
Valley Foothill Riparian 3M	1.09
Valley Foothill Riparian 4M	0.85
Montane Hardwood	29.8
Mixed Chaparral	13.8
Coastal Oak Woodland	17.6
Closed-Cone Pine-Cypress	7.7
Total	70.8

Source: Harland Bartholomew & Associates, 1996

Pump Stations

No CWHR habitat mapping was conducted at the proposed pump station sites.

WILDLIFE SURVEYS

Study Methodology

Reconnaissance-level surveys were conducted along public ROWs associated with proposed pipeline segments. Wildlife biologists recorded observations of all wildlife species during these surveys. Pedestrian surveys of the proposed pipeline segments were conducted between April and July of 1995. Cross-country pipeline routes on private property were visually assessed, where possible, from an off-site location along the available public ROW during the same time period.

Pedestrian surveys were also conducted along all the proposed distribution pipelines located within the Geysers Steamfield area during July 18-21, 1995. In this area, two wildlife biologists walked approximately 30 feet on either side of the proposed distribution pipeline route (60-foot wide transects), examining the area for any sign wildlife. All observed wildlife species and identifiable sign (including species observed outside of the proposed distribution pipeline corridor) were recorded on field notes. An inventory of all the wildlife species observed was developed for the Geysers Steamfield area by a wildlife biologist (Appendix D). Although no focused special-status wildlife surveys were conducted along the distribution pipeline routes, potential habitat for special-status species was noted.

Focused wildlife surveys were not conducted at the pump station locations due to the limited acreages involved. However, the pump station sites were assessed for the presence of special-status wildlife species or potential habitat for special-status wildlife species.

Results

Storage Reservoir and Agricultural Irrigation Area Pipelines

Table 4.3-4 identifies each of the observed special-status wildlife species occurrences by pipeline segment. These occurrences are noted on Maps E6-E21 of Volume 4E.

Table 4.3-4

Special-Status Wildlife Species Occurrences - Storage Reservoir/Agricultural Irrigation Area Pipelines

Species	Number Observed	Date Observed	Pipeline Segment	Corresponding Region
Birds				
Cooper's hawk	1	4/14/95	W-202 A/S	West County
Loggerhead shrike	1	7/17/95	W-58 S	West County
	1	2/23/96	W-18 A/S	West County
	1	2/23/96	W-22 A/S	West County
	1	2/23/96	S-48 A/S	South County
	1	2/23/96	W-47 A/S	West County
	1	2/23/96	S-28 A/S	South County
Prairie falcon	2	7/28/95	W-10 A/S	West County
Tricolored blackbird	2	4/13/95	W-202 A/S	West County
	20	4/14/95	W-132 A/S	West County
White-tailed kite	1	8/3/95	S-23	South County
	1	8/7/95	S-35	South County
Reptiles				
Northwestern pond turtle	12	4/24/95	W-220 A/S	Existing Pipeline in West County
	1	8/7/95	S-35	South County
	10	8/8/95	W-200 A/S	West County
	2	7/28/95	W-87 S	West County

Source: Harland Bartholomew & Associates, 1996

Russian River Discharge Pipelines and Outfall Structure

No special-status wildlife species were observed along the proposed Russian River discharge pipeline route or at the proposed outfall structure site.

Urban Irrigation Pipelines

The only special-status wildlife species observed along the proposed urban irrigation pipeline routes was loggerhead shrike. This single occurrence was observed on July 13, 1995 along segment UI-4. The location for this occurrence is noted on Map E-9.

Geysers Steamfield Recharge Pipelines

Table 4.3-5 summarizes each of the observed special-status wildlife species occurrences by pipeline segment. The locations for each of the occurrences are noted on Maps E1-E5.

Table 4.3-5

Special-Status Wildlife Species Occurrences - Geysers Pipeline Segments

Species	Number Observed	Date Observed	Pipeline Segment
Amphibians			
Foothill yellow-legged frog	1	3/31/95	G-3
	3	10/27/95	G-3
	1	4/3/95	G-3
Birds			
Double-crested cormorant	1	4/7/95	G-1
Reptiles			
Northwestern pond turtle	1	4/7/95	G-1

Source: Harland Bartholomew & Associates, 1996

Pump Stations

The only special-status species observed during the site visits to the proposed pump station locations was loggerhead shrike. A single specimen was observed on a fence line near pump station SBPS-11 on February 23, 1996. The area was predominantly annual grassland and pasture (suitable foraging habitat), with no dense vegetation suitable for loggerhead shrike nesting habitat present (Map E-18).

5. IMPACT ANALYSIS

REGULATORY FRAMEWORK

For the purposes of the Santa Rosa Subregional Long-Term Wastewater Project EIR/EIS, an impact is considered significant if it exceeds the point of significance as defined in the California Environmental Quality Act (CEQA). The California Fish and Game Code, National Environmental Policy Act (NEPA), Federal Endangered Species Act (FESA), and the California Endangered Species Act (CESA) were used as supporting documentation in developing the evaluation criteria. In addition, pertinent policies and data bases from the CDFG, USFWS, and the National Oceanic and Atmospheric Administration (NOAA) were used when developing the criteria of significance for this project.

Policies adopted by local private organizations such as the Sierra Club - Sonoma Chapter, Marin and Sonoma Resource Conservation Leagues, Sonoma Land Trust, and Marin Land Trust were reviewed and used as an additional source to develop criteria of significance.

California Endangered Species Act

CESA (Fish and Game Code Sections 2050-2098) established a State policy to conserve, protect, restore, and enhance any endangered or threatened species or any habitat for these species. The Fish and Game Commission is charged with establishing a list of endangered and threatened species. State agencies must consult with the CDFG to determine if a proposed project is likely to jeopardize the continued existence of any endangered or threatened species.

Section 2081 of the Fish and Game Code allows the "take" of a species listed as threatened or endangered by CESA. Take is defined as any act that involves direct mortality or other actions that may result in adverse impacts when attempting to take individuals of a listed species. Under Section 2081, the CDFG may issue a memorandum of understanding to authorize take for scientific, educational, or management purposes only. Private development that may adversely affect a listed species is prohibited from any take of a species unless the sponsor obtains a Management Authorization for the development project pursuant to Section 2081. The applicant must agree to strict measures and standards for the management of the species and sign a CESA Memorandum of Understanding (CESA MOU) to carry out these measures.

California Native Plant Protection Policy

The goals of the California Native Plant Protection Policy are as follows:

> The intent of the Legislature and the purpose of this chapter is to preserve, protect, and enhance endangered or rare plants of this state (Section 1900). For

purposes of this Chapter, "a 'native plant' means a plant that grows in a wild uncultivated state which is normally found native to the plant life of this state (Section 1901).

The commission may adopt regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants. Such regulations may include, but shall not be limited to, requirements for persons who perform any of the foregoing activities to maintain written records and to obtain permits which may be issued by the department (Section 1907).

No person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the commission determines to be an endangered native plant or a rare native plant, except as otherwise provided in this chapter (Section 1908).

All state departments and agencies shall, in consultation with the department, utilize their authority in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered or rare native plants. Such programs include, but are not limited to, the identification, delineation, and protection of habitat critical to the continued survival of endangered or rare native plants (Section 1911).

Federal Endangered Species Act

FESA recognized that many species of fish, wildlife, and plants are in danger of or threatened with extinction and established a national policy that all federal agencies should work toward conservation of these species. The Secretary of the Interior and the Secretary of Commerce are designated in FESA, having responsibilities for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed developments on endangered species. FESA also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7(c) of FESA if listed species or critical habitat may be present in the area affected by any major construction activity as defined in Part 404.02. Under Section 7(a)(3) of FESA every federal agency is required to consult with the USFWS or National Marine Fisheries Service on a proposed action if the agency has reason to believe that an endangered or threatened species may be present in the area affected by the proposed action and that implementation of the action will likely affect the species.

California Environmental Quality Act

CEQA Guidelines - Article 5, Section 15065

Article 5, Section 15065 of the CEQA Guidelines requires that a lead agency make mandatory findings of significance in an EIR if:

> "The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory."

CEQA Guidelines - Section 15380

Rare or endangered species are defined in the CEQA Guidelines (Section 15380) as follows:

(a) "Species" as used in this section means a species or subspecies of animal or plant or variety of plant.

(b) A species of animal or plant is:

(1) "Endangered" when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or

(2) "Rare" when either:

(A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

(B) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.

(c) A species of animal or plant shall be presumed to be rare or endangered as it is listed in:

(1) Sections 670.2 or 670.5, Title 14, California Administrative Code; or

(2) Title 50, Code of Federal Regulations Sections 17.11 or 17.12 pursuant to the Federal Endangered Species Act as rare, threatened, or endangered.

(d) A species not included in any listing identified in subsection (c) shall nevertheless be considered to be rare or endangered if the species can be shown to meet the criteria in subsection (b).

CEQA Guidelines - Appendix G

Appendix G of the State CEQA Guidelines lists several impacts that are "normally" considered significant. The three impacts relating to biological resources are listed below:

1. Substantially affect a rare or endangered species of animal or plant or the habitat of the species;

2. Interfere substantially with the movement of any resident or migratory fish or wildlife species; and

3. Substantially diminish habitat for fish, wildlife, or plants.

National Environmental Policy Act

Pursuant to the U.S. Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, the significance of an impact on the quality of the human environment is determined by considering the context in which it will occur and the intensity of the action (40 CFR, Part 1508, Section 1508.27). "Context" refers to the affected region and the locality in which the action would occur; significance, therefore, will vary depending on the setting of the proposed action. "Intensity" refers to the severity of the impact. In determining the intensity of an impact to wildlife, the following factors should be considered:

Unique Characteristics: An action which affects unique characteristics of the geographic area, such as ecologically critical areas, could be considered to have a significant impact on the human environment.

Threatened/Endangered Species: An action which adversely affects an endangered or threatened species or its habitat could be considered to have a significant impact on the human environment.

National Oceanic and Atmospheric Administration

NOAA has regulatory authority over the Gulf of the Farallones National Marine Sanctuary. This sanctuary was designated under Section 302(a) of Title III of the Marine Protection, Research and Sanctuaries Act of 1972. The sanctuary encompasses an area of the waters adjacent to the coast of California north and

south of the Point Reyes Headlands, between Bodega Head and Rocky Point, and the Farallon Islands (including Noonday Rocks). In relation to this project, the NOAA is a cooperating agency which manages resources associated with the Estero de San Antonio, Estero Americano, and the Russian River estuary.

GENERAL PLAN NATURAL RESOURCES GOALS AND POLICIES

The natural resources goals, policies, and objectives of the city and county general plans with spheres of influence that overlap proposed project components of the Santa Rosa Subregional Long-Term Wastewater Project are summarized below:

Sonoma County General Plan

The Sonoma County General Plan, adopted in 1989 and revised in 1991, contains the following goals and objectives that relate to natural resources:

Land Use Element

Goal LU-9: The uses and intensities of any land development shall be consistent with preservation of important biotic resource areas and scenic features. These features include wetlands, tidal lands, dunes, sea cliffs, marine terraces, headlands, watershed areas, unique geologic formations, and rare or endangered plant or animal habitats.

Objective LU-9.1: Accomplish development on lands with important biotic resources and scenic features in a manner which preserves or enhances these features.

LU-9c: Develop programs for preservation and enhancement of important biotic resource areas with emphasis on lands surrounding the Laguna de Santa Rosa and San Pablo Bay.

Resource Conservation Element

Goal RC-4: Preserve, sustain, and restore forestry resources for their economic, conservation, recreation, and open space values.

Goal RC-5: Promote and maintain the County's diverse plant and animal communities and protect biotic resources from development activities.

Objective RC-5.1: Identify and encourage protection of areas with important wildlife habitats and woodland resources.

Objective RC-5.3: Recognize and preserve the Laguna de Santa Rosa and the San Pablo Bay area as biotic resource areas and historic water retention basins of particular significance to Sonoma County's environment.

Goal RC-6: Identify and protect rare and endangered species and their environment.

Objective RC-6.1: Identify the locations of rare and endangered plants and animals.

Objective RC-6.2: Require that any development on lands containing rare and endangered species be done in a manner which protects the resource or mitigates adverse impacts.

Goal RC-7: Protect and conserve the quality of ocean, marine, and estuarine environments for their scenic , economic, and environmental values.

Goal RC-8: Encourage effective management of freshwater fishery resources and balance competing agricultural, development, and mining needs with protection of the stream environment.

Objective RC-8.1: Identify sources of sediment and erosion and minimize their impact on local water courses.

Objective RC-8.2: Manage riparian corridors along streams to provide protection for fish habitat.

Open Space Element

Goal OS-4: Identify critical habitat areas and assure that the quality of these natural resources is maintained and not adversely affected by development activities.

Objective OS-4.1: Designate important wetlands, marshes, and other critical habitats and maintain low intensity land uses in these areas.

Objective OS-4.2: Establish development guidelines to protect designated critical habitat areas.

OS-4e: Require on building permits a minimum setback of 50 feet from the edge of any wetlands which are within a critical habitat area.

Goal OS-5: Provide protective measures for riparian corridors along selected streams which balance the need for agricultural production, urban development, timber and mining operations, and flood control with preservation of riparian values.

Objective OS-5.1: Classify important streams with native vegetation as “riparian corridors.” Develop guidelines to protect and manage these areas as valuable resources.

Objective OS-5c: Establish streamside conservation areas...for designated riparian corridors as follows:

- Urban riparian corridors: 50 feet
- Russian River riparian corridors: 200 feet
- Flatland riparian corridors: 100 feet
- Upland riparian corridors: 50 feet

Objective OS-5e(6&7): Allow or consider allowing the following uses within any streamside conservation area: 6) Grazing and similar agricultural production activities not involving structures or cultivation, except as defined by 7) below; 7) Agricultural cultivation no closer than:

- Russian River riparian corridors: 100 feet from top of bank
- Flatland riparian corridors: 50 feet from top of bank
- Upland riparian corridors: 25 feet from top of bank

Objective OS-5h(2): Use the following criteria to determine whether or not public projects are consistent with this element: roadway and utility construction should seek to minimize and mitigate, where feasible, damage to riparian areas. Minimize vegetation removal for necessary stream crossings.

City of Santa Rosa General Plan

The City of Santa Rosa General Plan, adopted in July 1991 and amended through April 1995, contains the following policies that relate to natural resources:

Open Space and Conservation Policies

OSC-1: Preserve and restore the natural network of creeks and creek habitats.

OSC-2: Identify and preserve vernal pool wetlands and restore modified pools.

OSC-3: Conserve significant trees and vegetation in Santa Rosa, including creek corridors and hillsides, in rural and agricultural areas, and in urban areas.

OSC-4: Conserve the habitats and movement corridors required by wildlife.

