



Appendix L
Biological Studies

*Special-Status Plant Species not Observed within the
Agricultural Residential Cluster Subdivision*

Appendix L. Special-Status Plant and Animal Species Not Observed Within the Agriculture Residential Cluster Subdivision

PLANTS			
Species¹	Status¹ Fed/CA/CNPS	Habitat Requirements and Blooming Period²	Suitability/Observations
Hoover's bent grass <i>Agrostis hooveri</i>	--/--List 1B	Chaparral, cismontane woodland, and valley and foothill grassland; usually sandy soils; 200 to 2,000 feet; blooms from April to July.	Suitable habitat on-site; not observed during focused botanical surveys or Inventory. Unlikely to occur on-site.
Arroyo de la Cruz manzanita <i>Arctostaphylos cruzensis</i>	--/--List 1B	Broadleaf upland forest, coastal bluff scrub, closed-cone coniferous forest, chaparral, coastal scrub, and grasslands; sandy soils; 200 to 1,000 feet; blooms from December to March.	Suitable habitat on-site; not observed during focused botanical surveys or Inventory. Unlikely to occur on-site.
Santa Lucia manzanita <i>Arctostaphylos luciana</i>	--/--List 1B	Chaparral, cismontane woodland, on shale outcrops; 1,150 to 2,750 feet; blooms from February to March.	Not observed on the project site during focused botanical surveys; however, observed during the Inventory within the southeast portion of the Santa Margarita Ranch.
Morro manzanita <i>Arctostaphylos morroensis</i>	FT/--List 1B	Maritime chaparral, cismontane woodland, coast dunes (pre-Flandrian), coastal scrub; Baywood fine sands, sandy loam; 15 to 675 feet; blooms from December to March	Out of distributional range for species. Not observed during focused surveys or the Inventory. Not present on-site.
Santa Margarita manzanita <i>Arctostaphylos pilosula</i>	--/--List 1B	Closed-cone coniferous forest, chaparral; shale outcrops and slopes, decomposing granite and sandstone; 550 to 3,500 feet; blooms from December to March.	Suitable habitat on-site; not observed during focused rare plant surveys or the ranch inventory. Not present on-site.
Well's manzanita <i>Arctostaphylos wellsii</i>	--/--List 1B	Chaparral, closed-cone coniferous forest; sandstone outcrops; 100 to 1,300 feet; blooms from December to April.	Suitable habitat on-site; not observed during focused rare plant surveys or the ranch inventory. Not present on-site.
Mile's milk vetch <i>Astragalus didymocarpus</i> var. <i>milesianus</i>	--/--List 1B	Coastal scrub; clay soils; 65 to 300 feet; blooms from December to June.	Marginal habitat on-site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
San Luis mariposa lily <i>Calochortus obispoensis</i>	--/--List 1B	Chaparral, coastal scrub, valley and foothill grasslands; often on serpentine soils; 250 to 2,200 feet; blooms May to July.	Marginal habitat on-site; No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
Hardham's evening primrose <i>Camissonia hardhamiae</i>	--/--List 1B	Chaparral, cismontane woodland; on sandy, decomposed carbonate or decomposed granite, disturbed or burned areas; 1,100 to 2,725 feet; blooms April to May.	Marginal habitat on-site; not observed during focused rare plant surveys or the Ranch Inventory. Unlikely to occur on-site.
San Luis Obispo sedge <i>Carex obispoensis</i>	--/--List 1B	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; sand, clay, or serpentine; in seeps; 15 to 2,600 feet; blooms April to June.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Lemmon's jewelflower <i>Caulanthus coulteri</i> var. <i>lemmonii</i>	--/--List 1B	Pinyon-juniper woodland, valley and foothill grassland; 260 to 4,000 feet elevation; blooms March to May.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.

Species ¹	Status ¹ Fed/CA/CNPS	Habitat Requirements and Blooming Period ²	Suitability/Observations
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	--/--/List 1B	Valley and foothill grassland; alkaline soils; 3 to 750 feet; blooms June to November.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Dwarf soaproot <i>Chlorogalum pomeridianum</i> var.	--/--/List 1B	Chaparral, valley and foothill grassland; serpentine soils; 800 to 3,200 feet; blooms May to August.	No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
Brewer's spineflower <i>Chorizanthe breweri</i>	--/--/List 1B	Chaparral, cismontane woodland, coastal scrub, closed-cone coniferous forest; barren rocky or gravelly serpentine sites; 150 to 2,600 feet; blooms May to August.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Chorro Creek bog thistle <i>Cirsium fontinale</i> var. <i>obispoensis</i>	FE/SE/List 1B	Chaparral, cismontane woodland; serpentine seeps; 115 to 1,200 feet; blooms February to July.	No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
Leafy tarplant <i>Deinandra increscens</i> ssp. <i>foliosa</i>	--/--/List 1B	Valley and foothill woodland; 985 to 1,640 feet; blooms June to September.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Dune larkspur <i>Delphinium parryi</i> ssp. <i>blochmaniae</i>	--/--/List 1B	Chaparral, coastal dunes (maritime); on rocky areas and dunes; 95 to 1,230 feet; blooms April to May.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
San Luis Obispo serpentine dudleya <i>Dudleya abramsii</i> ssp. <i>betinae</i>	--/--/List 1B	Coastal scrub, valley and foothill grassland, chaparral; on rocky, barren exposures of serpentine within scrub vegetation; 65 to 600 feet; blooms May to July.	No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
San Luis Obispo dudleya <i>Dudleya abramsii</i> ssp. <i>murina</i>	--/--/List 1B	Chaparral, cismontane woodland; serpentine outcrops; 300 to 1,000 feet; blooms April to June.	No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
Blochman's dudleya <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	--/--/List 1B	Coastal scrub, coastal bluff scrub, valley and foothill grasslands; open, rocky slopes, often in shallow clay over serpentine or in rocky areas with little soil; 15 to 1,500 feet;	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Yellow-flowered eriastrum <i>Eriastrum luteum</i>	--/--/List 1B	Broadleaved upland forest, cismontane woodland, chaparral; on bare sandy decomposed granite slopes; 1,180 to 3,280 feet; blooms May to June.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Round-leaved filaree <i>Erodium macrophyllum</i>	--/--/List 2	Cismontane woodland, valley and foothill grassland; clay soils; 50 to 4,000 feet; blooms March to May.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Hoover's button celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	--/--/List 1B	Vernal pools; alkaline depressions, roadside ditches, and other wet places near coast; 15 to 1,500 feet; blooms in July.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Ojai fritillary <i>Fritillaria ojaiensis</i>	--/--/List 1B	Broadleaved upland forest, chaparral; lower montane coniferous forest; rocky sites; 980 to 2,200 feet; blooms March to May.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
San Benito fritillary <i>Fritillaria ojaiensis</i>	--/--/List 1B	Chaparral; serpentine soils; 650 to 5,000 feet; blooms March to May.	No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.

Species ¹	Status ¹ Fed/CA/CNPS	Habitat Requirements and Blooming Period ²	Suitability/Observations
Kellogg's horkelia <i>Horkelia cuneata</i> ssp. <i>sericea</i>	--/--/List 1B	Closed-cone coniferous forest, coastal scrub, maritime chaparral; old dunes, coastal sand hills; in open areas; 230 to 650 feet; blooms from April to September.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Jones's layia <i>Layia jonesii</i>	--/--/List 1B	Chaparral, valley and foothill grassland; clay soils and serpentine outcrops; 15 to 500 feet; blooms March to May.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Carmel Valley bush mallow <i>Malacothamnus palmeri</i> var. <i>involutus</i>	--/--/List 1B	Cismontane woodland, chaparral; talus hilltops and slopes, sometimes on serpentine, burn dependent; 100 to 3,600 feet; blooms May to October.	Marginal habitat on-site; No recent burns in the area; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
San Luis bush mallow <i>Malacothamnus palmeri</i> var. <i>palmeri</i>	--/--/List 1B	Chaparral; dry rocky slopes; mostly near summits, but occasionally extending down canyons to the sea; 200 to 1,200 feet; blooms May to July.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Palmer's monardella <i>Monardella palmeri</i>	--/--/List 1B	Cismontane woodland, chaparral, on serpentine, often found with Sargent cypress forest; 650 to 2,625 feet; blooms May to September.	No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
Shinning navarretia <i>Navarretia nigelliformis</i> ssp. <i>radians</i>	--/--/List 1B	Cismontane woodland, valley and foothill grassland, vernal pools; apparently in grassland, and not necessarily in vernal pools; 650 to 3,280 feet; blooms May to July.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Adobe sanicle <i>Sanicula maritima</i>	--/SR/List 1B	Meadows and seeps, valley and grasslands, chaparral, coastal prairie; moist clay or ultramafic soils; 100 to 800 feet; blooms February to May.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Rayless ragwort <i>Senecio aphanactis</i>	--/--/List 2	Cismontane woodland, coastal scrub; drying alkaline flats; 65 to 1,900 feet; blooms July to April.	Marginal habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.
Cuesta Pass checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>anormala</i>	--/SR/List 1B	Closed-cone coniferous forest; rocky serpentine soil; associated with Sargent cypress forest; 1,975 to 2,625 feet; blooms May to June.	No serpentine soils or Sargent cypress forest occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
Most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	--/--/List 1B	Chaparral, valley and foothill grassland, cismontane woodland; serpentine outcrops, on ridges and slopes; 400 to 2,400 feet; bloom April to June.	No serpentine soils occur within the project site; not observed during focused rare plant surveys or the ranch inventory. Unlikely to occur on-site.
Saline clover <i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	--/--/List 1B	Marshes and swamps, valley and foothill grasslands, vernal pools; mesic, alkaline sites, 0 to 1,000 feet; blooms April to June.	Suitable habitat on-site; not observed during focused Rare Plant Surveys or during the Ranch Inventory. Unlikely to occur on-site.

¹FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; SR=State Rare; List 1B=rare or endangered in California and elsewhere, List 2=Plants Rare, Threatened, or Endangered in California, but more common elsewhere; -- =no status.

²California Department of Fish and Game's *Natural Diversity Database* (May 27 - November 27, 2005) and California Native Plant Society's *Inventory of Rare and Endangered Plants of California* (2001).

ANIMALS			
Species ¹	Status Fed/CA	Habitat Requirements	Project Site Suitability
INVERTEBRATES			
Monarch Butterfly <i>Danus plexippus</i>	--/CSC	Roost located in wind-protected tree groves (<i>Eucalyptus</i> spp., and Monterey pine and cypress) with nectar and water sources nearby.	Not observed on-site during general surveys or Inventory efforts. No suitable over wintering habitat present on-site. Unlikely to occur.
Atascadero June Beetles <i>Polyphyla nubila</i>	--/CSC	Sand dunes in Atascadero and San Luis Obispo, San Luis Obispo County.	Not observed on-site during general surveys or Inventory efforts. No suitable habitat present on-site. Unlikely to occur.
AMPHIBIANS/REPTILES			
California red-sided garter snake <i>Thamnophis sirtalis infernalis</i>	--/CSC	Marsh habitats or other areas near permanent water with thick riparian vegetation.	Not observed on-site during general surveys or Inventory efforts. No suitable habitat present on-site. Unlikely to occur.
BIRDS			
Burrowing owl <i>Athene cunicularia</i>	--/CSC	Dry, open grasslands and scrublands for nesting and foraging.	Not observed on-site. Suitable nesting and foraging habitat within grasslands. Unlikely to nest on-site.
California Condor <i>Gymnogyps californianus</i>	FE/SE	Cliffs or ledges for nesting. Open habitats for foraging within 100 miles from roost or nest area.	Not observed on-site. No suitable nesting habitat occurs on-site. Suitable foraging habitat within grasslands, agricultural areas, oak woodlands, and chaparral. Unlikely to nest on-site.
Northern harrier <i>Circus cyaneus</i>	--/CSC	Open habitats of grasslands, rangelands, and meadows for nesting and foraging. Avoids heavily wooded areas.	Not observed on-site during general surveys or Inventory efforts. Unlikely nesting and marginal foraging habitat in grasslands, open woodland, and emergent wetlands. Unlikely to occur.
Tricolored blackbird <i>Agelaius tricolor</i>	--/CSC	Requires open water, protected nesting substrate and foraging area with insect prey.	Not observed on-site during Inventory efforts. Suitable nesting and foraging habitat within emergent wetlands. Unlikely to occur.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	--/SE	Large dense riparian woodlands of cottonwood and willow with a thick understory for nesting and foraging.	Not observed on-site during Inventory efforts. Marginal nesting and foraging habitat exists on-site within riparian woodlands. Unlikely to occur.
MAMMALS			
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i>	FE/ST	Grassland, or open scrubby areas, some agricultural areas.	No individuals or suitable dens were observed on-site during general and focus surveys, or Inventory efforts. Suitable habitat exists within grasslands, agricultural areas, and open woodlands. Unlikely to occur.
San Joaquin Pocket Mouse <i>Perognathus inornatus inornatus</i>	--/CSC	Typically found in grasslands and blue oak savannas. Requires friable soils.	Not observed on-site during general and focus surveys, or Inventory efforts. Suitable habitat exists within grasslands, agricultural areas, and open woodlands. Unlikely to occur.

¹ FE= Federally Endangered; FT= Federally Threatened; SE= State Endangered; ST= State Threatened; FP= Fully Protected; CSC= California Species of Special Concern; --= no status

*90-Day Protocol Survey Report for USFWS Lister Vernal Pool
Branchiopods on the Santa Margarita Ranch Property*

Rincon Consultants, October 2006



Rincon Consultants, Inc.

1530 Monterey Street, Suite D
San Luis Obispo, California 93401

805 547 0900
FAX 547 0901

info@rinconconsultants.com
www.rinconconsultants.com

October 4, 2006
Project #05-58171

Mr. James Caruso
County of San Luis Obispo
Department of Planning and Building
County Government Center
San Luis Obispo, CA 93408

Subject: 90-Day Protocol Survey Report for U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods on the Santa Margarita Ranch Property in the Community of Santa Margarita, San Luis Obispo County, California

Dear Mr. Caruso:

Rincon Consultants, Inc. has conducted protocol surveys for U.S. Fish and Wildlife Service (USFWS) Listed Vernal Pool Branchiopods (LVPB) on the Santa Margarita Ranch property (property) under the direction of the County of San Luis Obispo. The property is located approximately 9.25 miles northeast of the City of San Luis Obispo, in San Luis Obispo County, California (Figure 1). The approximately 14,000 acre property is situated immediately east of U.S. Highway 101, and surrounds the town of Santa Margarita. Near the middle of the property, southeast of the town of Santa Margarita and Highway 58, an Agriculture Residential Cluster Subdivision project (project) is proposed for development (Figure 2). Potential habitat for one LVPB, the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*), was identified on-site within seven seasonal pools during a habitat assessment of the study area (Rincon Consultants, 2006). The study area includes the project site and adjacent portions on the property containing seasonal pools. The first of two protocol survey requirements, a wet-season survey, was conducted during the 2005 - 2006 rain year within the study area. Following are descriptions of the site and potential LVPB habitat, and method and results of the wet seasonal surveys.

SITE DESCRIPTION

The project site is composed of flat valleys to steeply sloping hillsides that supports California annual grassland, native perennial grassland, chaparral, oak woodland, oak savannah, riparian, and wetland habitat types. Current agriculture operations include cattle ranching and vineyards. The proposed project includes 112 single family houses over 145 acres within the 3,778 acre project site. Proposed lot sizes range between 1.0 to 2.45 acres and comprise approximately 128 acres, with approximately 17 acres for roadways, driveways, and other improvements. The remaining 3,633 acres would be placed in agricultural (vineyard) conservation easements. Vineyards currently exist throughout the project site; however, three additional vineyards are proposed within the project site in

areas adjacent to or within pre-existing vineyards. The study area includes portions of the project site that have potential to impact seasonal pools during development of the two residential clusters, ranch headquarters, and general infrastructure. This area primarily consists of the central to northern portion of the project site, but also includes a small portion near the southern project site boundary (Figure 3).

The study area contains seven seasonal pools which were the focus of the survey efforts because they provide potential habitat for LVPB. The seasonal pools identified within the study area were designated as Seasonal Pool 1 (SP 1), SP 2, SP 3, SP 4, SP 5, SP 6, and SP 7. These seasonal pool numbers are followed in parentheses by previously labeled pond numbers for the entire property (Althouse and Meade, 2003). All pools have a moderately impervious clay, loamy clay, or sandy loam soil substrate that supports seasonal pooling (USDA, 1983, Althouse and Meade, 2003, and John Davis, personal observation). The following are seasonal pool descriptions and include the location of the pools, measurements of maximum pool area and depth, and the surrounding habitat and substrate types.

SP 1

SP 1 (SMR 17) is a natural pool located in the northern portion of the project site just south of the town of Santa Margarita in a flat area at the end of a low gradient ephemeral drainage (Figure 3; Photo Plate). An earthen berm constructed along the town's southern boundary has further impounded flow within the topographic depression, thereby increasing the size and depth of this pool. The drainage has a very shallow sandy loam to clay loam channel that spreads out as it approaches the low area supporting SP 1 (USDA 1983). The dominant wetland species within the ephemeral drainage and the shallow areas of SP 1 include Mexican rush (*Juncus mexicanus*), common spikerush (*Eleocharis macrostachya*), and curly dock (*Rumex crispus*). SP 1 covers a maximum area of approximately 25,536 m² (6.31 acres) and a maximum depth of approximately 80 cm.