Land Use Policies

LUR-3: Conserve visual and biotic values of the City's hillsides, ridgelines, outlying valleys, and drainage courses.

LUCA-3: Make Santa Rosa Creek a Core Area focal point. Encourage multiple uses of Santa Rosa Creek in the Core Area.

LUS-1: Protect open spaces and unique natural features from intrusion or degradation by inappropriate land uses.

City of Sebastopol General Plan

The City of Sebastopol General Plan, adopted on May 31, 1994, contains the following goals and programs that relate to natural resources:

Conservation, Parks, and Open Space

Goal 1: Preserve areas with important biotic resources such as wetlands, riparian corridors, and areas with scenic features.

Program 4.1: Require development proposals for land which includes or is adjacent to environmentally sensitive areas to develop a resource analysis of the property to determine the boundary of wetlands, upland habitat, the presence and location of endangered plant and animal species, and any other information relevant to the preservation of biotic resources.

Program 6: Protect environmentally sensitive areas.

Goal 2: Ensure the maintenance of wetlands areas adjacent to City boundaries as permanent space.

Program 7: Protect and enhance the Laguna de Santa Rosa and Atascadero Creek.

Goal 3: Protect, maintain, and restore wetlands.

Program 8: Preserve the existing and future floodwater carrying capacity of creeks and channels during creek restoration.

Goal 5: Conserve, protect, and enhance trees and native vegetation.

Program 13: Preserve and plant trees (continue to implement the Tree Protection Ordinance).

Goal 14: Protect and enhance existing sensitive habitats in the Laguna de Santa Rosa.

Program 44: Provide buffer areas to avoid or minimize potential adverse ecological effects of proposed developments, existing uses adjacent to the Laguna, and the area defined by the Laguna Park Master Plan.

Program 44.2: Provide buffers for farm management.

Goal 15: Restore and enhance Laguna de Santa Rosa habitats.

Goal 16: Recover declining rare or endangered species.

Program 55.1: Reintroduce extirpated or endangered species and expand existing populations of those present in the Laguna Park Master Plan.

City of Petaluma General Plan

The City of Petaluma General Plan, adopted in March 1988 and amended through June 1995, contains the following goals, policies, and objectives that relate to natural resources:

Policy 18: The City shall make every effort to preserve landmark trees and major groves.

Petaluma River Goal 2: Preserve and protect the Petaluma River and streams in their natural state as open spaces, natural resources and habitats.

Objective (h): Improve the quality of water in the Petaluma River.

Objective (i): Preserve and protect the Petaluma River open space, resource and habitat.

Objective (j): Preserve and protect streams and the river in their natural state.

Policy 10: The City shall reduce the need for dredging the river by requiring mitigation of land use and development practices which add sediment.

Open Space Goal 3: Preserve existing open space lands outside of Petaluma but within Petaluma's Planning Referral Area.

Conservation Goal 5: Retain waterways and adjacent land in their natural state in the Petaluma Planning Referral Area.

Conservation Goal 6: Protect and preserve natural resources in the Petaluma Planning Referral Area.

Objective (m): Protect water resources vital to the health of the area's residents and important to the area's ecology.

Objective (n): Enhance the wildlife habitat and maintain wildlife travel corridors along waterways.

Objective (o): Protect the Petaluma Marsh as a valuable natural resource which serves as a flood basin, a wildlife habitat, a critical link in the Bay life-chain, ...

Objective (p): Reduce the amount of sediment entering the waterways in Petaluma**.**

Objective (q): Stabilize banks of waterways.

Objective (r): Establish a continuous strip of native vegetation along waterways.

Objective (s): Manage waterways in the Petaluma Planning Referral Area to ensure compatibility between wildlife, plant restoration, and agriculture, in addition to achieving flood protection.

Marin County General Plan

The Marin County General Plan, adopted in January 1994 and amended through December 1995, contains the following objectives, policies, and programs that relate to natural resources:

Environmental Quality Element

Objective EQ-1: Environmental Corridors. To establish a broad land management framework derived from the County's natural environment zones as a basis for local policies and regulation.

Objective EQ-2: Resource Conservation Areas. To identify and conserve specific resources through General Plan policies based upon important environmental factors in Marin County as well as to preserve, protect, and enhance existing habitat and species diversity in Marin County.

Policy EQ-2.1: Riparian systems, streams and their woodland habitat are irreplaceable and should be officially recognized and protected as essential environmental resources.

Policy EQ-2.2: All perennial and intermittent streams, which are defined as natural watercourses shown as blue line streams or dashed blue lines on the most recent appropriate USGS quad sheets, should be subject to stream and creekside protection policies.

Policy EQ-2.3: A Stream Conservation Area (SCA) should be designated along all natural watercourses shown as blue line streams or dashed blue lines on the most recent appropriate USGS quad sheets, or along all watercourses supporting

riparian vegetation for a length of 100 feet or more should be subject to stream and creekside protection policies. In the Coastal Recreation and Inland Rural Corridors, the zone should extend 50 feet landward from the edge of the riparian vegetation. The County shall implement policies and programs that protect and enhance SCAs.

Program EQ-2.43c: The following criteria shall be considered when evaluating development projects which may impact wetland areas and should be incorporated into mitigation measures: a) No overall net losses shall occur in wetlands acreage, functions and values.

Policy EQ-2.58: The County shall protect existing agricultural lands in the Bayfront Conservation Zone. Such agricultural activities could consist primarily of grazing operations and crop production harmonious with adjoining marshes, wetlands, grasslands, or other sensitive lands.

Policy EQ-2.59: Agricultural activities should minimize removal of natural vegetation and avoid removal of wetland vegetation, where possible.

Policy EQ-2.85: Environmental review of development projects shall consider the impact of the proposed development on species and habitat diversity.

Policy EQ-2.86: Development shall be restricted or modified in areas which contain special status and migratory species of the Pacific Flyway and/or significant natural areas, wetlands, riparian habitats, and freshwater habitats, to ensure the continued health and survival of these species and areas.

Policy EQ-3.4: No operation shall cause irreversible damage or more than minimum reversible change to natural hydrological and biological processes.

Policy EQ-3.6: A diversity and abundance of wildlife and marine life shall be maintained. Vegetation and animal habitats shall be preserved wherever possible.

Policy EQ-3.14: The County shall strive to protect large trees, trees with historical importance, and oak woodland habitat, and prevent the untimely removal of trees through implementation of a tree preservation ordinance.

Policy EQ-3.20: Along creeks, development must retain natural vegetation, prevent water pollution, and minimize flood hazards from runoff.

Policy EQ-3.21: On low-lying mudflats or tidal areas, protection of plant and wildlife habitats is of primary importance.

Policy EQ-3.26: Development shall be situated so that wetlands are protected and preserved to the maximum extent feasible.

Program EQ-4.6e: Streamcourses in the Inland Rural Corridor are especially prone to environmental damage. They will be carefully protected from pollution, bank erosion, and destruction of native plants, animals, and fish in reviews of any proposed activities affecting watersheds.

EVALUATION CRITERIA WITH CEQA POINT OF SIGNIFICANCE

Tables 5-1 and 5-2 summarizes both the evaluation criteria and CEQA points of significance used to address potential impacts to terrestrial biological resources and aquatic biological resources respectively.

The CEQA points of significance identified in each of these tables have been used to determine whether the impacts of the project on terrestrial or aquatic biological resources found in the affected environment is significant. For each of the evaluation criteria, an appropriate measurement or measurements is identified, along with the point of significance used to determine if the impact is significant. Those criteria that are not determined by state or federal regulation were developed utilizing a combination of professional judgment, agency consultation, and regional and local resource planning policies to make the determination for the point of significance. For both the aquatic and terrestrial biological resources criteria, an impact is considered significant if it would result in a number greater than the quantified units addressed under the CEQA points of significance.

Table 5-1

Evaluation Criteria and Points of Significance - Terrestrial Biological Resources

Evaluation Criteria	As Measured By	Point of Significance	Justification
1. The project may cause loss of individuals or occupied habitat of endangered, threatened, or rare terrestrial wildlife or plant species.[1]	a) Number of individuals of a plant or wildlife species that would be lost b) Acres of occupied or designated critical habitat	a) Greater than 0 individuals b) Greater than 0 acres	FESA, CESA (Sections 2062 and 2067), CEQA (Article 5, Section 15065), and California Native Plant Protection Act (CDFG Code Sections 1900-1913)
2. The project may cause loss of individuals of CNPS List 2, 3, or 4 terrestrial plant species.	Number of plant species or populations that would experience a loss of individuals	Greater than 15 percent of known occurrences or populations in Sonoma and Marin counties	California Native Plant Protection Act (CDFG Code Sections 1900-1913), CEQA (Article 5, Section 15065), Caitlin Bean, Biologist, CDFG, Yountville, meeting, ___, 1994
3. The project may cause loss of active raptor nest sites.	Number of active nesting sites	Greater than 0 active nest sites	CEQA (Article 5, Section 15065), CDFG California Wildlife Habitat Relationships (CWHR) model - Version 5.2, Fish and Game Code - Section 3503.5, HBA - professional judgment
4. The project may cause loss of sensitive terrestrial wildlife habitat.[2]	Acres of sensitive terrestrial wildlife habitat	Greater than 25 percent of each habitat type	CEQA (Article 5, Section 15065), CDFG California Wildlife Habitat Relationships (CWHR) model - Version 5.2, HBA - professional judgment
5. The project may cause permanent loss of sensitive native terrestrial plant communities.	Acres of sensitive native terrestrial plant community lost	Greater than 0 acres	CEQA (Article 5, Section 15065), California Native Plant Protection Act (Fish and Game Code, Sections 1900-1913), CDFG Interim Wildlife/Hardwood Management Guidelines (February 1, 1989), CDFG (CNDDB 1994, 1995)
6. The project may substantially block or disrupt major terrestrial wildlife migration or travel corridors.	Number of corridors substantially blocked or disrupted	Greater than 0 corridors	CEQA (Appendix G)

Table 5-1

Evaluation Criteria and Points of Significance - Terrestrial Biological Resources

Evaluation Criteria	As Measured By	Point of Significance	Justification
7. The project may result in ecological risk to terrestrial plant and wildlife populations (i.e., acute or chronic toxicity and bioaccumulation).	Ecological Quotient (EQ)[1]	EQ Greater than 10	Menzie et al. 1993

Source: Harland Bartholomew & Associates, Inc., 1996

Notes:

CDFG California Department of Fish and Game
CNPS California Native Plant Society
USFWS United States Fish and Wildlife Service
FESA Federal Endangered Species Act
CESA California Endangered Species Act
CEQA California Environmental Quality Act

1. endangered, threatened, or rare is defined here as:
   - federally listed endangered, threatened, or proposed plant or wildlife species
   - state listed endangered, threatened, or proposed plant or wildlife species
   - federal candidates for listing
   - CNPS List 1B plant species
2. sensitive terrestrial wildlife are defined here as:
   - wildlife designated as “species of special concern” by the California Department of Fish and Game
   - wildlife listed as “fully protected” in California
3. Ecological quotient is the ratio of the exposure concentration or exposure rate to the appropriate benchmark value (i.e., reference values for potential effects on site organisms).

Table 5-2

Evaluation Criteria andPoints of Significance - Aquatic Biological Resources

Evaluation Criteria	As Measured by	Point of Significance	Justification
1. The project may cause loss of individuals or occupied habitat of endangered, threatened, or rare aquatic wildlife or plant species[1].	a) Number of individuals that would be lost b) Acres of occupied or critical habitat lost	a) Greater than 0 individuals b) Greater than 0 acres	FESA, CESA (Sections 2062 and 2067), CEQA (Article 5, Section 15065), and Califonria Native Plant Protection Act (CDFG Code Sections 1900-1913)
2. The project may cause loss of individuals of CNPS List 2, 3, or 4 aquatic plant species.	Number of species that would experience a loss of individuals	Greater than 15 percent of known occurrences in Sonoma and Marin counties	California Native Plant Protection Act (CDFG Code Sections 1900-1913), CEQA (Article 5, Section 15065), Caitlin Bean, Biologist, CDFG, Yountville, meeting January 1994.
3. The project may cause loss of potential or occupied habitat of aquatic species of aquatic wildlife concern.	Acres of potential or occupied habitat lost	Greater than 20 percent of potential habitat in local watershed	FESA, CESA (Sections 2062 and 2067), CEQA (Article 5, Section 15065), and Califonria Native Plant Protection Act (CDFG Code Sections 1900-1913)
4. The project may cause permanent loss of sensitive aquatic plant communities and associated wildlife habitats (i.e., freshwater marsh, brackish marsh, vernal pools).	Acres of sensitive aquatic plant communities lost	Greater than 0 acres	CEQA (Article 5, Section 15065), California Native Plant Protection Act (Fish and Game Code, Sections 1900-1913), See Also Jurisdictional Wetlands Section 4.10, CDFG (CNDDB 1994, 1995)

Table 5-2

Evaluation Criteria andPoints of Significance - Aquatic Biological Resources

Evaluation Criteria	As Measured by	Point of Significance	Justification
5. The project may cause permanent loss of aquatic habitat (i.e., streams and ponds)	a) Linear feet of coolwater Type A and coolwater Type B stream habitat permanently lost b) Linear feet of warmwater Type A stream habitat permanently lost c) Linear feet of warmwater Type B stream habitat permanently lost and d) Acres of pond habitat permanently lost	a) Greater than 0 linear feet b) Greater than 15% of habitat type in local watershed (linear feet and acreage respectively) c and d) Greater than 25% of habitat type in local watershed (linear feet and acreage respectively)	CEQA (Article 5, Section 15065), best professional judgment with concurrence from Bill Cox (CDFG fisheries biologist, Region 3 [Yountville]) Note: See Criteriaon #1 of Jurisdictional Wetlands Section
6. The project may cause a change to the physical condition of aquatic habitat in the Estero Americano or Estero de San Antonio within the Gulf of the Farallones National Marine Sanctuary.	Change in salinity[4] in parts per thousand (ppt) in the Esteros	Greater than 0 ppt salinity change	National Marine Sanctuaries Act (16 U.S.C. 1436), National Oceanic and Atmospheric Administration (15 CFR 922), CEQA (Article 5, Section 15065)
7. The project may substantially block or disrupt major fish or aquatic wildlife migration or travel corridors	Number of corridors substantially blocked or disrupted	Greater than 0 corridors	CEQA (Appendix G)
8. The project may cause a decrease in streamflows, affecting aquatic habitat or aquatic life downstream from proposed dam sites.	Linear feet of stream habitat where 50 percent decrease in wet season streamflow or any decrease in dry season streamflow occurs.	Greater than 0 linear feet	Professional judgment
9. The project may result in ecological risk to aquatic plant and wildlife populations (i.e., acute or chronic toxicity and bioaccumulation).	Ecological quotient[2] (EQ)	EQ Greater than 10	Menzie et al. 1993

Source: Harland Bartholomew & Associates, Inc., 1996

Notes:

CDFG California Department of Fish and Game
CNPS California Native Plant Society
USFWS United States Fish and Wildlife Service
FESA Federal Endangered Species Act
CESA California Endangered Species Act
CEQA California Environmental Quality Act

1. Endangered, threatened, or rare is defined here as:
   - federally listed endangered, threatened, or proposed plant or wildlife species
   - state listed endangered, threatened, or proposed plant or wildlife species
   - federal candidates for listing
   - CNPS List 1B plant species
2. Species of concern wildlife are defined here as:
   - wildlife designated as “species of special concern” by the California Department of Fish and Game
   - wildlife listed as “fully protected” in California
3. Ecological quotient is the ratio of the exposure concentration or exposure rate to the appropriate benchmark value (i.e., reference values for potential effects on site organisms).
4. Salinity is measured by total dissolved solids, which measures all of the salts.