SP 2

SP 2 (SMR 12) is located in the central portion of the project site along an unnamed ranch road toward the top of a small hill. SP 2 was formed by the construction of an earthen dam within a low gradient ephemeral drainage. The pool is surrounded by mixed oak woodland habitat primarily consisting of coast live oak (*Quercus agrifolia*) and blue oak (*Quercus douglasii*). A ranch road lies to the west of the pool. SP 2 covers a maximum area of approximately 484 m² (0.12 acre) and has a maximum depth of approximately 180 cm.

SP 3

SP 3 (SMR 23) is located in the central portion of the project site within a large wetland area between the oak woodland covered hills to the north and vineyards to the east and west. The dominant wetland species within SP 3 are Mexican rush and common spikerush. SP 3 covers a maximum area of approximately 147 m² (0.04 acre) and has a maximum depth of approximately 30 cm.

SP 4

SP 4 (SMR 4) is located in the southern portion of the project site within an open wetland area surrounded by vineyards. The dominant wetland species within and surrounding SP 4 include red willow (*Salix laevigata*), Mexican rush, and common spikerush. SP 4 covers a

maximum area of approximately 1,192 m² (0.30 acres) and has a maximum depth of approximately 145 cm.

SP 5

SP 5 (SMR 5) is located in the southern portion of the project site within an open wetland area surrounded by vineyards. The dominant wetland species within SP 5 include Mexican rush and common spikerush. SP 5 covers a maximum area of approximately 7,807 m² (1.93 acres) and has a maximum depth of approximately 40 cm.

SP 6

SP 6 (SMR 35) is located approximately 150 feet west of Highway 58 near a short branch of Trout Creek. SP 6 is situated within valley oak woodland and California annual grassland habitat. A very low gradient drainage and sheet flow from a small watershed supply water seasonally to this pool. The dominant emergent wetland vegetation within and surrounding SP 6 includes Mexican rush and common spikerush. SP 6 covers a maximum area of approximately 2,745 m² (0.68 acre) and a maximum depth of approximately 100 cm. SP 6 is located less than 0.10 mile from Trout Creek.

SP 7

SP 7 (SMR 19) is located just outside of the western project boundary in a wetland below Moore Ridge. The dominant emergent wetland vegetation within SP 7 includes Mexican rush and common spikerush. SP 7 covers a maximum area of approximately 697 m² (0.59 acre) and has a maximum depth of approximately 46 cm.

LVPB DESCRIPTION, RANGE, AND HABITAT REQUIREMENTS

LVPB are federally listed freshwater invertebrates endemic to California vernal pools. Five of these species are in the aquatic crustacean Order Anostraca and include the Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp, San Diego fairy shrimp (*Branchinecta sandiegoensis*), and Riverside fairy shrimp (*Streptocephalus woottoni*). The vernal pool tadpole shrimp (*Lepidurus packardii*) is in the aquatic crustacean Order Nostraca (USFWS 1993, 1994, and 1997). All LVPB are short lived (< 150 days) and fast reproducers (20-60 days), and can complete their life cycle in 20 days under optimal conditions to 40 days under less favorable conditions, depending on the species. During the dry season, LVPB embryos are contained in a protective impenetrable shell called a cyst. Cysts may remain viable in the soil for 15 years and often for much longer. Following winter/spring rains and the inundation of vernal pools, embryos hatch from the cysts and enter the water column, to mature and reproduce and complete their life cycle (Eriksen and Belk 1999).

LVPB are endemic to vernal pools in the Central Valley, northern and southern Coast Ranges, southwestern coastal California, extreme northwestern Baja California, and a limited number of sites in the Transverse Range and Santa Rosa Plateau of California (USFWS 1993, 1994, and 1997; Eriksen and Belk 1999; CNDDDB 2006). Vernal pools are defined by Zedler and Keely (1998) as "precipitation-filled seasonal wetlands inundated during periods when temperature is sufficient for plant growth, followed by a brief waterlogged-terrestrial stage and culminating in extreme desiccating soil conditions of

extended duration." Many LVPB are also found in sandstone or basalt-flow depression basins to small swale and earth slump, with a grassy or, occasionally, muddy bottoms in grassland habitats (Eriksen and Belk 1999). The vernal pool fairy shrimp was the focus of the surveys and is discussed further below.

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (VPFS) is listed as federally threatened by the USFWS and has been observed in a variety of vernal pools from December to early May in the Central Valley of California, and to the central and southern Coast Ranges from Solano County to Ventura County, California (USFWS 1994). They are also found in disjunct populations in the South Coast Mountains Region in a wide variety of habitats. Habitats include type locality sandstone outcrops in Contra Costa and Santa Barbara counties, but the more typical habitat is small swales, earth slumps, or basalt-flow depression basins with a grassy or muddy bottom (Eriksen and Belk 1999). In San Luis Obispo County, VPFS have been found in vernal/seasonal pools within Camp Roberts and in the Creston/Paso Robles area in northern San Luis Obispo County to seasonal alkali pools in the California Valley in eastern San Luis Obispo County to cattle grazed seasonal pools in the City of San Luis Obispo (CNDDDB 2006). Potential habitat is also located in southern San Luis Obispo County on the Nipomo Mesa (San Luis Obispo County 2004). VPFS inhabit vernal pools that vary in size from 0.56 m² (1.84 ft²) to over 10 ha (24.7 acres) and have low to moderate total dissolved solids (TDS) and alkalinity, and neutral pH. VPFS mature rapidly and can reach reproductive age in 18 days under optimal conditions, however, 41 days is more common. VPFS are the shortest lived fairy shrimp, with a maximum lifespan of 139 days (mean = 90 days) (Eriksen and Belk 1999).

METHODS

Survey methods followed the USFWS protocol guidelines for LVPB (USFWS 1996). To satisfy the first of two protocol surveys required in the guidelines, a complete wet season survey was performed within SP 1, SP 2, SP 3, SP 4, SP 5, SP 6, and SP 7 during the 2005 - 2006 rain year. To conclusively determine presence or absence of LVPB, a second survey is required per USFWS protocol guidelines Section II. c. (USFWS 1996). The second survey may include a consecutive dry season survey to be conducted within the summer of 2006 or prior to the onset of fall rains (typically late October to November) or a second wet season survey to be conducted before or during the 2010 - 2011 rain year. The methods for the wet season survey are discussed below.

Wet Season Protocol Survey

Rincon Consultant biologist John H. Davis IV conducted a full USFWS protocol wet season survey for the LVPB on the property during the winter of 2006. Rincon Biologists Paige Farrell provided assistance on March 13 and April 10, 2006, and Chris Powers provided assistance on February 12, 2006. Mr. Davis is federally authorized under USFWS permit TE-110095-0 to conduct protocol surveys for LVPB throughout much of California. Based on a habitat assessment for VPFS and CRLF performed within the study area by Rincon



Consultants on January 2, 2006 (Rincon Consultants 2006) and conversations with the USFWS (October 2005 – January 2006), Rincon Consultants requested authorization to conduct protocol wet season surveys from the USFWS, Ventura Fish and Wildlife Office on January 3, 2006. Informal authorization to conduct protocol wet season surveys for the LVPB within the property was provided by Ms. Julie Vanderwier of the USFWS on January 5, 2006 via email.

USFWS protocol wet season surveys for LVPB require a series of formal surveys to be performed once pools are inundated with at least 3.0 cm of water. Wet season surveys for LVPB were conducted every two weeks throughout the rain season (up to 120 days) following initial inundation of the pools to satisfy protocol requirements. The surveys included visually inspecting the pools for fairy shrimp and dipping a 30.5 cm (12.0 inch) wide fine mesh net (i.e. swimming pool net) into the pool at a series of locations and moving it through the entire water column to collect suspended vernal pool fauna. Contents of the net were placed into a Petri dish partially filled with water and inspected for fairy shrimp and other vernal pool fauna. Following inspection of all vernal pool fauna, contents were placed back into the pool. Genera of observed vernal pool fauna were recorded on USFWS LVPB protocol wet season survey sheet (please see attached data sheets). All areas of the pools were thoroughly examined to determine whether LVPB were present.

Physical data were also collected during each survey effort and was recorded onto the USFWS wet season survey data sheets. Maximum surface area of each pool was initially measured by walking the perimeter of seasonal pool habitat using a Trimble® GeoXT Global Positioning System (GPS) unit, capable of sub-meter (approximately three feet) accuracy. Additional surface area measurements were performed by counting the paces it took to walk around each pool and multiplying by a mean pace length to obtain an approximate surface area for the pools and/or approximating the proportion of the maximum surface area filled during the survey. Water and air temperature were measured using a field thermometer and maximum pool depth was measured with a metric ruler. In addition, geographic information, land use, and habitat type were recorded.