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APPENDICES

APPENDIX A
STORAGE RESERVOIR WILDLIFE SPECIES LISTS

ADOBE ROAD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
Birds	
Scrub jay	*Aphelocoma coerulescens*
Great horned owl	*Bubo virginianus*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
California quail	*Callipepla californica*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Swainson's thrush	*Catharus ustulatus*
Wrentit	*Chamaea fasciata*
Killdeer	*Charadrius vociferus*
Northern flicker	*Colaptes auratus*
Western wood-pewee	*Contopus sordidulus*
American crow	*Corvus brachyrhynchos*
Steller's jay	*Cyanocitta stelleri*
White-tailed kite	*Elanus leucurus*
Brewer's blackbird	*Euphagus cyanocephalus*
Merlin	*Falco columbarius*
American kestrel	*Falco sparverius*
Varied thrush	*Ixoreus naevius*
Dark-eyed junco	*Junco hyemalis*
Acorn woodpecker	*Melanerpes formicivorus*
Plain titmouse	*Parus inornatus*
Savannah sparrow	*Passerculus sandwichensis*
Nuttall's woodpecker	*Picoides nuttallii*
California towhee	*Pipilo crissalis*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Bushtit	*Psaltriparus minimus*
Ruby-crowned kinglet	*Regulus calendula*
Allen's hummingbird	*Selasphorus sasin*
Western bluebird	*Sialia mexicana*

ADOBE ROAD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
American robin	*Turdus migratorius*
Mourning dove	*Zenaida macroura*
Golden-crowned sparrow	*Zonotrichia atricapilla*
Mammals	
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
Western gray squirrel	*Sciurus griseus*
California ground squirrel	*Spermophilus beecheyi*
Reptiles	
Gopher snake	*Pituophis melanoleucus*
Western fence lizard	*Sceloporus occidentalis*

LAKEVILLE HILLSIDE WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Bullfrog	*Rana catesbeiana*
Birds	
Red-winged blackbird	*Agelaius phoeniceus*
Golden eagle	*Aquila chrysaetos*
Great horned owl	*Bubo virginianus*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Anna's hummingbird	*Calypte anna*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Northern flicker	*Colaptes auratus*
Common raven	*Corvus corax*
Yellow-rumped warbler	*Dendroica coronata*
White-tailed kite	*Elanus leucurus*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
Dark-eyed junco	*Junco hyemalis*
Nuttall's woodpecker	*Picoides nuttallii*
California towhee	*Pipilo crissalis*
Ruby-crowned kinglet	*Regulus calendula*
Black phoebe	*Sayornis nigricans*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Mourning dove	*Zenaida macroura*
Golden-crowned sparrow	*Zonotrichia atricapilla*
White-crowned sparrow	*Zonotrichia leucophrys*
Mammals	
Coyote	*Canis latrans*
Black-tailed jackrabbit	*Lepus californicus*
Striped skunk	*Mephitis mephitis*
Raccoon (tracks)	*Procyon lotor*

LAKEVILLE HILLSIDE WILDLIFE SPECIES LIST

Common Name	Scientific Name
California ground squirrel	*Spermophilus beecheyi*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

SEARS POINT WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Birds	
Cooper's hawk	*Accipiter cooperii*
White-throated swift	*Aeronautes saxatalis*
Red-winged blackbird	*Agelaius phoeniceus*
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
Golden eagle	*Aquila chrysaetos*
Great horned owl	*Bubo virginianus*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
California quail	*Callipepla californica*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Lark sparrow	*Chondestes grammacus*
Northern harrier	*Circus cyaneus*
Rock dove	*Columba livia*
Olive-sided flycatcher	*Contopus borealis*
Western wood-pewee	*Contopus sordidulus*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Steller’s jay	*Cyanocitta stelleri*
Horned lark	*Eremophila alpestris*
Brewer’s blackbird	*Euphagus cyanocephalus*
Merlin	*Falco columbarius*
American kestrel	*Falco sparverius*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Northern oriole	*Icterus galbula*
Dark-eyed junco	*Junco hyemalis*

SEARS POINT WILDLIFE SPECIES LIST

Common Name	Scientific Name
Song sparrow	*Melospiza melodia*
Brown-headed cowbird	*Molothrus ater*
Ash-throated flycatcher	*Myiarchus cinerascens*
Plain titmouse	*Parus inornatus*
House sparrow	*Passer domesticus*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
California towhee	*Pipilo crissalis*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Bushtit	*Psaltriparus minimus*
Black phoebe	*Sayornis nigricans*
Allen's hummingbird	*Selasphorus sasin*
Western bluebird	*Sialia mexicana*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Bewick's wren	*Thyromanes bewickii*
House wren	*Troglodytes aedon*
American robin	*Turdus migratorius*
Western kingbird	*Tyrannus verticalis*
Mourning dove	*Zenaida macroura*
Mammals	
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
Western gray squirrel	*Sciurus griseus*
Audubon's cottontail	*Sylvilagus audubonii*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

TOLAY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Bullfrog	*Rana catesbeiana*
Birds	
Cooper's hawk	*Accipiter cooperii*
Red-winged blackbird	*Agelaius phoeniceus*
Tricolored blackbird	*Agelaius tricolor*
Northern shoveler	*Anas clypeata*
Mallard	*Anas platyrhynchos*
Gadwall	*Anas strepera*
Golden eagle	*Aquila chrysaetos*
Great blue heron	*Ardea herodias*
Red-tailed hawk	*Buteo jamaicensis*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
Pine siskin	*Carduelis pinus*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Purple finch	*Carpodacus purpureus*
Great egret	*Casmerodius albus*
Turkey vulture	*Cathartes aura*
Hermit thrush	*Catharus guttatus*
Wrentit	*Chamaea fasciata*
Killdeer	*Charadrius vociferus*
Northern harrier	*Circus cyaneus*
American crow	*Corvus brachyrhynchos*
White-tailed kite	*Elanus leucurus*
Horned lark	*Eremophila alpestris*
Brewer's blackbird	*Euphagus cyanocephalus*
American coot	*Fulica americana*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Northern oriole	*Icterus galbula*

TOLAY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Dark-eyed junco	*Junco hyemalis*
Lincoln's sparrow	*Melospiza lincolnii*
Song sparrow	*Melospiza melodia*
Brown-headed cowbird	*Molothrus ater*
Plain titmouse	*Parus inornatus*
Fox sparrow	*Passerella iliaca*
Double-crested cormorant	*Phalacrocorax auritus*
California towhee	*Pipilo crissalis*
Allen's hummingbird	*Selasphorus sasin*
Western bluebird	*Sialia mexicana*
Western burrowing owl	*Speotyto cunicularia hypugea*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Violet-green swallow	*Tachycineta thalassina*
Greater yellowlegs	*Tringa melanoleuca*
American robin	*Turdus migratorius*
Western kingbird	*Tyrannus verticalis*
Mourning dove	*Zenaida macroura*
Mammals	
Coyote (scat)	*Canis latrans*
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
Audubon's cottontail	*Sylvilagus audubonii*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*
Western fence lizard	*Sceloporus occidentalis*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

BLOOMFIELD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Bullfrog	*Rana catesbeiana*
Birds	
Cooper's hawk	*Accipiter cooperii*
Red-winged blackbird	*Agelaius phoeniceus*
Cinnamon teal	*Anas cyanoptera*
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
Great blue heron	*Ardea herodias*
Great horned owl	*Bubo virginianus*
Bufflehead	*Bucephala albeola*
Red-tailed hawk	*Buteo jamaicensis*
California quail	*Callipepla californica*
Anna’s hummingbird	*Calypte anna*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Lark sparrow	*Chondestes grammacus*
Western wood-pewee	*Contopus sordidulus*
Common raven	*Corvus corax*
Steller’s jay	*Cyanocitta stelleri*
Yellow-rumped warbler	*Dendroica coronata*
Brewer’s blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
Barn swallow	*Hirundo rustica*
Northern oriole	*Icterus galbula*
Dark-eyed junco	*Junco hyemalis*
Loggerhead shrike	*Lanius ludovicianus*
Lincoln's sparrow	*Melospiza lincolnii*
Song sparrow	*Melospiza melodia*
Northern mockingbird	*Mimus polyglottos*

BLOOMFIELD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Brown-headed cowbird	*Molothrus ater*
Plain titmouse	*Parus inornatus*
Chestnut-backed chickadee	*Parus rufescens*
Savannah sparrow	*Passerculus sandwichensis*
California towhee	*Pipilo crissalis*
Bushtit	*Psaltriparus minimus*
Ruby-crowned kinglet	*Regulus calendula*
Black phoebe[1]	*Sayornis nigricans*
Western bluebird	*Sialia mexicana*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Bewick's wren	*Thyromanes bewickii*
American robin	*Turdus migratorius*
Western kingbird	*Tyrannus verticalis*
Mourning dove	*Zenaida macroura*
Golden-crowned sparrow	*Zonotrichia atricapilla*
Mammals	
Long-tailed weasel	*Mustela frenata*
Black tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
Reptiles	
Southern alligator lizard	*Gerrhonotus multicarinatus*
Western fence lizard	*Sceloporus occidentalis*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

CARROLL ROAD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
Bullfrog	*Rana catesbeiana*
Rough-skinned newt	*Taricha granulosa*
Birds	
Sharp-shinned hawk	*Accipiter striatus*
Red-winged blackbird	*Agelaius phoeniceus*
Scrub jay	*Aphelocoma coerulescens*
Cedar waxwing	*Bombycilla cedrorum*
Great horned owl	*Bubo virginianus*
Bufflehead	*Bucephala albeola*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
Pine siskin	*Carduelis pinus*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Purple finch	*Carpodacus purpureus*
Turkey vulture	*Cathartes aura*
Belted kingfisher	*Ceryle alcyon*
Killdeer	*Charadrius vociferus*
Lark sparrow	*Chondestes grammacus*
Northern flicker	*Colaptes auratus*
Rock dove	*Columba livia*
Western wood-pewee	*Contopus sordidulus*
American crow	*Corvus brachyrhynchos*
Yellow-rumped warbler	*Dendroica coronata*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
Barn swallow	*Hirundo rustica*
Northern oriole	*Icterus galbula*
Dark-eyed junco	*Junco hyemalis*
Loggerhead shrike	*Lanius ludovicianus*

CARROLL ROAD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Song sparrow	*Melospiza melodia*
Northern mockingbird	*Mimus polyglottos*
Brown-headed cowbird	*Molothrus ater*
House sparrow	*Passer domesticus*
Savannah sparrow	*Passerculus sandwichensis*
Nuttall's woodpecker	*Picoides nuttallii*
California towhee	*Pipilo crissalis*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Pied-billed grebe	*Podilymbus podiceps*
Bushtit	*Psaltriparus minimus*
Ruby-crowned kinglet	*Regulus calendula*
Black phoebe	*Sayornis nigricans*
Allen's hummingbird	*Selasphorus sasin*
Western bluebird	*Sialia mexicana*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
American robin	*Turdus migratorius*
Barn owl	*Tyto alba*
Mourning dove	*Zenaida macroura*
Golden-crowned sparrow	*Zonotrichia atricapilla*
White-crowned sparrow	*Zonotrichia leucophrys*
Mammals	
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
Audubon's cottontail	*Sylvilagus audubonii*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*
Western fence lizard	*Sceloporus occidentalis*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

HUNTLEY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
California slender salamander	*Batrachoseps attenuatis*
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Bullfrog	*Rana catesbeiana*
Birds	
Red-winged blackbird	*Agelaius phoeniceus*
Mallard	*Anas platyrhynchos*
American pipit	*Anthus rubescens*
Scrub jay	*Aphelocoma coerulescens*
Canada goose	*Branta canadensis*
Great horned owl	*Bubo virginianus*
Bufflehead	*Bucephala albeola*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
Pine siskin	*Carduelis pinus*
American goldfinch	*Carduelis tristis*
Turkey vulture	*Cathartes aura*
Northern flicker	*Colaptes auratus*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Yellow-rumped warbler	*Dendroica coronata*
Horned lark	*Eremophila alpestris*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
Dark-eyed junco	*Junco hyemalis*
Loggerhead shrike	*Lanius ludovicianus*
Song sparrow[1]	*Melospiza melodia*
Chestnut-backed chickadee	*Parus rufescens*
California towhee	*Pipilo crissalis*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Bushtit	*Psaltriparus minimus*

HUNTLEY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Black phoebe	*Sayornis nigricans*
Allen's hummingbird	*Selasphorus sasin*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
American robin	*Turdus migratorius*
Mourning dove	*Zenaida macroura*
Golden-crowned sparrow	*Zonotrichia atricapilla*
White-crowned sparrow	*Zonotrichia leucophrys*
Mammals	
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
Audubon's cottontail	*Sylvilagus audubonii*
American badger (digs/burrow)	*Taxidea taxus*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

TWO ROCK WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Bullfrog	*Rana catesbeiana*
California newt	*Taricha torosa*
Birds	
Red-winged blackbird	*Agelaius phoeniceus*
Grasshopper sparrow	*Ammodramus savanarum*
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
Golden eagle	*Aquila chrysaetos*
Great blue heron	*Ardea herodias*
Cedar waxwing	*Bombycilla cedrorum*
Great horned owl	*Bubo virginianus*
Red-tailed hawk	*Buteo jamaicensis*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Purple finch	*Carpodacus purpureus*
Turkey vulture	*Cathartes aura*
Swainson's thrush	*Catharus ustulatus*
Wrentit	*Chamaea fasciata*
Lark sparrow	*Chondestes grammacus*
Northern flicker	*Colaptes auratus*
Rock dove	*Columba livia*
Western wood-pewee	*Contopus sordidulus*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Steller's jay	*Cyanocitta stelleri*
Yellow warbler	*Dendroica petechia*
Pacific-slope flycatcher	*Empidonax difficilis*
Horned lark	*Eremophila alpestris*
Brewer's blackbird	*Euphagus cyanocephalus*