RESULTS

No LVPB were observed within the study area seasonal pools during protocol wet season surveys (refer to Table 1). One non-listed species of fairy shrimp, the California fairy shrimp (*Linderiella occidentalis*) was observed within SP 1 and SP 6. Other vernal pool invertebrates observed during the surveys included Conchostracans (clam shrimp), Ostracods (seed shrimp), Cladocerans (water fleas), Anisoptera (dragon flies), Corixidae (water boatman), Hydrophilidae (water scavenger beetles), and copepods. Aquatic vertebrate taxa was also observed and included western toad (*Bufo boreas*), Pacific chorus frog (*Pseudacris regilla*), and bullfrog (*Rana catesbeiana*). For additional data including invertebrate fauna and other wildlife observed during survey efforts and physical data recorded for each seasonal pool, please refer to the attached USFWS LVPB protocol wet season data sheets. Table 1 also summarizes the date of the survey, days since initial inundation, and the physical data taken for each pool.

TABLE 2
Wet Season Survey Dates and Findings

Survey Number	Date	Days Since Inundation	Surface Area: Pool Depth	Water Temp: Air Temp	Fairy Shrimp Species Observed ¹
1	01/03/06	1 day	SP 1 - 7 NM : NM	SP 1 - 7 NM : NM	SP 1 - 7 0 Fairy Shrimp
2	01/30/06	27 days	SP 1 19,150 m ² : 70 cm SP 2 436 m ² : 150 cm SP 3: 103 m ² : 20.3 cm SP 4 1,013 m ² : 120 cm SP 5 2,336 m ² : 25.0 cm SP 6 2,196 m ² : 80 cm SP 7 2,352 m ² : 30.0 cm	SP 1 12.0 °C : 19.0 °C SP 2 9.0 °C : 16.0 °C SP 3: 17.5 °C : 17.0 °C SP 4 15.0 °C : 12.5 °C SP 5 13.8 °C : 16.0 °C SP 6 13.0 °C : 16.5 °C SP 7 14.0 °C : 16.5 °C	SP 1 ≥ 1,000 California Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 10,000 California Fairy Shrimp SP 7 0 Fairy Shrimp
3	02/13/06	41 days	SP 1 16,600 m ² : 70 cm SP 2 436 m ² : 150 cm SP 3: 73.5 m ² : 15.0 cm SP 4 1,013 m ² : 120 cm SP 5 178 m ² : 27.0 cm SP 6 2,059 m ² : 85 cm SP 7 2,005 m ² : 25.0 cm	SP 1 11.5 °C : 15.5 °C SP 2 9.8 °C : 21.0 °C SP 3: 22.0 °C : 26.0 °C SP 4 18.0 °C : 27.0 °C SP 5 21.0 °C : 27.0 °C SP 6 17.5 °C : 22.5 °C SP 7 20.5 °C : 26.5 °C	SP 1 ≥ 1,000 California Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 10,000 California Fairy Shrimp SP 7 0 Fairy Shrimp
4	02/27/06	55 days	SP 1 14,050 m ² : 70 cm SP 2 436 m ² : 150 cm SP 3: 117.6 m ² : 27.5 cm SP 4 1,013 m ² : 120 cm SP 5 56 m ² : 14.5 cm SP 6 2,333 m ² : 90 cm SP 7 1,200 m ² : 18.0 cm	SP 1 12.0 °C : 16.8 °C SP 2 9.5 °C : 17.5 °C SP 3: 15.0 °C : 16.0 °C SP 4 11.9 °C : 14.9 °C SP 5 14.5 °C : 14.5 °C SP 6 12.5 °C : 17.5 °C SP 7 12.5 °C : 15.0 °C	SP 1 ≥ 100 California Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 10,000 California Fairy Shrimp SP 7 0 Fairy Shrimp
5	03/13/06	69 days	SP 1 21,705 m ² : 80.0 cm SP 2 484 m ² : 180.0 cm SP 3: 147 m ² : 30.0 cm SP 4 1,192 m ² : 145.0 cm SP 5 7,807 m ² : 20.0 cm SP 6 2,745 m ² : 100 cm SP 7 2,352 m ² : 30.0 cm	SP 1 11.5 °C : 4.5 °C SP 2 8.5 °C : 7.0 °C SP 3: 13.5 °C : 11.5 °C SP 4 12.0 °C : 12.0 °C SP 5 16.0 °C : 12.5 °C SP 6 13.5 °C : 11.3 °C SP 7 9.0 °C : 9.8 °C	SP 1 ≤ 100 California Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 10,000 California Fairy Shrimp SP 7 0 Fairy Shrimp
6	03/27/06	83 days	SP 1 22,980 m ² : 80 cm SP 2 484 m ² : 180 cm SP 3: 147 m ² : 30.0 cm SP 4 1,192 m ² : 145 cm SP 5 7,807 m ² : 20.0 cm SP 6 2,745 m ² : 138 cm SP 7 2,405 m ² : 46.0 cm	SP 1 13.0 °C : 14.3 °C SP 2 12.5 °C : 13.5 °C SP 3: 14.0 °C : 11.3 °C SP 4 13.0 °C : 12.8 °C SP 5 14.0 °C : 13.0 °C SP 6 14.0 °C : 11.8 °C SP 7 14.0 °C : 15.5 °C	SP 1 ≥ 10 California Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 1,000 California Fairy Shrimp SP 7 0 Fairy Shrimp
7	04/10/06	97 days	SP 1 22,980 m ² : 80 cm SP 2 484 m ² : 180 cm SP 3: 147 m ² : 30.0 cm SP 4 1,192 m ² : 145 cm SP 5 7,807 m ² : 20.0 cm SP 6 2,745 m ² : 138 cm SP 7 2,405 m ² : 46 cm	SP 1 13.0 °C : 17.0 °C SP 2 13.0 °C : 13.0 °C SP 3: 15.0 °C : 13.8 °C SP 4 13.0 °C : 12.2 °C SP 5 14.0 °C : 12.2 °C SP 6 15.0 °C : 11.8 °C SP 7 16.0 °C : 17.8 °C	SP 1 ≥ 10 California Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 1,000 California Fairy Shrimp SP 7 0 Fairy Shrimp
8	04/24/06	111 days	SP 1 22,980 m ² : 80 cm SP 2 484 m ² : 180 cm SP 3: 135 m ² : 25.0 cm SP 4 1,192 m ² : 145 cm SP 5 7,026 m ² : 25.0 cm SP 6 2,333 m ² : 115 cm SP 7 2,001 m ² : 35.0 cm	SP 1 19.0 °C : 19.8 °C SP 2 16.0 °C : 18.5 °C SP 3: 20.1 °C : 21.8 °C SP 4 13.7 °C : 15.5 °C SP 5 16.2 °C : 15.7 °C SP 6 26.4 °C : 24.2 °C SP 7 20.0 °C : 27.0 °C	SP 1 ≥ 10 California Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 100 California Fairy Shrimp SP 7 0 Fairy Shrimp
9	05/08/06	125 days	SP 1 17,875 m ² : 65 cm SP 2 470 m ² : 170 cm SP 3: 120 m ² : 20.5 cm SP 4 1,132 m ² : 140 cm SP 5 5,855 m ² : 25.0 cm SP 6 2,196 m ² : 90 cm SP 7 2,001 m ² : 35 cm	SP 1 20.5 °C : 23.5 °C SP 2 23.0 °C : 26.5 °C SP 3: 29.5 °C : 26.5 °C SP 4 21.0 °C : 22.5 °C SP 5 25.0 °C : 24.5 °C SP 6 30.0 °C : 26.7 °C SP 7 29.0 °C : 26.0 °C	SP 1 0 Fairy Shrimp SP 2 0 Fairy Shrimp SP 3 0 Fairy Shrimp SP 4 0 Fairy Shrimp SP 5 0 Fairy Shrimp SP 6 ≥ 10 California Fairy Shrimp SP 7 0 Fairy Shrimp

¹ The attached wet season data sheets provide a detail account of physical measurements and all species observed within the seasonal pools.
 NM = Not Measured



Monthly rainfall amounts for the Santa Margarita area are summarized below in Table 2. All seasonal pools became inundated on January 2, 2006 following the first significant storm event and maintained inundation throughout the survey period.

TABLE 2
Total Rainfall per Month for the Santa Margarita Area

Month	Total Rainfall ^{*1}
October	0.03 cm (0.01 in)
November	3.00 cm (1.18 in)
December	2.11 cm (0.83 in)
January	14.27 cm (5.62 in)
February	3.91 cm (1.54 in)
March	7.77 cm (3.06 in)
April	7.32 cm (2.88 in)
May	3.38 cm (1.33 in)
June	0.00 cm (0.00 in)

*1 Rainfall totals were recorded in the nearby City of San Luis Obispo (NOAA – NWA, 2006)

CONCLUSION

The findings as described above conclude the 2005 – 2006 USFWS protocol wet season survey for SP 1, SP 2, SP 3, SP 4, SP 5, SP 6, and SP 7 within the Santa Margarita Ranch study area. No LVPB were observed within these seasonal pools during survey efforts; however, the common California fairy shrimp was observed within SP 1 and SP 6. These fairy shrimp are not listed by the federal or state government, and therefore, do not require mitigation or protective measures. Based on these findings, neither the presence nor absence of LVPB can be conclusively determined at this time within the surveyed seasonal pools. To complete USFWS protocol requirements and conclusively determine presence or absence of LVPB, either a consecutive dry season survey needs to be conducted in 2006 prior to the onset of the 2006 - 2007 rains (typically late October or November) or a second full wet season survey needs to be conducted before or during the 2010 – 2011 rain year.