TWO ROCK WILDLIFE SPECIES LIST

Common Name	Scientific Name
American kestrel	*Falco sparverius*
American coot	*Fulica americana*
Common moorhen	*Gallinula chloropus*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Northern oriole	*Icterus galbula*
Dark-eyed junco	*Junco hyemalis*
California gull	*Larus californicus*
Song sparrow	*Melospiza melodia*
Northern mockingbird	*Mimus polyglottos*
Brown-headed cowbird	*Molothrus ater*
Ash-throated flycatcher	*Myiarchus cinerascens*
Black-crowned night-heron	*Nycticorax nycticorax*
Plain titmouse	*Parus inornatus*
Chestnut-backed chickadee	*Parus rufescens*
House sparrow	*Passer domesticus*
Fox sparrow	*Passerella iliaca*
Lazuli bunting	*Passerina amoena*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
California towhee	*Pipilo crissalis*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Western tanager	*Piranga ludoviciana*
Pied-billed grebe	*Podilymbus podiceps*
Bushtit	*Psaltriparus minimus*
Black phoebe	*Sayornis nigricans*
Allen's hummingbird	*Selasphorus sasin*
Mountain bluebird	*Sialia currucoides*
Western bluebird	*Sialia mexicana*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*

TWO ROCK WILDLIFE SPECIES LIST

Common Name	Scientific Name
Violet-green swallow	*Tachycineta thalassina*
Bewick's wren	*Thyromanes bewickii*
House wren	*Troglodytes aedon*
American robin	*Turdus migratorius*
Western kingbird	*Tyrannus verticalis*
Barn owl	*Tyto alba*
Orange-crowned warbler	*Vermivora celata*
Warbling vireo	*Vireo gilvus*
Hutton's vireo	*Vireo huttoni*
Wilson's warbler[1]	*Wilsonia pusilla*
Mourning dove	*Zenaida macroura*
Mammals	
Striped skunk	*Mephitis mephitis*
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
Western gray squirrel	*Sciurus griseus*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*
Southern alligator lizard	*Gerrhonotus multicarinatus*
Western fence lizard	*Sceloporus occidentalis*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

VALLEY FORD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Western toad	*Bufo boreas*
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Bullfrog	*Rana catesbeiana*
Rough-skinned newt	*Taricha granulosa*
Birds	
Sharp-shinned hawk	*Accipiter striatus*
Red-winged blackbird	*Agelaius phoeniceus*
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
Great blue heron	*Ardea herodias*
Red-tailed hawk	*Buteo jamaicensis*
California quail	*Callipepla californica*
Lesser goldfinch	*Carduelis psaltria*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Killdeer	*Charadrius vociferus*
Northern harrier	*Circus cyaneus*
Northern flicker	*Colaptes auratus*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Yellow-rumped warbler	*Dendroica coronata*
Brewer's blackbird	*Euphagus cyanocephalus*
Prairie falcon	*Falco mexicanus*
American kestrel	*Falco sparverius*
Loggerhead shrike	*Lanius ludovicianus*
Savannah sparrow	*Passerculus sandwichensis*
Nuttall's woodpecker	*Picoides nuttallii*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Pied-billed grebe	*Podilymbus podiceps*
Black phoebe	*Sayornis nigricans*
Western bluebird	*Sialia mexicana*
Western meadowlark	*Sturnella neglecta*

VALLEY FORD WILDLIFE SPECIES LIST

Common Name	Scientific Name
European starling	*Sturnus vulgaris*
Greater yellowlegs	*Tringa melanoleuca*
Western kingbird	*Tyrannus verticalis*
Mourning dove	*Zenaida macroura*
Mammals	
Coyote (scat)	*Canis latrans*
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*
Gopher snake	*Pituophis melanoleucus*
Western fence lizard	*Sceloporus occidentalis*

APPENDIX B
CHWR HABITAT MODEL RUNS

The following CHWR reports are species lists for a single situation. This means that these reports contain only those species that the CWHR database predicted to occur for a single habitat situation as defined by the user (Garrison 1995). The situation was defined by specifying the habitat, seral stage, location, seasons, habitat elements, legal status, and life requisite levels (Garrison 1995). These particular reports are detailed, meaning that they contain both the predicted species and the associate habitat information.

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SPECIES DETAIL LIST

==========

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:

1 ANNUAL GRASS	SHORT HERB	DENSE	60-100%	(1D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A046	BULLFROG	9							
				Yearlong	ANNUAL GRASS 1D	L	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B043	BROWN PELICAN	1 3 5							
				Spring-Fall	ANNUAL GRASS 1D	H	H		H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B070	GREATER WHITE-FRONTED GOOSE	9							
				Fall-Spring	ANNUAL GRASS 1D		L	H	H
				Fall-Spring	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B071	SNOW GOOSE	9							
				Fall-Spring	ANNUAL GRASS 1D		L	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B072	ROSS' GOOSE	9							
				Fall-Spring	ANNUAL GRASS 1D		L	H	H
				Fall-Spring	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B074	BRANT	9							
				Fall-Spring	ANNUAL GRASS 1D			H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B074	BRANT	9							
				Fall	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B075	CANADA GOOSE	2 9							
				Yearlong	ANNUAL GRASS 1D	L	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B077	GREEN-WINGED TEAL	9							
				Yearlong	ANNUAL GRASS 1D	M	M	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B079	MALLARD	9							
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B080	NORTHERN PINTAIL	9							
				Yearlong	ANNUAL GRASS 1D	M	M	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B084	NORTHERN SHOVELER	9							
				Yearlong	ANNUAL GRASS 1D	M	H		H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B085	GADWALL	9							
				Yearlong	ANNUAL GRASS 1D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B087	AMERICAN WIGEON	9							
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B111	WHITE-TAILED KITE ✓	5							
				Yearlong	ANNUAL GRASS 1D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B114	NORTHERN HARRIER ✓	6							
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B124	FERRUGINOUS HAWK ✓	67	2						
				Fall-Spring	ANNUAL GRASS 1D		L	H	H
				Winter	MARIN COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B124	FERRUGINOUS HAWK	67	2						
				Winter	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	ANNUAL GRASS 1D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B133	RING-NECKED PHEASANT	9							
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B136	WILD TURKEY	9							
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	ANNUAL GRASS 1D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B149	AMERICAN COOT	9							
				Fall-Spring	ANNUAL GRASS 1D		L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B173	LONG-BILLED CURLEW	6							
				Yearlong	ANNUAL GRASS 1D		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	ANNUAL GRASS 1D			H	H
				Yearlong	MARIN COUNTY				
B273	SHORT-EARED OWL	6							
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	ANNUAL GRASS 1D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B338	PURPLE MARTIN	6							
				Spring-Fall	ANNUAL GRASS 1D			H	H

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ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B338	PURPLE MARTIN	6							
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Fall	ANNUAL GRASS 1D			H	H
				Spring and Fall	MARIN COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	ANNUAL GRASS 1D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B410	LOGGERHEAD SHRIKE	1 67							
				Yearlong	ANNUAL GRASS 1D		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B461	COMMON YELLOWTHROAT SM	67	2						
				Yearlong	ANNUAL GRASS 1D	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B487	RUFOUS-CROWNED SPARROW	67	2						
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B499	SAVANNAH SPARROW	3 6	2						
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B520	TRICOLORED BLACKBIRD	67	2						
				Yearlong	ANNUAL GRASS 1D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M038	PALLID BAT	6							
				Yearlong	ANNUAL GRASS 1D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M045	BRUSH RABBIT	3 9	1						
				Yearlong	ANNUAL GRASS 1D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M051	BLACK-TAILED HARE	67 9	2						
				Yearlong	ANNUAL GRASS 1D		L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M134	CALIFORNIA VOLE	1 3 67	2						
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M146	COYOTE	9							
				Yearlong	ANNUAL GRASS 1D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	ANNUAL GRASS 1D			H	H
				Yearlong	SONOMA COUNTY				
M157	LONG-TAILED WEASEL	9							
				Yearlong	ANNUAL GRASS 1D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	ANNUAL GRASS 1D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M178	FALLOW DEER	9							
				Yearlong	ANNUAL GRASS 1D	H	L	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M180	AXIS DEER	9							
				Yearlong	ANNUAL GRASS 1D	H	L	M	H
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	ANNUAL GRASS 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 47

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 ANNUAL GRASS TALL HERB DENSE 60-100% (2D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A046	BULLFROG	9							
				Yearlong	ANNUAL GRASS 2D	L	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B043	BROWN PELICAN	1 3 5							
				Spring-Fall	ANNUAL GRASS 2D	H	H		H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B070	GREATER WHITE-FRONTED GOOSE	9							
				Fall-Spring	ANNUAL GRASS 2D		L	H	H
				Fall-Spring	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B071	SNOW GOOSE	9							
				Fall-Spring	ANNUAL GRASS 2D		L	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B072	ROSS' GOOSE	9							
				Fall-Spring	ANNUAL GRASS 2D		L	H	H
				Fall-Spring	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B075	CANADA GOOSE	2 9							
				Yearlong	ANNUAL GRASS 2D	L	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P $	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B075	CANADA GOOSE	2	9						
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B077	GREEN-WINGED TEAL		9						
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B079	MALLARD		9						
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B080	NORTHERN PINTAIL		9						
				Yearlong	ANNUAL GRASS 2D	M	M	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B082	BLUE-WINGED TEAL		9						
				Spring-Fall	ANNUAL GRASS 2D	H	H	M	H
				Fall-Winter	MARIN COUNTY				
B084	NORTHERN SHOVELER		9						
				Yearlong	ANNUAL GRASS 2D	M	H		H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B085	GADWALL		9						
				Yearlong	ANNUAL GRASS 2D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B087	AMERICAN WIGEON		9						
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B094	LESSER SCAUP		9						
				Spring-Fall	ANNUAL GRASS 2D	H	H		H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	ANNUAL GRASS 2D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B114	NORTHERN HARRIER	6							
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B124	FERRUGINOUS HAWK	67	2						
				Fall-Spring	ANNUAL GRASS 2D		L	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	ANNUAL GRASS 2D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B133	RING-NECKED PHEASANT	9							
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B173	LONG-BILLED CURLEW	6							
				Yearlong	ANNUAL GRASS 2D		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	ANNUAL GRASS 2D			H	H
				Yearlong	MARIN COUNTY				
B273	SHORT-EARED OWL	6							
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	ANNUAL GRASS 2D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B338	PURPLE MARTIN	6							
				Spring-Fall	ANNUAL GRASS 2D			H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B342	BANK SWALLOW	4							
				Spring-fall	ANNUAL GRASS 2D			H	H
				Spring and Fall	MARIN COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	ANNUAL GRASS 2D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B461	COMMON YELLOWTHROAT	67	2						
				Yearlong	ANNUAL GRASS 2D	M	M	M	M
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B487	RUFOUS-CROWNED SPARROW	67	2						
				Yearlong	ANNUAL GRASS 2D	M	M	M	M
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B520	TRICOLORED BLACKBIRD	67	2						
				Yearlong	ANNUAL GRASS 2D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	ANNUAL GRASS 2D	M	M	M	M
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M038	PALLID BAT	6							
				Yearlong	ANNUAL GRASS 2D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M045	BRUSH RABBIT	3 9	1						
				Yearlong	ANNUAL GRASS 2D	M	M	M	M
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M051	BLACK-TAILED HARE	67 9	2						
				Yearlong	ANNUAL GRASS 2D		M	M	M
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M134	CALIFORNIA VOLE	1 3 67	2						
				Yearlong	ANNUAL GRASS 2D	M	M	M	M
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M146	COYOTE	9							
				Yearlong	ANNUAL GRASS 2D	L	L	M	M
				Yearlong	MARIN COUNTY				

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBN ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M146	COYOTE	9							
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	ANNUAL GRASS 2D			H	H
				Yearlong	SONOMA COUNTY				
M157	LONG-TAILED WEASEL	9							
				Yearlong	ANNUAL GRASS 2D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	ANNUAL GRASS 2D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M178	FALLOW DEER	9							
				Yearlong	ANNUAL GRASS 2D	H	L	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M180	AXIS DEER	9							
				Yearlong	ANNUAL GRASS 2D	H	L	L	H
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	ANNUAL GRASS 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 45

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 COASTAL OAK WOODLAND SMALL TREE SPARSE 10-24% (4S)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A007	CALIFORNIA NEWT	6							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 4S		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 4S		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B124	FERRUGINOUS HAWK	67	2						
				Fall-Spring	COASTAL OAK WOODLAND 4S		H	M	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B126	GOLDEN EAGLE	56							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B128	MERLIN	6							
				Fall-Spring	COASTAL OAK WOODLAND 4S		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Fall-Spring	COASTAL OAK WOODLAND 4S	M	M	H	H
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B337	HORNED LARK	67							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B338	PURPLE MARTIN	6							
				Spring-Fall	COASTAL OAK WOODLAND 4S		L	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B353	AMERICAN CROW	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B410	LOGGERHEAD SHRIKE	1 67							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	COASTAL OAK WOODLAND 4S	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B499	SAVANNAH SPARROW	3 6	2						
				Fall-Spring	COASTAL OAK WOODLAND 4S		M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B512	DARK-EYED JUNCO	6							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M038	PALLID BAT	6							
				Yearlong	COASTAL OAK WOODLAND 4S	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M149	GRAY FOX	9							
				Yearlong	COASTAL OAK WOODLAND 4S	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M152	RINGTAIL	5							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M166	BOBCAT	9							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M178	FALLOW DEER	9							
				Yearlong	COASTAL OAK WOODLAND 4S	H	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
R004	WESTERN POND TURTLE	567	2						
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	COASTAL OAK WOODLAND 4S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 29

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 COASTAL OAK WOODLAND SMALL TREE DENSE 60-100% (4D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A007	CALIFORNIA NEWT	6							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 4D		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	L	H

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ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B131	PRAIRIE FALCON	6							
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	COASTAL OAK WOODLAND 4D	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	COASTAL OAK WOODLAND 4D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Fall-Spring	COASTAL OAK WOODLAND 4D	L	H	L	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	COASTAL OAK WOODLAND 4D	L	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL ✓	6							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	L	H
				Yearlong	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER ✓	6							
				Spring-Fall	COASTAL OAK WOODLAND 4D		M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	COASTAL OAK WOODLAND 4D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M178	FALLOW DEER	9							
				Yearlong	COASTAL OAK WOODLAND 4D	L	H	L	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M178	FALLOW DEER	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	COASTAL OAK WOODLAND 4D	L	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Yearlong	COASTAL OAK WOODLAND 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 19

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 COASTAL OAK WOODLAND MED/LARGE TREE MODRTE 40-59% (5M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE
SLASH, LARGE Hard
SLASH, LARGE Rotten
SLASH, LARGE Sound
SNAG, LARGE Rotten
SNAG, LARGE Sound
SOIL, FRIABLE
SOIL, SALINE
SPRINGS, HOT
SPRINGS, MINERAL
STEEP SLOPE
TALUS

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A007	CALIFORNIA NEWT	6							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A012	ENSATINA	67	2						
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 5M		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B116	COOPER'S HAWK	6							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Fall-Spring	COASTAL OAK WOODLAND 5M	L	H	M	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	M	H
				Yearlong	MARIN COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B338	PURPLE MARTIN	6							
				Spring-Fall	COASTAL OAK WOODLAND 5M	H	H	M	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM
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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B348	SCRUB JAY	6	2						
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	COASTAL OAK WOODLAND 5M	M	M	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B410	LOGGERHEAD SHRIKE	1 67							
				Yearlong	COASTAL OAK WOODLAND 5M	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	COASTAL OAK WOODLAND 5M		M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M038	PALLID BAT	6							
				Yearlong	COASTAL OAK WOODLAND 5M	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M153	RACCOON	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	COASTAL OAK WOODLAND 5M	H	H	H	H
				Yearlong	MARIN COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBN ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45		Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 27

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 COASTAL OAK WOODLAND MED/LARGE TREE DENSE 60-100% (5D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A012	ENSATINA	67	2						
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 5D		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	L	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B126	GOLDEN EAGLE	56							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	COASTAL OAK WOODLAND 5D	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	COASTAL OAK WOODLAND 5D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Fall-Spring	COASTAL OAK WOODLAND 5D	L	H	L	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	L	H
				Yearlong	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	COASTAL OAK WOODLAND 5D		M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M153	RACCOON	9							
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	M	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M153	RACCOON	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	COASTAL OAK WOODLAND 5D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M178	FALLOW DEER	9							
				Yearlong	COASTAL OAK WOODLAND 5D	M	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Yearlong	COASTAL OAK WOODLAND 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 20

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 COASTAL SCRUB MATURE SHRUB MODRTE 40-59% (3M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE
SLASH, LARGE Hard
SLASH, LARGE Rotten
SLASH, LARGE Sound
SNAG, LARGE Rotten
SNAG, LARGE Sound
SOIL, FRIABLE
SOIL, SALINE
SPRINGS, HOT
SPRINGS, MINERAL
STEEP SLOPE
TALUS

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A007	CALIFORNIA NEWT	6							
				Yearlong	COASTAL SCRUB 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A040	RED-LEGGED FROG	567	P						
				Yearlong	COASTAL SCRUB 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	COASTAL SCRUB 3M	M	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	COASTAL SCRUB 3M		H	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	COASTAL SCRUB 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	COASTAL SCRUB 3M	H	H	L	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBR ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B131	PRAIRIE FALCON	6							
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	COASTAL SCRUB 3M	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B247	RHINOCEROS AUKLET	6							
				Yearlong	COASTAL SCRUB 3M	H	H		H
				Fall-Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Fall	COASTAL SCRUB 3M	H	H	H	H
				Spring and Fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	COASTAL SCRUB 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B484	CALIFORNIA TOWHEE	23							
				Yearlong	COASTAL SCRUB 3M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B497	SAGE SPARROW	2 6	2						
				Yearlong	COASTAL SCRUB 3M	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M045	BRUSH RABBIT	3 9	1						
				Yearlong	COASTAL SCRUB 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M047	DESERT COTTONTAIL	9							
				Yearlong	COASTAL SCRUB 3M	H	H	M	H
				Yearlong	SONOMA COUNTY				
M117	DEER MOUSE	6	2						
				Yearlong	COASTAL SCRUB 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M127	DUSKY-FOOTED WOODRAT	67	1						
				Yearlong	COASTAL SCRUB 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M146	COYOTE	9							
				Yearlong	COASTAL SCRUB 3M	H	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M146	COYOTE	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M149	GRAY FOX	9							
				Yearlong	COASTAL SCRUB 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	COASTAL SCRUB 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M165	MOUNTAIN LION	56	2						
				Yearlong	COASTAL SCRUB 3M	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M166	BOBCAT	9							
				Yearlong	COASTAL SCRUB 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	COASTAL SCRUB 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	COASTAL SCRUB 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	COASTAL SCRUB 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 24

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

CRP

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 CROPLAND (1)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM
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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B124	FERRUGINOUS HAWK	67	2						
				Fall-Spring	CROPLAND 1		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B144	CLAPPER RAIL	1 345							
				Yearlong	CROPLAND 1	L	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B269	BURROWING OWL	6	2						
				Yearlong	CROPLAND 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M045	BRUSH RABBIT	3 9	1						
				Yearlong	CROPLAND 1	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M047	DESERT COTTONTAIL	9							
				Yearlong	CROPLAND 1	H	H	H	H
				Yearlong	SONOMA COUNTY				
M051	BLACK-TAILED HARE	67 9	2						
				Yearlong	CROPLAND 1	M	M	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M051	BLACK-TAILED HARE	67 9	2						
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M146	COYOTE	9							
				Yearlong	CROPLAND 1	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M149	GRAY FOX	9							
				Yearlong	CROPLAND 1		L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	CROPLAND 1	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	CROPLAND 1			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M177	ELK	9							
				Yearlong	CROPLAND 1			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	CROPLAND 1			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 12

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

FEW ID

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:

1 FRESH EMERGENT WETLAND	SHORT HERB	DENSE	60-100%	(1D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A007	CALIFORNIA NEWT	6							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A040	RED-LEGGED FROG	567	P						
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A046	BULLFROG	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B070	GREATER WHITE-FRONTED GOOSE	9							
				Fall-Spring	FRESH EMERGENT WETLAND 1D		H	H	H
				Fall-Spring	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B071	SNOW GOOSE	9							
				Fall-Spring	FRESH EMERGENT WETLAND 1D		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B072	ROSS' GOOSE	9							
				Fall-Spring	FRESH EMERGENT WETLAND 1D		L	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B072	ROSS' GOOSE	9							
				Fall-Spring	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B075	CANADA GOOSE	2 9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	FRESH EMERGENT WETLAND 1D		M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B077	GREEN-WINGED TEAL	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	M	M	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B079	MALLARD	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B080	NORTHERN PINTAIL	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	L	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B083	CINNAMON TEAL	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B084	NORTHERN SHOVELER	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	M	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B085	GADWALL	9							
				Yearlong	FRESH EMERGENT WETLAND 1D		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B087	AMERICAN WIGEON	9							
				Yearlong	FRESH EMERGENT WETLAND 1D		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B090	REDHEAD	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	L	H
				Fall-Winter	MARIN COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B090	REDHEAD	9							
				Fall-Winter	SONOMA COUNTY				
B091	RING-NECKED DUCK	9							
				Spring-Fall	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B094	LESSER SCAUP	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H		H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	FRESH EMERGENT WETLAND 1D		M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	FRESH EMERGENT WETLAND 1D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	FRESH EMERGENT WETLAND 1D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B114	NORTHERN HARRIER	6							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B143	BLACK RAIL	45	2						
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B144	CLAPPER RAIL	1 345							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B148	COMMON MOORHEN	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B149	AMERICAN COOT	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B173	LONG-BILLED CURLEW	6							
				Yearlong	FRESH EMERGENT WETLAND 1D			H	M	H
				Fall-Winter	MARIN COUNTY					
				Fall-Winter	SONOMA COUNTY					
B199	COMMON SNIPE	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Fall-Winter	MARIN COUNTY					
				Fall-Winter	SONOMA COUNTY					
B215	CALIFORNIA GULL	6							
				Yearlong	FRESH EMERGENT WETLAND 1D			L	H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
B273	SHORT-EARED OWL	6							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
B338	PURPLE MARTIN	6							
				Spring-Fall	FRESH EMERGENT WETLAND 1D				H	H
				Spring-Summer	MARIN COUNTY					
				Spring-Summer	SONOMA COUNTY					
B461	COMMON YELLOWTHROAT SM	67	2						
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
B505	SONG SPARROW SP	6	2						
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
B520	TRICOLORED BLACKBIRD	67	2						
				Yearlong	FRESH EMERGENT WETLAND 1D				H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
M003	VAGRANT SHREW	6	2						
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
M139	MUSKRAT	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
M149	GRAY FOX	9							
				Yearlong	FRESH EMERGENT WETLAND 1D				H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M149	GRAY FOX	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M163	RIVER OTTER	6	2						
				Yearlong	FRESH EMERGENT WETLAND 1D		M	H	H
				Yearlong	SONOMA COUNTY				
M177	ELK	9							
				Yearlong	FRESH EMERGENT WETLAND 1D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	FRESH EMERGENT WETLAND 1D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 44

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

FEW 2D

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 FRESH EMERGENT WETLAND TALL HERB DENSE 60-100% (2D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A007	CALIFORNIA NEWT	6							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A040	RED-LEGGED FROG	567	P						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A046	BULLFROG	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B070	GREATER WHITE-FRONTED GOOSE	9							
				Fall-Spring	FRESH EMERGENT WETLAND 2D		H	H	H
				Fall-Spring	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B071	SNOW GOOSE	9							
				Fall-Spring	FRESH EMERGENT WETLAND 2D		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B072	ROSS' GOOSE	9							
				Fall-Spring	FRESH EMERGENT WETLAND 2D		L	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B072	ROSS' GOOSE	9							
				Fall-Spring	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B075	CANADA GOOSE	2 9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	FRESH EMERGENT WETLAND 2D		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B077	GREEN-WINGED TEAL	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B079	MALLARD	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B080	NORTHERN PINTAIL	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	L	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B082	BLUE-WINGED TEAL	9							
				Spring-Fall	FRESH EMERGENT WETLAND 2D	H	H	M	H
				Fall-Winter	MARIN COUNTY				
B083	CINNAMON TEAL	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B084	NORTHERN SHOVELER	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	M	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B085	GADWALL	9							
				Yearlong	FRESH EMERGENT WETLAND 2D		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B087	AMERICAN WIGEON	9							
				Yearlong	FRESH EMERGENT WETLAND 2D		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				

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ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B090	REDHEAD	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	L	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B091	RING-NECKED DUCK	9							
				Spring-Fall	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B094	LESSER SCAUP	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H		H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	FRESH EMERGENT WETLAND 2D		M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B107	RUDDY DUCK	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	FRESH EMERGENT WETLAND 2D			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B114	NORTHERN HARRIER	6							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B143	BLACK RAIL	45	2						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B144	CLAPPER RAIL	1 345							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B148	COMMON MOORHEN	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B149	AMERICAN COOT	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H

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ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B149	AMERICAN COOT	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B173	LONG-BILLED CURLEW	6							
				Yearlong	FRESH EMERGENT WETLAND 2D		H	M	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B199	COMMON SNIPE	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B273	SHORT-EARED OWL	6							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B338	PURPLE MARTIN	6							
				Spring-Fall	FRESH EMERGENT WETLAND 2D			H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B461	COMMON YELLOWTHROAT	67	2						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B505	SONG SPARROW	6	2						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B520	TRICOLORED BLACKBIRD	67	2						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M149	GRAY FOX	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	L	L	H	H
				Yearlong	MARIN COUNTY				

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M149	GRAY FOX	9							
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M163	RIVER OTTER	6	2						
				Yearlong	FRESH EMERGENT WETLAND 2D		M	H	H
				Yearlong	SONOMA COUNTY				
M177	ELK	9							
				Yearlong	FRESH EMERGENT WETLAND 2D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	FRESH EMERGENT WETLAND 2D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 43

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

LAC 2M

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:

1 LACUSTRINE	SUBMERGED	MUD	(2M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B044	DOUBLE-CRESTED CORMORANT	6							
				Yearlong	LACUSTRINE 2M		M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B070	GREATER WHITE-FRONTED GOOSE	9							
				Fall-Spring	LACUSTRINE 2M		H	H	H
				Fall-Spring	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B071	SNOW GOOSE	9							
				Fall-Spring	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B072	ROSS' GOOSE	9							
				Fall-Spring	LACUSTRINE 2M		H	M	H
				Fall-Spring	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B075	CANADA GOOSE	2 9							
				Yearlong	LACUSTRINE 2M		H	L	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	LACUSTRINE 2M		H	M	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B076	WOOD DUCK	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B077	GREEN-WINGED TEAL	9							
				Fall-Spring	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B079	MALLARD	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B080	NORTHERN PINTAIL	9							
				Fall-Spring	LACUSTRINE 2M		M	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B083	CINNAMON TEAL	9							
				Yearlong	LACUSTRINE 2M		M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B084	NORTHERN SHOVELER	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B085	GADWALL	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B086	EURASIAN WIGEON	9							
				Fall-Spring	LACUSTRINE 2M		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B087	AMERICAN WIGEON	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B090	REDHEAD	9							
				Fall-Spring	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B091	RING-NECKED DUCK	9							
				Yearlong	LACUSTRINE 2M		M	H	H
				Fall-Winter	MARIN COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B091	RING-NECKED DUCK	9							
				Fall-Winter	SONOMA COUNTY				
B094	LESSER SCAUP	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B101	COMMON GOLDENEYE	9							
				Fall-Spring	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B103	BUFFLEHEAD	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Fall-Winter	MARIN COUNTY				
				Fall-Winter	SONOMA COUNTY				
B104	HOODED MERGANSER	9							
				Fall-Spring	LACUSTRINE 2M		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B107	RUDDY DUCK	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	LACUSTRINE 2M			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B113	BALD EAGLE	23 5							
				Yearlong	LACUSTRINE 2M			H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B149	AMERICAN COOT	9							
				Yearlong	LACUSTRINE 2M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B215	CALIFORNIA GULL	6							
				Yearlong	LACUSTRINE 2M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B338	PURPLE MARTIN	6							
				Spring-Fall	LACUSTRINE 2M			H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	LACUSTRINE 2M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	LACUSTRINE 2M			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M163	RIVER OTTER	6	2						
				Yearlong	LACUSTRINE 2M		M	H	H
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	LACUSTRINE 2M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 31

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

MCH 3D

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

==========

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 MIXED CHAPARRAL MATURE SHRUB DENSE 60-100% (3D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE
SLASH, LARGE Hard
SLASH, LARGE Rotten
SLASH, LARGE Sound
SNAG, LARGE Rotten
SNAG, LARGE Sound
SOIL, FRIABLE
SOIL, SALINE
SPRINGS, HOT
SPRINGS, MINERAL
STEEP SLOPE

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

==========

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P	SEASON IN LOCATION OR	S	LOCATIONS, HABITATS AND HABITAT	SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
								R	C	F	I
B111	WHITE-TAILED KITE	5									
		Yearlong				MIXED CHAPARRAL 3D		M	H	L	H
		Yearlong				MARIN COUNTY					
		Yearlong				SONOMA COUNTY					
B126	GOLDEN EAGLE	56									
		Yearlong				MIXED CHAPARRAL 3D		H	H	L	H
		Yearlong				MARIN COUNTY					
		Yearlong				SONOMA COUNTY					
B272	LONG-EARED OWL	6									
		Yearlong				MIXED CHAPARRAL 3D		L	H	H	H
		Yearlong				MARIN COUNTY					
B348	SCRUB JAY	6	2								