The USFWS Ventura Fish and Wildlife Office is responsible for Listed Vernal Pool Branchiopod issues in San Luis Obispo County. Their address is: 2493 Portola Road, Suite B, Ventura, CA 93003. USFWS biologist Julie Vanderwier is the contact for this project and can be reached by telephone at (805) 644-1766 ext. 222 or by email at Julie_Vanderwier@fws.gov. As per USFWS permit requirements, a copy of this report has been forwarded to Ms. Vanderwier.





Thank you for the opportunity to provide biological services for this project. If you have any questions regarding our analysis or would like to discuss the findings in further detail, please feel free to call John Davis or Kevin Merk at (805) 547-0900.

Sincerely,
RINCON CONSULTANTS, INC.

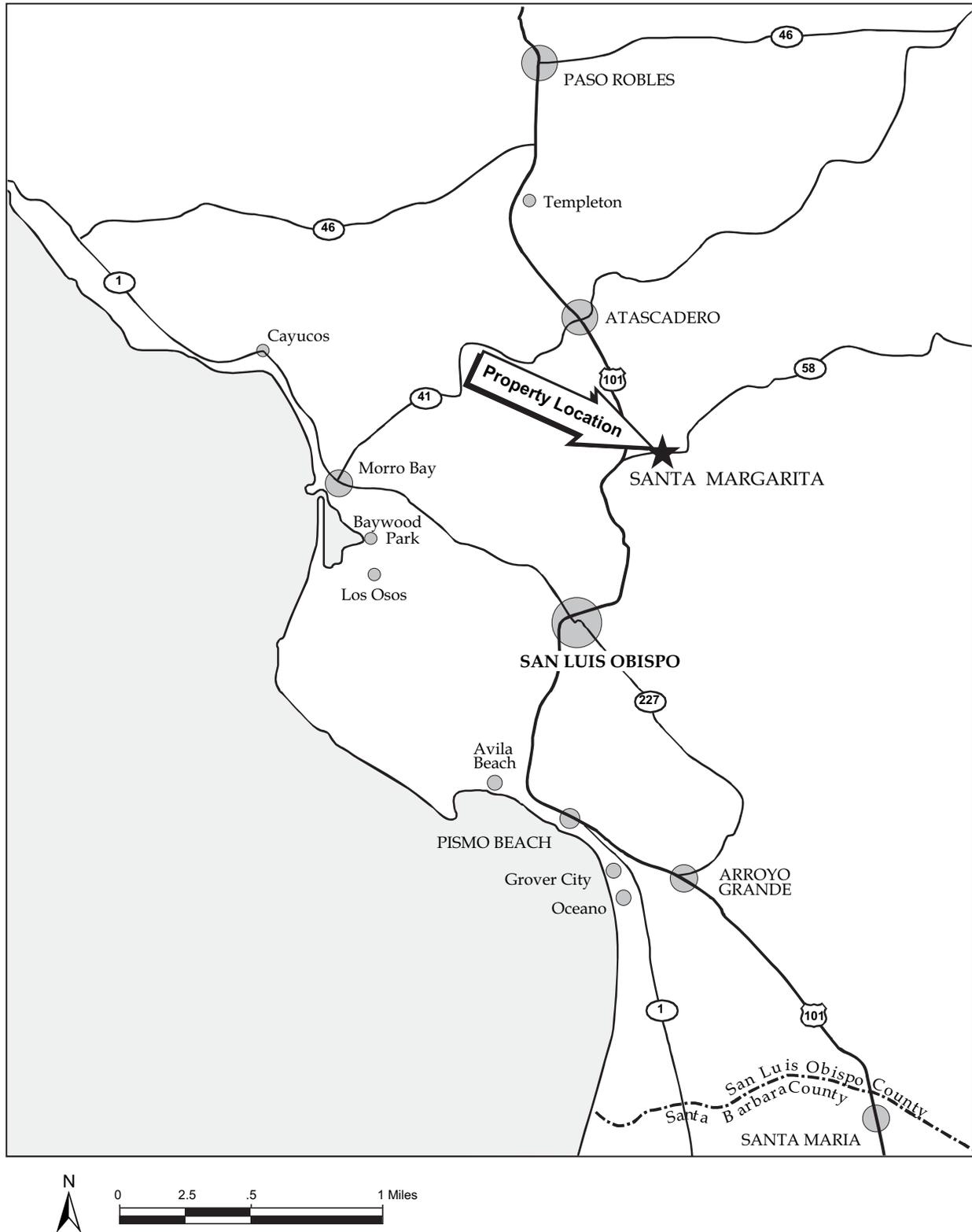
John H. Davis IV
Associate Biologist

Kevin Merk
Senior Biologist
Manager, Biological Resources Group

for Duane Vander Pluym, D. ESE
Principal Biologist

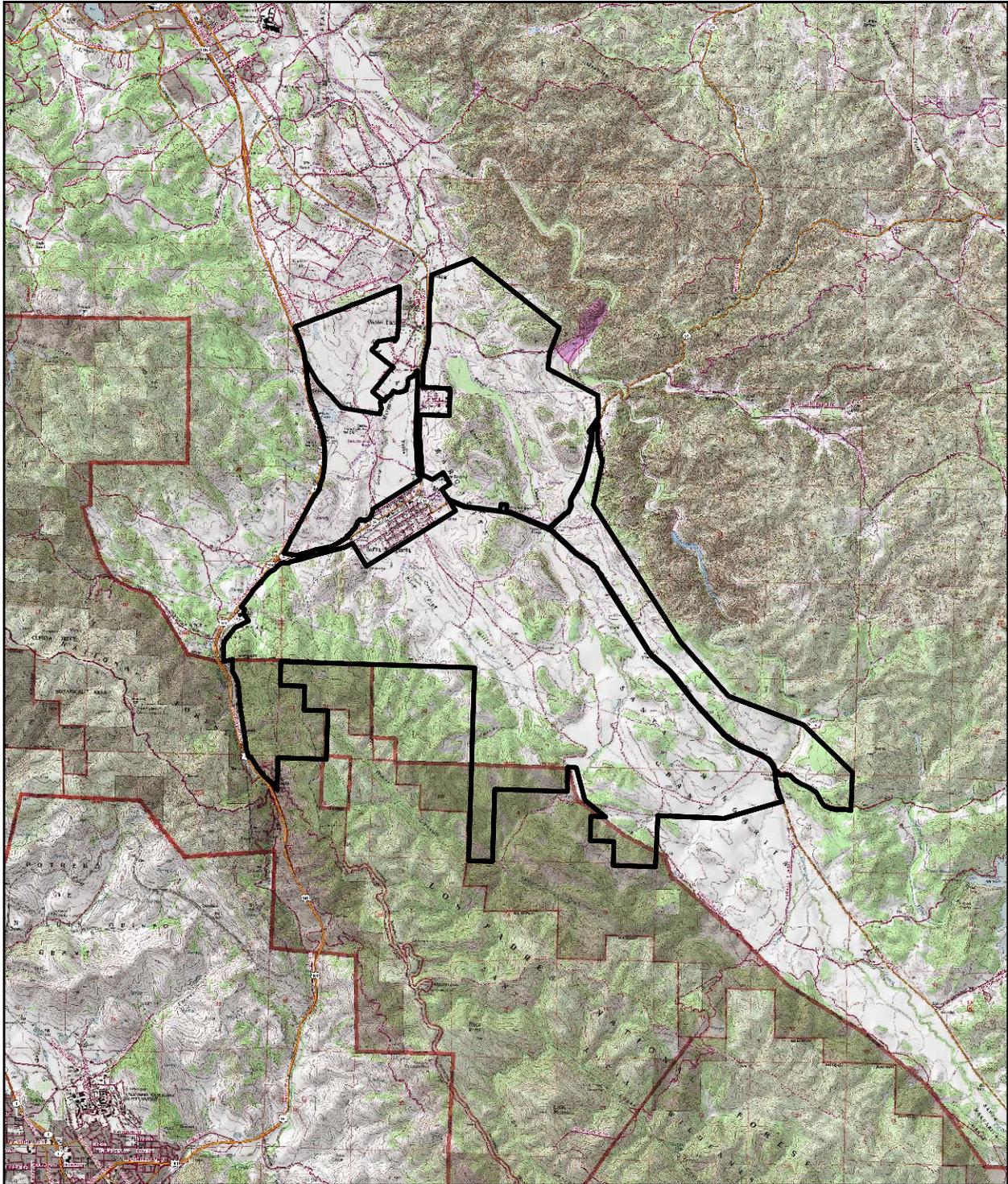
Attachments: *Figure 1: Project Vicinity Map*
Figure 2: Site Location Map
Figure 3: Seasonal Pool Location Map
Wet Season Data Sheets
Photo Plate
References