	Yearlong	MIXED CHAPARRAL 3D	H	H	H	H
	Yearlong	MARIN COUNTY				
	Yearlong	SONOMA COUNTY				
M045 BRUSH RABBIT	3 9 1					
	Yearlong	MIXED CHAPARRAL 3D	H	H	L	H
	Yearlong	MARIN COUNTY				
	Yearlong	SONOMA COUNTY				
M047 DESERT COTTONTAIL	9					
	Yearlong	MIXED CHAPARRAL 3D	H	H	L	H

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P OR	SEASON IN LOCATION	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M047	DESERT COTTONTAIL	ETETPSSS	9						
		Yearlong			SONOMA COUNTY				
M117	DEER MOUSE	6	2						
		Yearlong			MIXED CHAPARRAL 3D	H	H	H	H
		Yearlong			MARIN COUNTY				
		Yearlong			SONOMA COUNTY				
M127	DUSKY-FOOTED WOODRAT	67	1						
		Yearlong			MIXED CHAPARRAL 3D	H	H	H	H
		Yearlong			MARIN COUNTY				
		Yearlong			SONOMA COUNTY				
M146	COYOTE	9							
		Yearlong			MIXED CHAPARRAL 3D	H	H	M	H
		Yearlong			MARIN COUNTY				
		Yearlong			SONOMA COUNTY				
M149	GRAY FOX	9							
		Yearlong			MIXED CHAPARRAL 3D	H	H	M	H
		Yearlong			MARIN COUNTY				
		Yearlong			SONOMA COUNTY				
M165	MOUNTAIN LION	56	2						
		Yearlong			MIXED CHAPARRAL 3D	H	H	M	H
		Yearlong			MARIN COUNTY				
		Yearlong			SONOMA COUNTY				
M166	BOBCAT	9							
		Yearlong			MIXED CHAPARRAL 3D	H	H	M	H
		Yearlong			MARIN COUNTY				
		Yearlong			SONOMA COUNTY				
M176	WILD PIG	9							
		Yearlong			MIXED CHAPARRAL 3D	H	H	H	H
		Yearlong			MARIN COUNTY				
		Yearlong			SONOMA COUNTY				
M178	FALLOW DEER	9							
		Yearlong			MIXED CHAPARRAL 3D	M	H	L	H
		Yearlong			MARIN COUNTY				

Important!
I can't believe we haven't
caught this species yet! JK

	Yearlong	SONOMA COUNTY					
R053 CALIFORNIA WHIPSNAKE		45	P				
	Yearlong	MIXED CHAPARRAL 3D		H	H	H	H
	Yearlong	MARIN COUNTY					
	Yearlong	SONOMA COUNTY					

TOTAL SPECIES: 15

•(8U•(s0p10h12v0s0b3T•(s3T

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

MHW-4D

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:

1 MONTANE HARDWOOD	SMALL TREE	DENSE	60-100%	(4D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B115	SHARP-SHINNED HAWK	6							
				Yearlong	MONTANE HARDWOOD 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	MONTANE HARDWOOD 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	MONTANE HARDWOOD 4D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	MONTANE HARDWOOD 4D	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	MONTANE HARDWOOD 4D	M	H	H	H
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	MONTANE HARDWOOD 4D	M	H	M	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	MONTANE HARDWOOD 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	MONTANE HARDWOOD 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M156	ERMINE	9							
				Yearlong	MONTANE HARDWOOD 4D	H	H	L	H
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	MONTANE HARDWOOD 4D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	MONTANE HARDWOOD 4D	L	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R046	RUBBER BOA	45 7	2						
				Yearlong	MONTANE HARDWOOD 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 12

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

MHW 5M

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SPECIES DETAIL LIST

==========

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:

1 MONTANE HARDWOOD	MED/LARGE TREE	MODRTE	40-59%	(5M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B115	SHARP-SHINNED HAWK	6							
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	MONTANE HARDWOOD 5M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	MONTANE HARDWOOD 5M	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	MONTANE HARDWOOD 5M	M	H	M	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Spring-Fall	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B270	SPOTTED OWL	2 67	2						
				Yearlong	MONTANE HARDWOOD 5M	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B338	PURPLE MARTIN	6							
				Spring-Fall	MONTANE HARDWOOD 5M	H	H	L	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	MONTANE HARDWOOD 5M	H	H	M	H
				Yearlong	SONOMA COUNTY				
M153	RACCOON	9							
				Yearlong	MONTANE HARDWOOD 5M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M165	MOUNTAIN LION	56	2						
				Yearlong	MONTANE HARDWOOD 5M	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R046	RUBBER BOA	45 7	2						
				Yearlong	MONTANE HARDWOOD 5M	H	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
R046	RUBBER BOA	45 7	2						
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 17

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
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5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 URBAN SEEDLING TREE (1)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBN ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B076	WOOD DUCK	9							
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B079	MALLARD	9							
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Fall-Spring	URBAN 1		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B111	WHITE-TAILED KITE	5							
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	URBAN 1	H	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C	P	S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B116	COOPER'S HAWK	6									
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B128	MERLIN	6									
						Fall-Spring	URBAN 1		M	H	H
						Winter	MARIN COUNTY				
						Winter	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9									
						Yearlong	URBAN 1	M	H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B148	COMMON MOORHEN	9									
						Yearlong	URBAN 1	H	H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B149	AMERICAN COOT	9									
						Fall-Winter	URBAN 1	H	H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B215	CALIFORNIA GULL	6									
						Yearlong	URBAN 1		H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B250	ROCK DOVE	9									
						Yearlong	URBAN 1	H	H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9									
						Yearlong	URBAN 1	H	H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9									
						Yearlong	URBAN 1	H	H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B269	BURROWING OWL	6		2							
						Yearlong	URBAN 1	H	H	H	H
						Yearlong	MARIN COUNTY				
						Yearlong	SONOMA COUNTY				
B273	SHORT-EARED OWL	6									
						Yearlong	URBAN 1		H	H	H
						Yearlong	MARIN COUNTY				

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B273	SHORT-EARED OWL	6							
				Yearlong	SONOMA COUNTY				
B281	VAUX'S SWIFT	6							
				Spring-Summer	URBAN 1	L	L	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B338	PURPLE MARTIN	6							
				Spring-Fall	URBAN 1	H	H	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Fall	URBAN 1	H	H	H	H
				Spring and Fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	URBAN 1	L	H	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B484	CALIFORNIA TOWHEE	23							
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B512	DARK-EYED JUNCO	6							
				Yearlong	URBAN 1	L	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M045	BRUSH RABBIT	3	9 1						
				Yearlong	URBAN 1	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M047	DESERT COTTONTAIL	9							
				Yearlong	URBAN 1	H	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFSH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M047	DESERT COTTONTAIL	9							
				Yearlong	SONOMA COUNTY				
M146	COYOTE	9							
				Yearlong	URBAN 1	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 28

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 MONTANE HARDWOOD-CONIFER SMALL TREE MODRTE 40-59% (4M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE

✓ Sharp-shinned hawk – nesting
✓ Cooper's hawk – nesting
✓ golden eagle – possible nesting + foraging
X prairie falcon – possible winter foraging, no nesting in Sonoma County
X black swift – possible migrant, no nesting in Sonoma Co.

SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P	SEASON IN LOCATION OR	LOCATIONS, HABITATS AND	IMPORTANCE TO.... ETETPSSS	S	HABITAT	SPECIAL ELEMENTS	R	C	F	I
B115	SHARP-SHINNED HAWK							6					

H H H H

B116 COOPER'S HAWK

H H H H

B126 GOLDEN EAGLE

H H M H

B131 PRAIRIE FALCON

H H L H

B138 WILD TURKEY

H H H H

B141 MOUNTAIN QUAIL

M H M H

Yearlong MONTANE HARDWOOD-CONIFER 4M

Yearlong MARIN COUNTY
Winter SONOMA COUNTY
6
Yearlong MONTANE HARDWOOD-CONIFER 4M

Yearlong MARIN COUNTY
Yearlong SONOMA COUNTY
56
Yearlong MONTANE HARDWOOD-CONIFER 4M

Yearlong MARIN COUNTY
Yearlong SONOMA COUNTY
6
Yearlong MONTANE HARDWOOD-CONIFER 4M

Winter MARIN COUNTY
Yearlong SONOMA COUNTY
9
Yearlong MONTANE HARDWOOD-CONIFER 4M

Yearlong SONOMA COUNTY
7 9 2
Yearlong MONTANE HARDWOOD-CONIFER 4M

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SPECIES DETAIL LIST

IMPORTANCE TO.... ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P OR	SEASON IN LOCATION	S	LOCATIONS, HABITATS AND SPECIAL ELEMENTS
R C F I		ETETPSSS				
B141	MOUNTAIN QUAIL		7	9	2	
				Yearlong		SONOMA COUNTY
B251	BAND-TAILED PIGEON			9		
				Yearlong		MONTANE HARDWOOD-CONIFER 4M
H H H H						
				Yearlong		MARIN COUNTY
				Yearlong		SONOMA COUNTY
B255	MOURNING DOVE			9		
				Yearlong		MONTANE HARDWOOD-CONIFER 4M
H H H H						
				Yearlong		MARIN COUNTY
				Yearlong		SONOMA COUNTY
B279	BLACK SWIFT			6		
				Spring-Fall		MONTANE HARDWOOD-CONIFER 4M
H H H H						
				Spring and Fall		MARIN COUNTY
B307	NORTHERN FLICKER			3		
				Yearlong		MONTANE HARDWOOD-CONIFER 4M
H H H H						
				Yearlong		MARIN COUNTY
				Yearlong		SONOMA COUNTY
M117	DEER MOUSE			6	2	
				Yearlong		MONTANE HARDWOOD-CONIFER 4M
H H H H						

	Yearlong	MARIN COUNTY
	Yearlong	SONOMA COUNTY
M153 RACCOON	9	
	Yearlong	MONTANE HARDWOOD-CONIFER 4M
H M M H		
	Yearlong	MARIN COUNTY
	Yearlong	SONOMA COUNTY
M165 MOUNTAIN LION	56	2
	Yearlong	MONTANE HARDWOOD-CONIFER 4M
H H M H		
	Yearlong	MARIN COUNTY
	Yearlong	SONOMA COUNTY
M177 ELK	9	
	Yearlong	MONTANE HARDWOOD-CONIFER 4M
H M L H		
	Yearlong	MARIN COUNTY
	Yearlong	SONOMA COUNTY
M181 MULE DEER	9	
	Yearlong	MONTANE HARDWOOD-CONIFER 4M
H M M H		
	Yearlong	MARIN COUNTY
	Yearlong	SONOMA COUNTY
R046 RUBBER BOA	45 7	2
	Yearlong	MONTANE HARDWOOD-CONIFER 4M
H H H H		
	Yearlong	MARIN COUNTY
	Yearlong	SONOMA COUNTY

TOTAL SPECIES: 16

•(8U•(s0p10h12v0s0b3T•(s3T

Status Definitions:

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 VINEYARD (1)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B111	WHITE-TAILED KITE	5							
				Yearlong	VINEYARD 1		M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Fall-Spring	VINEYARD 1		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	VINEYARD 1	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Fall-Spring	VINEYARD 1			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Yearlong	VINEYARD 1	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	VINEYARD 1			H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B307	NORTHERN FLICKER	3							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B353	AMERICAN CROW	9							
				Yearlong	VINEYARD 1			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M045	BRUSH RABBIT	3 9	1						
				Yearlong	VINEYARD 1	L	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M047	DESERT COTTONTAIL	9							
				Yearlong	VINEYARD 1	L	M	H	H
				Yearlong	SONOMA COUNTY				
M051	BLACK-TAILED HARE	67 9	2						
				Yearlong	VINEYARD 1	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	VINEYARD 1	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	VINEYARD 1			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 12

Status Definitions:

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6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Red 4M

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 REDWOOD SMALL TREE MODRTE 40-59% (4M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE
SLASH, LARGE Hard
SLASH, LARGE Rotten
SLASH, LARGE Sound
SNAG, LARGE Rotten
SNAG, LARGE Sound
SOIL, FRIABLE
SOIL, SALINE
SPRINGS, HOT
SPRINGS, MINERAL
STEEP SLOPE

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P	SEASON IN LOCATION OR	LOCATIONS, HABITATS AND HABITAT	IMPORTANCE TO.... SPECIAL ELEMENTS	R	C	F	I
A012	ENSATINA	ETETPSSS 67	2							
				Yearlong	REDWOOD 4M		H	H	H	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
B110	OSPREY	6								
				Spring-Fall	REDWOOD 4M		H	H	M	H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					
B115	SHARP-SHINNED HAWK	6								
				Fall-Spring	REDWOOD 4M		H	H	H	L
				Yearlong	MARIN COUNTY					
				Winter	SONOMA COUNTY					

B281 VAUX'S SWIFT	6					
	Spring-Summer	REDWOOD 4M	H	H	H	H
	Spring-Summer	MARIN COUNTY				
	Spring-Summer	SONOMA COUNTY				
M151 BLACK BEAR	9					
	Yearlong	REDWOOD 4M	H	H	L	H
	Yearlong	SONOMA COUNTY				
M153 RACCOON	9					
	Yearlong	REDWOOD 4M	H	M	M	H

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P	SEASON IN LOCATION OR	S	LOCATIONS, HABITATS AND HABITAT	SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
		ETETPSSS									
M153	RACCOON	9									
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
M181	MULE DEER	9									
				Yearlong		REDWOOD 4M		H	M	M	H
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					

TOTAL SPECIES: 7

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Status Definitions:

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2. FT: Federaliy Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
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CPS: Candidate or Proposed Candidate Species

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

SELECTION CRITERIA:

SEWID

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 SALINE EMERGENT WETLAND SHORT HERB DENSE 60-100% (1D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE
SLASH, LARGE Hard
SLASH, LARGE Rotten
SLASH, LARGE Sound
SNAG, LARGE Rotten
SNAG, LARGE Sound
SOIL, FRIABLE
SOIL, SALINE
SPRINGS, HOT
SPRINGS, MINERAL

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

TO.... ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P	SEASON IN LOCATION OR	LOCATIONS, HABITATS AND	SPECIAL ELEMENTS	IMPORTANCE R	C F	I
B074	BRANT	9							
		Fall-Spring		SALINE EMERGENT WETLAND 1D				H	H
		Fall		MARIN COUNTY					
		Yearlong		SONOMA COUNTY					
B080	NORTHERN PINTAIL	9							
		Yearlong		SALINE EMERGENT WETLAND 1D			L	H	H H
		Fall-Winter		MARIN COUNTY					
		Fall-Winter		SONOMA COUNTY					
B110	OSPREY	6							
		Spring-Fall		SALINE EMERGENT WETLAND 1D				H	H
		Yearlong		MARIN COUNTY					
		Yearlong		SONOMA COUNTY					