Cc: Julie Vanderwier, USFWS



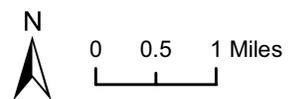
Property Vicinity Map

Figure 1



Legend

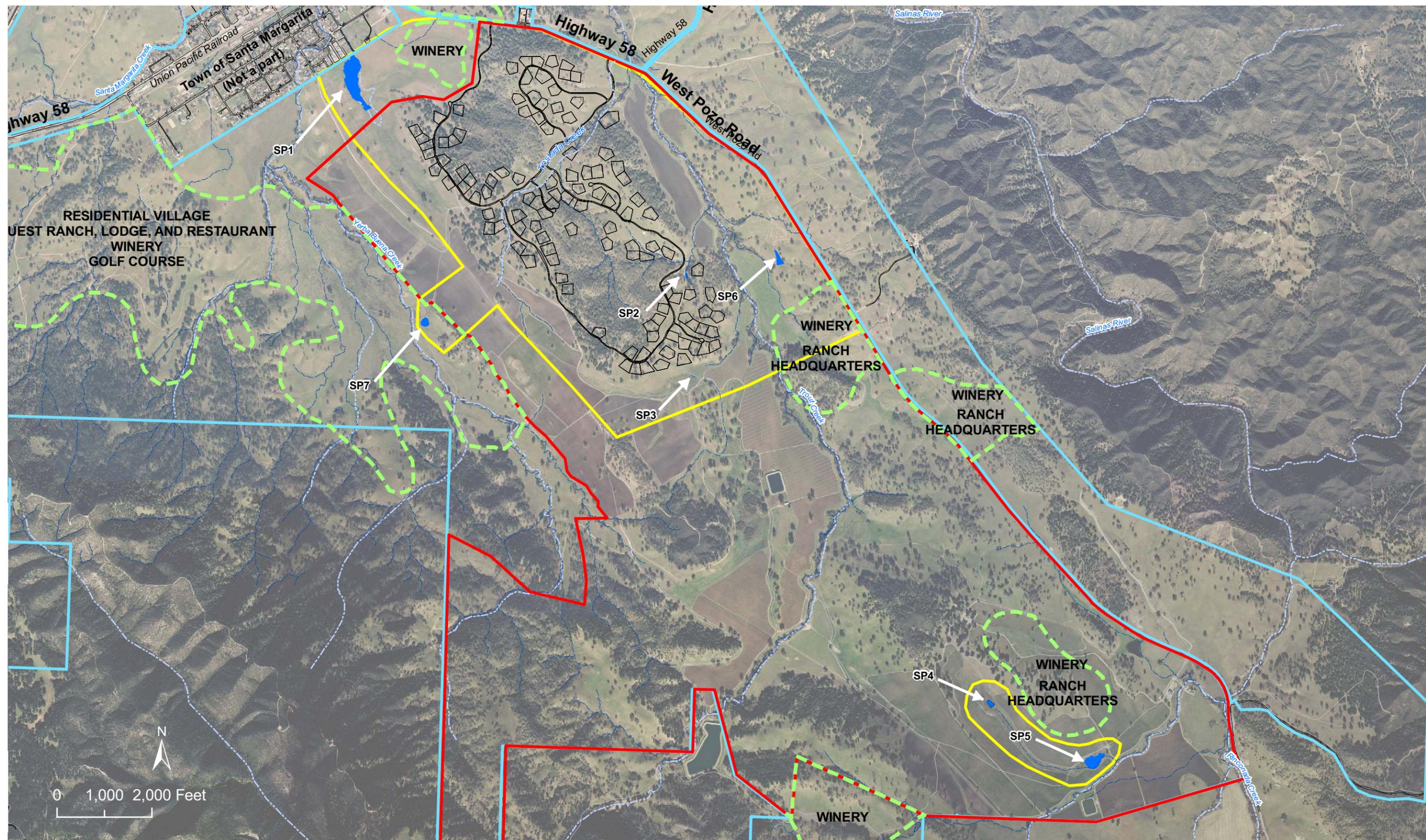
 Ranch Property Boundary



Property Location Map

Figure 2





Imagery Source: EDA Design Professionals, 2005.

- Study Area
- Tentative Tract 2586 Boundary
- Ranch Property Boundary
- Seasonal Pools (SP)
- Proposed Lot Lines for Tentative Tract 2586 Residential Cluster Subdivision
- Future Development Program Land Use Locations

Seasonal Pool Location Map Figure 3

U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods Protocol Survey Wet Season Data Sheet.

Project Name: Santa Margarita Ranch Agriculture Residential Cluster Subdivision Project EIR County: San Luis Obispo Elevation: 337 m
Vernal Pool No. SP 1 (SMR 17) USGS 7.5 min quad: Santa Margarita, Calif. Lat/Long: N35° 23' 15.3" / W120° 36' 4.5"
Surveyor: John H. Davis IV Max. Area: 25,536 m² Max. Depth: 80 cm Land Use/Habitat: Moderate Cattle Grazing over Annual California Grassland
 Permit No. TE-110095-0 3'2" 3'9"

Survey Date:	1/03/06	1/30/06	2/13/06	2/27/06	3/13/06	3/27/06	4/10/06	4/24/06	5/8/06
Time:	NA	17:15	9:38	9:07	8:50	4:50	16:05	14:45	11:45
Days Inundated:	1	87	41	55	69	83	97	111	125
Pool Depth / est. Pool Area	NM	70/1915	70/1660	38/1105	20/2170	20/2000	20/2280	20/2280	20/2280
Water / Air Temperature	NM	18/19	11.5/15.5	12.0/16.35	11.5/17.5	13.0/14.3	13.0/17.0	19.0/19.8	20.5/23.5
Pool Photos	-	✓	✓	-	✓	-	✓	✓	✓
GPS	-	✓	✓	-	-	-	-	-	-
Taxa Observed									
<i>Branchinecta lynchi</i>									
<i>Branchinecta lindahli</i>									
<i>Branchinecta longiantenna</i>									
<i>Lindertiella occidentalis</i>		>1,000	>1,000	<100	>10	>10	>10	>10	0
Cladocerans (water fleas)		✓	✓	✓	✓	✓	✓	✓	✓
Conchostracans (clam shrimp)		✓	✓	✓	✓	✓	✓	✓	✓
Copepods									
Ostracods (seed shrimp)		✓	✓	✓	✓	✓	✓	✓	✓
Anisoptera (dragon flies)									
Belostomatidae (giant H ₂ O beetle)									
Coriidae (water boatman)		✓	✓	✓	✓	✓	✓	✓	✓
Dytiscidae (pred. diving beetles)									
Ephemeroptera (mayflies)									
Hydrophilidae (H ₂ O scav. beetles)		✓	✓	✓	✓	✓	✓	✓	✓
Notonectidae (backswimmers)									
Zygoptera (damselflies)									
Hirudinea (leeches)					✓	✓	✓	✓	✓
Mollusca (H ₂ O snails)		✓	✓	✓	✓	✓	✓	✓	✓
<i>Bufo boreas</i>			✓	✓	✓	✓	✓	✓	✓
<i>Pseudacris regilla</i>									
<i>Rana aurora draytonii</i>		✓	egg sacs - watched	✓	✓	✓	✓	✓	✓
<i>Rana catesbeiana</i>									
<i>Spea hammondi</i>									
<i>Ambystoma californiense</i>									
Fish									
Water Fowl		mallards	see notes	see p15	see p13	see notes	✓	✓	✓
Voucher Specimens		8/13/06	38, 29						

Notes: *L. occidentalis* juv, few ♀, no eggs (1/30/06) / Saw gray fish present. Killdeer, r-w blackbirds, mallards, P. regilla adults calling
 200 miles (2/13/06), [2/27/06] Gusty winds 2-4 in of rain forecast, [3/13/06] lots of scuds, H₂O very clear, [2/27/06] AMERICAN WIGGLERS (3),
 MALLARDS (2) [4/10/06] MALLARDS, AM. OYST. GULL EGRET

U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods Protocol Survey Wet Season Data Sheet

Project Name: Santa Margarita Ranch Agriculture Residential Cluster Subdivision Project EIR County: San Luis Obispo Elevation: 336 m
Vernal Pool No. SP 2 (SMR 12) USGS 7.5 min quad: Santa Margarita, Calif. Lat/Long: N35° 22' 36.0" / W120° 34' 37.8"
Surveyor: John H. Davis IV Max. Area: 484 m² Max. Depth: 180 cm Land Use/Habitat: Moderate Cattle Grazing over Mixed Oak Woodland
 Permit No. TE-110095-0

Survey Date:	1/30/06	1/30/06	2/13/06	2/27/06	3/13/06	3/27/06	4/10/06	4/24/06	5/01/06
Time:	NA	13:51	11:15	10:30	10:59	11:15	14:50	12:15	13:25
Days Inundated:	1	27	41	55	69	83	97	111	125
Pool Depth / est. Pool Area		150/434	150/434	150/434	180/484	180/484	180/484	180/484	170/411
Water / Air Temperature		9.0/16.0	9.75/21	9.5/17.5	8.5/7.0	12.5/13.5	13.0/13.0	16.0/16.5	23.0/24.5
Pool Photos	✓	✓	✓	✓	✓	✓	✓	✓	✓
GPS	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxa Observed									
<i>Branchinecta lynchi</i>									
<i>Branchinecta lindahli</i>									
<i>Branchinecta longiantenna</i>									
<i>Lindnerella occidentalis</i>									
Cladocerans (water fleas)									
Conchostracans (clam shrimp)			✓	✓	✓	✓	✓	✓	✓
Copepods									
Ostracods (seed shrimp)				✓	✓	✓	✓	✓	✓
Anisoptera (dragon flies)									
Belostomatidae (giant H ₂ O beetle)									
Corixidae (water boatman)		✓	✓	✓	✓	✓	✓	✓	✓
Dytiscidae (pred. diving beetles)									
Ephemeroptera (mayflies)				✓	✓	✓	✓	✓	✓
Hydrophilidae (H ₂ O scav. beetles)			✓	✓	✓	✓	✓	✓	✓
Notonectidae (backswimmers)									
Zygoptera (damselflies)									
Hirudinea (leeches)				✓					
Mollusca (H ₂ O snails)			✓	✓	✓	✓	✓	✓	✓
<i>Bufo boreas</i>									
<i>Pseudacris regilla</i>			✓ eggs	✓ ETTA	✓ ETT	✓ ETT	✓ ETT	✓ ETT	✓ ETT
<i>Rana aurora draytonii</i>									
<i>Rana catesbeiana</i>									
<i>Spea hammondi</i>									
<i>Ambystoma californiense</i>									
Fish SWPT									
Water Fowl			✓		✓				✓
Voucher Specimens									

Notes: [2/13/06] SWPT observed - 1 adult, 1 juv [1/30/06] leeches; values also observed [01/30/06] SWPT observed, Pool max
 [2/12/06] SWPT observed, Pool max
 [2/08/06] SWPT observed

U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods Protocol Survey

Wet Season Data Sheet

Project Name: Santa Margarita Ranch Agriculture Residential Cluster Subdivision Project EIR **County:** San Luis Obispo **Elevation:** 338.1 m
Vernal Pool No. SP 3 (SMR 23) **USGS 7.5 min quad:** Santa Margarita, Calif. **Lat/Long:** N35° 22' 13.7" / W120° 34' 41.7"
Surveyor: John H. Davis IV **Max. Area:** 147 m² **Max. Depth:** 30 cm **Land Use/Habitat:** Moderate Cattle Grazing over Annual California Grassland
Permit No. TE-110095-0

Survey Date:	1/03/06	1/30/06	2/13/06	2/27/06	3/13/06	3/27/06	4/10/06	4/24/06	5/07/06
Time:	NA	11:45	11:15	11:35	11:35	12:55	14:07	13:15	14:09
Days Inundated:	1	41	55	69	83	97	111	125	125
Pool Depth / est. Pool Area	NA	15.0/10.0	23.5/50.0	35/147	30/147	25/135	20/120		
Water / Air Temperature	17.5/17.0	22.0/26.0	15.0/16.0	13.5/11.5	14.0/11.3	15.0/13.0	21.1/21.9	23.5/26.5	
Pool Photos	✓	✓	✓	✓	✓	✓	✓	✓	✓
GPS	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxa Observed									
<i>Branchinecta lynchi</i>									
<i>Branchinecta lindahli</i>									
<i>Branchinecta longiantenna</i>									
<i>Linderiella occidentalis</i>									
Cladocerans (water fleas)									
Conchostracans (clam shrimp)									
Copepods									
Ostracods (seed shrimp)	✓								
Anisoptera (dragon flies)									
Belostomatidae (giant H ₂ O beetle)	✓								
Corixidae (water boatman)									
Dytiscidae (pred. diving beetles)									
Ephemeroptera (mayflies)									
Hydrophilidae (H ₂ O scav. beetles)									
Notonectidae (backswimmers)									
Zygoptera (damselflies)									
Hirudinea (leeches)									
Mollusca (H ₂ O snails)									
<i>Bufo boreas</i>									
<i>Pseudacris regilla</i>									
<i>Rana aurora draytonii</i>	✓								
<i>Rana catesbeiana</i>									
<i>Spea hammondi</i>									
<i>Ambystoma californiense</i>									
Fish									
Water Fowl									
Voucher Specimens		MINIARDS				GR. EGRETS	✓ RUBB	✓	✓ RUBB

Notes: [2/13/06] Non-stade "Horse hair" [3/13/06] POOL @ MAX CAPACITY FOLLOWING RECENT RAINS
 [3/13/06] checked few swarms
 E = egg mass
 T = Tadpoles

U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods Protocol Survey

Wet Season Data Sheet

Project Name: Santa Margarita Ranch Agriculture Residential Cluster Subdivision Project EIR County: San Luis Obispo
Vernal Pool No. SP 4 (SMR 4) USGS 7.5 min quad: Santa Margarita, Calif. Lat/Long: Elevation:
Surveyor: John H. Davis IV Max. Area: 1,192 m² Max. Depth: 145 cm Land Use/Habitat: Moderate Goat Grazing over Wetland surrounded by Vineyards
 Permit No. TE-110095-0

Survey Date:	1/30/06	1/30/06	2/29/06	3/13/06	3/27/06	4/10/06	4/21/06	5/08/06
Time:	15:58	14:40	13:52	13:22	15:08	10:45	10:40	11:00
Days Inundated:	1	41	55	69	83	97	111	125
Pool Depth / est. Pool Area	120/101	120/103	145/192	145/192	145/192	145/192	145/192	140/182
Water / Air Temperature	15.9/12.5	18.0/27	11.9/14.9	12.0/20.0	13.0/19.8	13.9/18.2	13.7/15.5	11.0/20.5
Pool Photos	✓	✓	✓	✓	✓	✓	✓	✓
GPS	✓	✓	✓	✓	✓	✓	✓	✓
Taxa Observed								
<i>Branchinecta lynchi</i>								
<i>Branchinecta lindahli</i>								
<i>Branchinecta longiantenna</i>								
<i>Lindnerella occidentalis</i>								
Cladocerans (water fleas)		✓			✓	✓		
Conchostoracans (clam shrimp)		✓	✓	✓	✓	✓	✓	
Copepods		✓	✓	✓	✓	✓	✓	
Ostracods (seed shrimp)		✓	✓	✓	✓	✓	✓	✓
Anisoptera (dragon flies)								
Belostomatidae (giant H ₂ O beetle)								
Corixidae (water boatman)		✓	✓	✓	✓	✓	✓	✓
Dytiscidae (pred. diving beetles)		✓			✓	✓	✓	✓
Ephemeroptera (mayflies)								
Hydrophilidae (H ₂ O scav. beetles)		✓	✓	✓	✓	✓	✓	✓
Notonectidae (backswimmers)								
Zygoptera (damselflies)		✓			✓	✓	✓	✓
Hirudinea (leeches)								
Mollusca (H ₂ O snails)		✓		✓ (2 spp)				
<i>Bufo boreas</i>								
<i>Pseudacris regilla</i>		T.E.	✓ E.T.					
<i>Rana aurora draytonii</i>								
<i>Rana catesbeiana</i>								
<i>Spea hammondi</i>								✓ (JUNE)
<i>Ambystoma californiense</i>								
Fish								
Water Fowl								
Voucher Specimens	✓ (2 spp)							

Notes:
 5/4/06 water in trees in meadow [1/4/06] 2 clams in tree, heard 3 bullfrogs distress call, 250' SW from
 5/8/06 H₂O extruded from 100' of P. regilla tube; 300mm; that young in tree spring above.