B111 WHITE-TAILED KITE	5					
	Yearlong	SALINE EMERGENT WETLAND 1D		H	H	
	Yearlong	MARIN COUNTY				
	Yearlong	SONOMA COUNTY				
B114 NORTHERN HARRIER	6					
	Yearlong	SALINE EMERGENT WETLAND 1D	H	H	H	H
	Yearlong	MARIN COUNTY				
	Yearlong	SONOMA COUNTY				
B143 BLACK RAIL	45	2				
	Yearlong	SALINE EMERGENT WETLAND 1D	H	H	H	H

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P	SEASON IN LOCATION OR	S	LOCATIONS, HABITATS AND HABITAT	SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B143	BLACK RAIL	ETETPSSS 45	2								
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
B144	CLAPPER RAIL	1 345									
				Yearlong		SALINE EMERGENT WETLAND 1D		H	H	H	H
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
B149	AMERICAN COOT	9									
				Fall-Spring		SALINE EMERGENT WETLAND 1D		H	H	H	
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
B173	LONG-BILLED CURLEW	6									
				Fall-Spring		SALINE EMERGENT WETLAND 1D		H	M	H	
				Fall-Winter		MARIN COUNTY					
				Fall-Winter		SONOMA COUNTY					
B215	CALIFORNIA GULL	6									
				Yearlong		SALINE EMERGENT WETLAND 1D		H	H	H	
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
B273	SHORT-EARED OWL	6									
				Yearlong		SALINE EMERGENT WETLAND 1D		H	H	H	H
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
B461	COMMON YELLOWTHROAT	67	2								
				Yearlong		SALINE EMERGENT WETLAND 1D		H	H	H	H
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
B499	SAVANNAH SPARROW	3 6	2								
				Yearlong		SALINE EMERGENT WETLAND 1D		H	H	H	H
				Yearlong		MARIN COUNTY					
				Yearlong		SONOMA COUNTY					
B505	SONG SPARROW	6	2								
				Yearlong		SALINE EMERGENT WETLAND 1D		H	H	H	H

	Yearlong	MARIN COUNTY				
	Yearlong	SONOMA COUNTY				
M003 VAGRANT SHREW	6	2				
	Yearlong	SALINE EMERGENT WETLAND 1D	H	H	H	H
	Yearlong	MARIN COUNTY				
	Yearlong	SONOMA COUNTY				
M158. MINK	9					
	Yearlong	SALINE EMERGENT WETLAND 1D	H	H	H	H
	Yearlong	MARIN COUNTY				

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH	C P	SEASON IN LOCATION OR	LOCATIONS, HABITATS AND	IMPORTANCE TO.... S	HABITAT	SPECIAL ELEMENTS	R F	C I
M158	MINK	ETETPSSS 9								
				Yearlong	SONOMA COUNTY					
M162	STRIPED SKUNK	9								
				Yearlong	SALINE EMERGENT WETLAND 1D				L	L H H
				Yearlong	MARIN COUNTY					
				Yearlong	SONOMA COUNTY					

TOTAL SPECIES: 17

•(8U•(s0p10h12v0s0b3T•(s3T

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 VALLEY-FOOTHILL RIPARIAN POLE TREE MODRTE 40-59% (3M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A043	FOOTHILL YELLOW-LEGGED FROG	567	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A046	BULLFROG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M			H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B104	HOODED MERGANSER	9							
				Fall-Spring	VALLEY-FOOTHILL RIPARIAN 3M		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 3M	M	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B110	OSPREY	6							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	L	H	M	H
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	L	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B315	WILLOW FLYCATCHER	1 3 67	2						
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 3M	M	H	H	H
				Spring and Fall	MARIN COUNTY				
				Fall	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 3M	H	H	M	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B342	BANK SWALLOW	4							
				Spring and Fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B467	YELLOW-BREASTED CHAT	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 3M	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M001	VIRGINIA OPOSSUM	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M144	PACIFIC JUMPING MOUSE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M146	COYOTE	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M162	STRIPED SKUNK	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M163	RIVER OTTER	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	M	H
				Yearlong	SONOMA COUNTY				
M165	MOUNTAIN LION	56	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	M	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 3M	H			H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R048	RINGNECK SNAKE	7	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 3M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 37

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 VALLEY-FOOTHILL RIPARIAN SMALL TREE MODRTE 40-59% (4M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A012	ENSATINA	67	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A043	FOOTHILL YELLOW-LEGGED FROG	567	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A046	BULLFROG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B044	DOUBLE-CRESTED CORMORANT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B104	HOODED MERGANSER	9							
				Fall-Spring	VALLEY-FOOTHILL RIPARIAN 4M		H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B104	HOODED MERGANSER	9							
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	L	H	M	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	L	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	M	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSS$	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B272	LONG-EARED OWL	6							
				Yearlong	MARIN COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B315	WILLOW FLYCATCHER	1 3 67	2						
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Spring and Fall	MARIN COUNTY				
				Fall	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 4M	H	H	M	H
				Spring and Fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B467	YELLOW-BREASTED CHAT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M001	VIRGINIA OPOSSUM	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M006	ORNATE SHREW	6	1						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFSH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M139	MUSKRAT	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M144	PACIFIC JUMPING MOUSE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	M	H
				Yearlong	SONOMA COUNTY				
M153	RACCOON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M163	RIVER OTTER	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	M	H
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M177	ELK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	M	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	M	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 4M	H			H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R048	RINGNECK SNAKE	7	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C F S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
R057	GOPHER SNAKE	6	2						
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 41

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 VALLEY-FOOTHILL RIPARIAN SMALL TREE DENSE 60-100% (4D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A012	ENSATINA	67	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A043	FOOTHILL YELLOW-LEGGED FROG	567	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B044	DOUBLE-CRESTED CORMORANT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B104	HOODED MERGANSER	9							
				Fall-Spring	VALLEY-FOOTHILL RIPARIAN 4D		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	M	M	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B105	COMMON MERGANSER	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	H	L	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	L	H
				Yearlong	MARIN COUNTY				
B315	WILLOW FLYCATCHER	1 3 67	2						
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B315	WILLOW FLYCATCHER	1 3 67	2						
				Spring and Fall	MARIN COUNTY				
				Fall	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 4D	H	H	M	H
				Spring and Fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 4D	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B467	YELLOW-BREASTED CHAT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M001	VIRGINIA OPOSSUM	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M006	ORNATE SHREW	6	1						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	L	H
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M158	MINK	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M163	RIVER OTTER	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	M	H
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M178	FALLOW DEER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	L	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 4D	H			H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 4D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 35

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:

1 VALLEY-FOOTHILL RIPARIAN	MED/LARGE TREE	MOORTE	40-59%	(5M)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:

BOGS	
CAMPGROUND	
CAVE	
CLIFF	
JETTY	
KELP	
LAKES	
LOG, LARGE	Hollow
LOG, LARGE	Rotten
LOG, LARGE	Sound
MUD FLATS	
NEST BOX	
NEST ISLAND	
NEST PLATFORM	
PACK STATIONS	
RIVERS	
SALT PONDS	
SAND DUNE	
SLASH, LARGE	Hard
SLASH, LARGE	Rotten
SLASH, LARGE	Sound
SNAG, LARGE	Rotten
SNAG, LARGE	Sound
SOIL, FRIABLE	
SOIL, SALINE	
SPRINGS, HOT	
SPRINGS, MINERAL	
STEEP SLOPE	
TALUS	

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A012	ENSATINA	67	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A043	FOOTHILL YELLOW-LEGGED FROG ✓	567	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A046	BULLFROG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B044	DOUBLE-CRESTED CORMORANT ✓	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B104	HOODED MERGANSER	9							
				Fall-Spring	VALLEY-FOOTHILL RIPARIAN 5M		H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B104	HOODED MERGANSER	9							
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	L	H	H	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	M	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBN ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B272	LONG-EARED OWL	6							
				Yearlong	MARIN COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 5M	H	H	M	H
				Spring and Fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 5M	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B467	YELLOW-BREASTED CHAT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M001	VIRGINIA OPOSSUM	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M006	ORNATE SHREW	6	1						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M144	PACIFIC JUMPING MOUSE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M144	PACIFIC JUMPING MOUSE	6	2						
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	M	H
				Yearlong	SONOMA COUNTY				
M153	RACCOON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M163	RIVER OTTER	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	M	H
				Yearlong	SONOMA COUNTY				
M165	MOUNTAIN LION	56	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	M	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 5M	H			H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5M	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 38

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

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SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 VALLEY-FOOTHILL RIPARIAN MED/LARGE TREE SPARSE 10-24% (5S)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE
SLASH, LARGE Hard
SLASH, LARGE Rotten
SLASH, LARGE Sound
SNAG, LARGE Rotten
SNAG, LARGE Sound
SOIL, FRIABLE
SOIL, SALINE
SPRINGS, HOT
SPRINGS, MINERAL
STEEP SLOPE
TALUS

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P $	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A012	ENSATINA	67	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A043	FOOTHILL YELLOW-LEGGED FROG	567	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A046	BULLFROG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	M	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B044	DOUBLE-CRESTED CORMORANT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B104	HOODED MERGANSER	9							
				Fall-Spring	VALLEY-FOOTHILL RIPARIAN 5S		H	H	H

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B104	HOODED MERGANSER	9							
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B128	MERLIN	6							
				Fall-Spring	VALLEY-FOOTHILL RIPARIAN 5S		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	L	M	H	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B255	MOURNING DOVE	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H

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SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B255	MOURNING DOVE	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B307	NORTHERN FLICKER	3							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B342	BANK SWALLOW	4							
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Spring and Fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 5S	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B467	YELLOW-BREASTED CHAT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B505	SONG SPARROW	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B512	DARK-EYED JUNCO	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M001	VIRGINIA OPOSSUM	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M006	ORNATE SHREW	6	1						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M144	PACIFIC JUMPING MOUSE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M151	BLACK BEAR	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	L	M	H	H
				Yearlong	SONOMA COUNTY				
M152	RINGTAIL	5							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M162	STRIPED SKUNK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 5S	H			H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R048	RINGNECK SNAKE	7	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R057	GOPHER SNAKE	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				

SPECIES DETAIL LIST

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBN ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5S	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 39

Status Definitions:

1. FE: Federally Endangered
2. FT: Federally Threatened
3. CE: California Endangered
4. CT: California Threatened
5. CP: California Protected
6. CS: California Special Concern
7. FS: Forest Service Sensitive
8. BS: BLM Sensitive
9. H : Harvest

CPS: Candidate or Proposed Candidate Species

SPECIES DETAIL LIST

SELECTION CRITERIA:

Locations:
MARIN COUNTY
SONOMA COUNTY

Habitats:
1 VALLEY-FOOTHILL RIPARIAN MED/LARGE TREE DENSE 60-100% (5D)

Habitat reproduction level required: H
Habitat feeding level required: H
Habitat cover level required: H

Elements Excluded:
BOGS
CAMPGROUND
CAVE
CLIFF
JETTY
KELP
LAKES
LOG, LARGE Hollow
LOG, LARGE Rotten
LOG, LARGE Sound
MUD FLATS
NEST BOX
NEST ISLAND
NEST PLATFORM
PACK STATIONS
RIVERS
SALT PONDS
SAND DUNE
SLASH, LARGE Hard
SLASH, LARGE Rotten
SLASH, LARGE Sound
SNAG, LARGE Rotten
SNAG, LARGE Sound
SOIL, FRIABLE
SOIL, SALINE
SPRINGS, HOT
SPRINGS, MINERAL
STEEP SLOPE
TALUS

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SPECIES DETAIL LIST

TIDEPOOLS
WHARF

Element reproduction level required: E
Element feeding level required: E
Element cover level required: E

Special Status:

Federal Endangered
Federal Threatened
California Endangered
California Threatened
California Protected
California Special Concern
Forest Service Sensitive
BLM Sensitive
Harvest
Candidate/Proposed

ID	SPECIES NAME	STATUS 123456789 FFCCCCFBH ETETPSSS	C P S	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
A012	ENSATINA	67	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
A043	FOOTHILL YELLOW-LEGGED FROG	567	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D		H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B044	DOUBLE-CRESTED CORMORANT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B076	WOOD DUCK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B104	HOODED MERGANSER	9							
				Fall-Spring	VALLEY-FOOTHILL RIPARIAN 5D		H	H	H
				Winter	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B105	COMMON MERGANSER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H

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ID	SPECIES NAME	STATUS 123456789 FFCCCCFBN ETETPSSS	C P $	SEASON IN LOCATION OR HABITAT	LOCATIONS, HABITATS AND SPECIAL ELEMENTS	IMPORTANCE TO.... R	C	F	I
B105	COMMON MERGANSER	9							
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B110	OSPREY	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B115	SHARP-SHINNED HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D		M	H	H
				Yearlong	MARIN COUNTY				
				Winter	SONOMA COUNTY				
B116	COOPER'S HAWK	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B126	GOLDEN EAGLE	56							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B131	PRAIRIE FALCON	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	L	H
				Winter	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B138	WILD TURKEY	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	M	H	H	H
				Yearlong	SONOMA COUNTY				
B140	CALIFORNIA QUAIL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B141	MOUNTAIN QUAIL	7 9	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	L	H	L	H
				Yearlong	SONOMA COUNTY				
B251	BAND-TAILED PIGEON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	L	L	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B272	LONG-EARED OWL	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	L	H
				Yearlong	MARIN COUNTY				
B342	BANK SWALLOW	4							
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 5D	H	H	M	H

SPECIES DETAIL LIST

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B342	BANK SWALLOW	4							
				Spring and fall	MARIN COUNTY				
B348	SCRUB JAY	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
B430	YELLOW WARBLER	6							
				Spring-Fall	VALLEY-FOOTHILL RIPARIAN 5D	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
B467	YELLOW-BREASTED CHAT	6							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	L	M	H	H
				Spring-Summer	MARIN COUNTY				
				Spring-Summer	SONOMA COUNTY				
M001	VIRGINIA OPOSSUM	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M003	VAGRANT SHREW	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M006	ORNATE SHREW	6	1						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M077	WESTERN GRAY SQUIRREL	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M139	MUSKRAT	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M153	RACCOON	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M158	MINK	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

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M163	RIVER OTTER	6	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	M	H
				Yearlong	SONOMA COUNTY				
M176	WILD PIG	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	M	M	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M178	FALLOW DEER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	M	H	L	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
M181	MULE DEER	9							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	L	H	L	M
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R004	WESTERN POND TURTLE	567	2						
				Spring-Summer	VALLEY-FOOTHILL RIPARIAN 5D	H			H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R061	COMMON GARTER SNAKE	1 3 5	2						
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				
R063	WESTERN AQUATIC/GIANT GARTER SNAKE	2 45							
				Yearlong	VALLEY-FOOTHILL RIPARIAN 5D	H	H	H	H
				Yearlong	MARIN COUNTY				
				Yearlong	SONOMA COUNTY				

TOTAL SPECIES: 34

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APPENDIX C
AGRICULTURAL IRRIGATION AREA WILDLIFE SPECIES LISTS

SOUTH COUNTY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Western toad	*Bufo boreas*
Pacific tree frog	*Pseudacris regilla*
California red-legged frog	*Rana aurora draytoni*
Bullfrog	*Rana catesbeiana*
Birds	
Red-winged blackbird	*Agelaius phoeniceus*
Grasshopper sparrow	*Ammodramus savanarum*
American widgeon	*Anas americana*
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
Golden eagle	*Aquila chrysaetos*
Great blue heron	*Ardea herodias*
Short-eared owl	*Asio flammeus*
Cedar waxwing	*Bombycilla cedrorum*
Canada goose	*Branta canadensis*
Great horned owl	*Bubo virginianus*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
Lesser goldfinch	*Carduelis psaltria*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Purple finch	*Carpodacus purpureus*
Great egret	*Casmerodius albus*
Turkey vulture	*Cathartes aura*
Hermit thrush	*Catharus guttatus*
Swainson's thrush	*Catharus ustulatus*
Wrentit	*Chamaea fasciata*
Killdeer	*Charadrius vociferus*
Lark sparrow	*Chondestes grammacus*
Northern harrier	*Circus cyaneus*
Northern flicker	*Colaptes auratus*

SOUTH COUNTY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Rock dove	*Columba livia*
Western wood-pewee	*Contopus sordidulus*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Steller's jay	*Cyanocitta stelleri*
White-tailed kite	*Elanus caeruleus*
Pacific-slope flycatcher	*Empidonax difficilis*
Horned lark	*Eremophila alpestris*
Brewer's blackbird	*Euphagus cyanocephalus*
Merlin	*Falco columbarius*
American kestrel	*Falco sparverius*
American coot	*Fulica americana*
Common moorhen	*Gallinula chloropus*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Dark-eyed junco	*Junco hyemalis*
Loggerhead shrike	*Lanius ludovicianus*
Western gull	*Larus occidentalis*
Song sparrow	*Melospiza melodia*
Northern mockingbird	*Mimus polyglottos*
Long-billed curlew	*Numenius americanus*
Ruddy duck	*Oxyura jamaicensis*
Plain titmouse	*Parus inornatus*
House sparrow	*Passer domesticus*
Savannah sparrow	*Passerculus sandwichensis*
Ring-necked pheasant	*Phasianus colchicus*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
California towhee	*Pipilo fuscus*
Pied-billed grebe	*Podilymbus podiceps*
Bushtit	*Psaltriparus minimus*
Black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*

SOUTH COUNTY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Allen's hummingbird	*Selasphorus sasin*
Western bluebird	*Sialia mexicana*
White-breasted nuthatch	*Sitta carolinensis*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Greater yellowlegs	*Tringa melanoleuca*
American robin	*Turdus migratorius*
Western kingbird	*Tyrannus verticalis*
Barn owl	*Tyto alba*
Orange crowned warbler	*Vermivora celata*
Wilson's warbler	*Wilsonia pusilla*
Mourning dove	*Zenaida macroura*
White-crowned sparrow	*Zonotricha leucophrys*
Golden-crowned sparrow	*Zonotrichia atricapilla*
Mammals	
Black-tailed jackrabbit	*Lepus californicus*
Striped skunk	*Mephitis mephitis*
California vole	*Microtus californicus*
Black-tailed deer	*Odocoileus hemionus*
Racoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
American badger (digs/burrows)	*Taxidea taxus*
Botta's pocket gopher (mounds)	*Thomomys bottae*
Fox (tracks - unknown species)	*Vulpes vulpes* or *Urocyon cinereoargenteus*
Reptiles	
Racer	*Coluber constrictor*
Southern aligator lizard	*Gerrhonotus multicarinatus*
Common kingsnake	*Lampropeltis getulus*
Gopher snake	*Pituophis melanoleucus*
Western fence lizard	*Sceloporus occidentalis*
Western aquatic garter snake	*Thamnophis couchi aquatics*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

SEBASTOPOL WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific tree frog	*Pseudacris regilla*
Bullfrog	*Rana catesbeiana*
Birds	
Red-winged blackbird	*Agelaius phoeniceus*
Cinnamon teal	*Anas cyanoptera*
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
Great blue heron	*Ardea herodias*
American bittern	*Botaurus lentiginosus*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Green heron	*Butorides virescens*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
Lesser goldfinch	*Carduelis psaltria*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Turkey vulture	*Cathartes aura*
Belted kingfisher	*Ceryle alcyon*
Killdeer	*Charadrius vociferus*
Marsh wren	*Cistothorus palustris*
Band-tailed pigeon	*Columba fasciata*
Rock dove	*Columba livia*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Steller's jay	*Cyanocitta stelleri*
Townsend's warbler	*Dendroica townsendi*
White-tailed kite	*Elanus caeruleus*
Brewer's blackbird	*Euphagus cyanocephalus*
American coot	*Fulica americana*
Common moorhen	*Gallinula chloropus*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*

SEBASTOPOL WILDLIFE SPECIES LIST

Common Name	Scientific Name
Varied thrush	*Ixoreus naevius*
Loggerhead shrike	*Lanius ludovicianus*
California gull	*Larus californicus*
Acorn woodpecker	*Melanerpes erythrocephalus*
Lincoln's sparrow	*Melospiza lincolnii*
Song sparrow	*Melospiza melodia*
Northern mockingbird	*Mimus polyglottos*
Ash-throated flycatcher	*Myiarchus tyrannulus*
Osprey	*Pandion haliaetus*
Plain titmouse	*Parus inornatus*
Chestnut-backed chickadee	*Parus rufescens*
House sparrow	*Passer domesticus*
Savannah sparrow	*Passerculus sandwichensis*
Wilson's phalarope	*Phalaropus tricolor*
Ring-necked pheasant	*Phasianus colchicus*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
California towhee	*Pipilo fuscus*
Black phoebe	*Sayornis nigricans*
Say's phoebe	*Sayornis saya*
Western bluebird	*Sialia mexicana*
Chipping sparrow	*Spizella passerina*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*
American robin	*Turdus migratorius*
Western kingbird	*Tyrannus verticalis*
Hutton's vireo	*Vireo huttoni*
Mourning dove	*Zenaida macroura*
Mammals	
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed deer	*Odocoileus hemionus*
Muskrat	*Ondatra zibethicus*

SEBASTOPOL WILDLIFE SPECIES LIST

Common Name	Scientific Name
Racoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
American badger (digs/burrows)	*Taxidea taxus*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*
Western fence lizard	*Sceloporus occidentalis*

WEST COUNTY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Western toad	*Bufo boreas*
Pacific tree frog	*Pseudacris regilla*
Bullfrog	*Rana catesbeiana*
California newt	*Taricha torosa*
Birds	
Sharp-shinned hawk	*Accipiter striatus*
Red-winged blackbird	*Agelaius phoeniceus*
Tricolored blackbird	*Agelaius tricolor*
Pintail	*Anas acuta*
Cinnamon teal	*Anas cyanoptera*
Mallard	*Anas platyrhynchos*
Scrub jay	*Aphelocoma coerulescens*
Golden eagle	*Aquila chrysaetos*
Great blue heron	*Ardea herodias*
Cedar waxwing	*Bombycilla cedrorum*
American bittern	*Botaurus lentiginosus*
Canada goose	*Branta canadensis*
Great horned owl	*Bubo virginianus*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Green heron	*Butorides virescens*
Least sandpiper	*Calidris minutilla*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
Lesser goldfinch	*Carduelis psaltria*
American goldfinch	*Carduelis tristis*
House finch	*Carpodacus mexicanus*
Purple finch	*Carpodacus purpureus*
Great egret	*Casmerodius albus*
Turkey vulture	*Cathartes aura*
Swainson's thrush	*Catharus ustulatus*
Belted kingfisher	*Ceryle alcyon*
Killdeer	*Charadrius vociferus*

WEST COUNTY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Lark sparrow	*Chondestes grammacus*
Lark sparrow	*Chondestes grammacus*
Northern harrier	*Circus cyaneus*
Marsh wren	*Cistothorus palustris*
Northern flicker	*Colaptes auratus*
Rock dove	*Columba livia*
Western wood-pewee	*Contopus sordidulus*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Yellow warbler	*Dendroica petechia*
Snowy egret	*Egretta thula*
Pacific-slope flycatcher	*Empidonax difficilis*
Horned lark	*Eremophila alpestris*
Brewer's blackbird	*Euphagus cyanocephalus*
American kestrel	*Falco sparverius*
American coot	*Fulica americana*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Northern oriole	*Icterus galbula*
Dark-eyed junco	*Junco hyemalis*
Loggerhead shrike	*Lanius ludovicianus*
Herring gull	*Larus argentatus*
California gull	*Larus californicus*
Western gull	*Larus occidentalis*
Acorn woodpecker	*Melanerpes erythrocephalus*
Song sparrow	*Melospiza melodia*
Northern mockingbird	*Mimus polyglottos*
Brown-headed cowbird	*Molothrus ater*
Ash-throated flycatcher	*Myiarchus tyrannulus*
Whimbrel	*Numenius phaeopus*
Plain titmouse	*Parus inornatus*
Chestnut-backed chickadee	*Parus rufescens*
House sparrow	*Passer domesticus*
Savannah sparrow	*Passerculus sandwichensis*

WEST COUNTY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Double-crested cormorant	*Phalacrocorax auritus*
Ring-necked pheasant	*Phasianus colchicus*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
California towhee	*Pipilo fuscus*
Black phoebe	*Sayornis nigricans*
Allen's hummingbird	*Selasphorus sasin*
Western bluebird	*Sialia mexicana*
White-breasted nuthatch	*Sitta carolinensis*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Western meadowlark	*Sturnella neglecta*
European starling	*Sturnus vulgaris*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Bewick's wren	*Thryomanes bewickii*
American robin	*Turdus migratorius*
Western kingbird	*Tyrannus verticalis*
Barn owl	*Tyto alba*
Solitary vireo	*Vireo solitarius*
Wilson's warbler	*Wilsonia pusilla*
Mourning dove	*Zenaida macroura*
Mammals	
Coyote	*Canis latrans*
Opossum	*Didelphis marsupialis*
Black-tailed jackrabbit	*Lepus californicus*
Striped skunk	*Mephitis mephitis*
Black-tailed deer	*Odocoileus hemionus*
Muskrat	*Ondatra zibethicus*
Racoon (tracks)	*Procyon lotor*
California ground squirrel	*Spermophilus beecheyi*
American badger (digs/burrows)	*Taxidea taxus*
Gray fox	*Urocyon cinereoargenteus*
Reptiles	
Northwestern pond turtle	*Clemmys marmorata marmorata*

WEST COUNTY WILDLIFE SPECIES LIST

Common Name	Scientific Name
Southern aligator lizard	*Gerrhonotus multicarinatus*
Western fence lizard	*Sceloporus occidentalis*
Western aquatic garter snake	*Thamnophis couchi aquatics*
Western terrestrial garter snake	*Thamnophis elegans terrestris*
California red-sided garter snake	*Thamnophis sirtalis infernalis*

APPENDIX D
GEYSERS STEAMFIELD AREA WILDLIFE SPECIES LIST

GEYSERS STEAMFIELD WILDLIFE SPECIES LIST

Common Name	Scientific Name
Amphibians	
Pacific giant salamander	*Dicamptodon ensatus*
Pacific tree frog	*Pseudacris regilla*
Foothill yellow-legged frog	*Rana boylii*
Birds	
White-throated swift	*Aeronautes saxatalis*
Rufous-crowned sparrow	*Aimophila ruficeps*
Scrub jay	*Aphelocoma coerulescens*
Black-chinned hummingbird	*Archilochus alexandri*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
Lesser goldfinch	*Carduelis psaltria*
American goldfinch	*Carduelis tristis*
Turkey vulture	*Cathartes aura*
Wrentit	*Chamaea fasciata*
Olive-sided flycatcher	*Contopus borealis*
American crow	*Corvus brachyrhynchos*
Common raven	*Corvus corax*
Steller's jay	*Cyanocitta stelleri*
Pacific-slope flycatcher	*Empidonax difficilis*
Dusky flycatcher	*Empidonax oberholseri*
Cliff swallow	*Hirundo pyrrhonota*
Barn swallow	*Hirundo rustica*
Acorn woodpecker	*Melanerpes formicivorus*
Song sparrow	*Melospiza melodia*
Ash-throated flycatcher	*Myiarchus cinerascens*
MacGillivray's warbler	*Oporornis tolmiei*
Mountain quail	*Oreortyx pictus*
Plain titmouse	*Parus inornatus*
Lazuli bunting	*Passerina amoena*
Nuttall's woodpecker	*Picoides nuttallii*
Hairy woodpecker	*Picoides villosus*

GEYSERS STEAMFIELD WILDLIFE SPECIES LIST

Common Name	Scientific Name
California towhee	*Pipilo crissalis*
Rufous-sided towhee	*Pipilo erythrophthalmus*
Western tanager	*Piranga ludoviciana*
Blue-gray gnatcatcher	*Polioptila caerulea*
Bushtit	*Psaltriparus minimus*
Black phoebe	*Sayornis nigricans*
Allen's hummingbird	*Selasphorus sasin*
Mountain bluebird	*Sialia currucoides*
Northern rough-winged swallow	*Stelgidoopteryx serripennis*
Violet-green swallow	*Tachycineta thalassina*
Bewick's wren	*Thryomanes bewickii*
California thrasher	*Toxostoma redivivum*
American robin	*Turdus migratorius*
Orange-crowned warbler	*Vermivora celata*
Nashville warbler	*Vermivora ruficapilla*
Warbling vireo	*Vireo gilvus*
Solitary vireo	*Vireo solitarius*
Wilson's warbler	*Wilsonia pusilla*
White-crowned sparrow	*Zonotrichia atricapilla*
Mammals	
Coyote	*Canis latrans*
Mountain lion (scat/tracks)	*Felis concolor*
Black-tailed jackrabbit	*Lepus californicus*
Dusky-footed woodrat	*Neotoma fuscipes*
Black-tailed deer	*Odocoileus hemionus*
Raccoon (tracks)	*Procyon lotor*
Western gray squirrel	*Sciurus griseus*
Sonoma chipmunk	*Tamias sonomae*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*