U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods Protocol Survey

Wet Season Data Sheet

Project Name: Santa Margarita Ranch Agriculture Residential Cluster Subdivision Project EIR County: San Luis Obispo Elevation:
Vernal Pool No. SP 6 (SMR 35) USGS 7.5 min quad: Santa Margarita, Calif. Lat/Long:
Surveyor: John H. Davis IV Max. Area: 2,745 m² Max. Depth: 400 cm Land Use/Habitat: Moderate Cattle Grazing over Valley Oak Savannah
 Permit No. TE-110095-0

Survey Date:	1/03/06	1/20/06	2/03/06	2/07/06	3/13/06	3/27/06	4/10/06	4/24/06	5/02/06
Time:	12:12	12:30	12:01	12:30	12:30	14:00	18:35	15:30	12:45
Days Inundated:	1	91	55	69	83	97	111	125	125
Pool Depth / est. Pool Area	80/196	80/233	90/233	100/274	100/274	138/274	115/233	105/196	
Water / Air Temperature	11.3/19.5	12.5/14.0	12.5/17.5	13.5/11.3	14.0/11.8	15.0/11.8	16.5/11.8	21.2/30.0	26.7
Pool Photos	✓	✓	✓	✓	✓	✓	✓	✓	✓
GPS	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxa Observed									
<i>Branchinecta lynchi</i>									
<i>Branchinecta lindahli</i>									
<i>Branchinecta longiantenna</i>									
<i>Lindieriella occidentalis</i>									
Cladocerans (water fleas)									
Conchostracans (clam shrimp)									
Copepods									
Ostracods (seed shrimp)									
Anisoptera (dragon flies)									
Belostomatidae (giant H ₂ O beetle)									
Corixidae (water boatman)									
Dytiscidae (pred. diving beetles)									
Ephemeroptera (mayflies)									
Hydrophiliidae (H ₂ O scav. beetles)									
Notonectidae (backswimmers)									
Zygoptera (damselflies)									
Hirudinea (leeches)									
Mollusca (H ₂ O snails)									
<i>Bufo boreas</i>									
<i>Pseudacris regilla</i>									
<i>Rana aurora draytonii</i>									
<i>Rana catesbeiana</i>									
<i>Spea hammondi</i>									
<i>Ambystoma californiense</i>									
Fish									
Water Fowl									
Voucher Specimens									

Notes: [2/13/06] MALIBU, CUMMINGTON TEAL
 [3/13/06] AMERICAN WYGEAN, MALIBU, POOL @ MAX CAP FOLLOWING RECENT RAINS [4/10/06] SCUDS
 [4/24/06] 1 WFL FLEMING, 1 POOL W/ MOAN [5/02/06] H₂O TURBID, 2 BULL HEADS, 200 POND TURTLE
 [5/02/06] * subadults, OTHER EGGS IN C. GB HERON, AM COOTS

U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods Protocol Survey

Wet Season Data Sheet

Project Name: Santa Margarita Ranch Agriculture Residential Cluster Subdivision Project EIR County: San Luis Obispo Elevation: 331.4 m
Vernal Pool No. SP 7 (SMR 19) USGS 7.5 min quad: Santa Margarita, Calif. Lat/Long: N35° 22' 25.0" / W120° 35' 44.6"
Surveyor: John H. Davis IV Permit No. TE-110095-0 Max. Area: 2,405 m² Max. Depth: 46 cm Land Use/Habitat: Moderate Cattle Grazing over California Annual Grassland

Survey Date:	1/02/06	1/30/06	2/13/06	2/27/06	3/13/06	3/27/06	4/10/06	4/24/06	9/08/06
Time:	NA	17:05	13:30	15:34	10:16	11:20	15:20	14:15	14:45
Days Inundated:	1	27	41	55	69	83	97	111	125
Pool Depth / est. Pool Area	40% 2.186	25% 1.205	18% 1.200	30% 2.352	46% 2.405	46% 2.405	46% 2.405	46% 2.405	35% 2.001
Water / Air Temperature	13.5/15.0	20.5/26.5	18.5/15.0	18.5/15.0	9.0/9.8	14.0/15.5	16.2/17.8	20.0/27.0	24.0/26.0
Pool Photos	✓	✓	✓	✓	✓	✓	✓	✓	✓
GPS	✓	✓	✓	✓	✓	✓	✓	✓	✓
Taxa Observed									
<i>Branchinecta lynchi</i>									
<i>Branchinecta lindahli</i>									
<i>Branchinecta longiantenna</i>									
<i>Linderiella occidentalis</i>									
Cladocerans (water fleas)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Conchostracans (clam shrimp)									
Copepods									
Ostracods (seed shrimp)									
Anisoptera (dragon flies)									
Belostomatidae (giant H ₂ O beetle)									
Corixidae (water boatman)									
Dytiscidae (pred. diving beetles)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ephemeroptera (mayflies)									
Hydrophiliidae (H ₂ O scav. beetles)									
Notonectidae (backswimmers)									
Zygoptera (damselflies)									
Hirudinea (leeches)									
Mollusca (H ₂ O snails)									
<i>Bufo boreas</i>									
<i>Pseudacris regilla</i>									
<i>Rana aurora draytonii</i>									
<i>Rana catesbeiana</i>									
<i>Spea hammondi</i>									
<i>Ambystoma californiense</i>									
Fish - SWPT									
Water Fowl									
Voucher Specimens	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: 2/13/06 2 water fleas
 2/3/06 lots of snails, H₂O clear - recent rains [3/27/06] (1) Great white egret, (2) mallards [4/24/06] 2 GT white egret, mallard, cowbird
 5/6/06 waterfowl, many songbirds
 SEE NOTES ✓
 ✓(12)
 ✓(12)

PHOTO PLATE



Photo Point 1. Northeast view of Seasonal Pool 1 taken from a nearby ranch access road. California annual grassland surrounds the pool and emergent wetland habitat occurs throughout the topographical low areas. This photo was taken on April 10, 2006.



Photo Point 2. Southern view of Seasonal Pool 2 taken from the earthen berm at the northern end of the pool. Mixed oak woodland habitat surrounds the pool. This photo was taken on April 10, 2006.



Photo Point 3. Southern view of Seasonal Pool 3 taken from the pool's north edge. California annual grassland and wetland habitats surround the pool. This photo was taken on March 13, 2006.



Photo Point 4. Northeast view of Seasonal Pool 4 taken from a vineyard road to the west of the pool. Vineyards and emergent wetland habitats surround the pool. A valley oak is located in the foreground. This photo was taken on April 10, 2006.



Photo Point 5. Southwest view of Seasonal Pool 5 from a vineyard road located to the north of the pool. Vineyards and emergent wetland habitats surround the pool. This photo was taken on April 10, 2006.



Photo Point 6. Southwest view of Seasonal Pool 6 taken from a small hill adjacent to the north end of the pool. Valley oak savannah and California annual grassland habitats surround the pool. This photo was taken on April 10, 2006.



Photo Point 7. Southwest view of Seasonal Pool 7 taken from a hill to the northeast of the pool. California annual grassland, mixed oak woodland, and wetland habitats surround the pool. This photo was taken on April 10, 2006.

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Persons Contacted:

Julie Vanderwier, Biologist, Ventura Fish and Wildlife Service Office



*Vernal Pool Fairy Shrimp and California Red-Legged Frog
Habitat Assessment for the Santa Margarita Ranch Agricultural
Residential Cluster Subdivision Project and
Future Development Program EIR*

Rincon Consultants, April 2006

April 5, 2006
Project #05-58171

Mr. James Caruso
County of San Luis Obispo
Department of Planning and Building
County Government Center
San Luis Obispo, CA 93408

Subject: Vernal Pool Fairy Shrimp and California Red-Legged Frog Habitat Assessment for the Santa Margarita Ranch Agriculture Residential Cluster Subdivision Project and Future Development Program EIR, San Luis Obispo County, California

Dear Mr. Caruso:

Rincon Consultants, Inc. has conducted a habitat assessment for the vernal pool fairy shrimp (*Branchinecta lynchi*; VPFS) and the California red-legged frog (*Rana aurora draytonii*; CRLF) on the Santa Margarita Ranch property (property) under the direction of the County of San Luis Obispo. The property is located approximately 9.25 miles northeast of the City of San Luis Obispo, in San Luis Obispo County, California (Figure 1). The approximately 14,000 acre property is situated immediately east of U.S. Highway 101, and surrounds the town of Santa Margarita. Near the middle of the property, southeast of the town of Santa Margarita and Highway 58, an Agriculture Residential Cluster Subdivision project (project) is proposed for development (Figure 2). The purpose of this habitat assessment was to evaluate the potential for VPFS and CRLF to occur within the on-site seasonal pools and creeks within the Study Area illustrated on Figure 3.

The project site is composed of flat valleys to steeply sloping hillsides that supports California annual grassland, native perennial grassland, chaparral, oak woodland, oak savannah, riparian, and wetland habitat types. Current agriculture operations include cattle ranching and vineyards. The project will include 112 single family houses over 145 acres within the 3,778 acre project site. Proposed lot sizes range from between 1.00 to 2.45 acres and comprise approximately 128 acres, with approximately 17 acres for roadways, driveways, and other improvements. The remaining 3,633 acres will be placed in agricultural (vineyard) conservation easements. Vineyards currently exist throughout the project site; however, three additional vineyards are proposed within the project site in areas adjacent to or within preexisting vineyards. The study area includes portions of the project site that have potential to be impacted by development of the residential portion of the project, future ranch headquarters, and general infrastructure. This area primarily consists of the central to northern portion of the project site, but also includes a small portion near the southern project site boundary (Figure 3). The study area contains seven seasonal pools, Tostada Creek and a reach of Trout Creek. These aquatic features are the focus of this habitat assessment.

Since the initiation of the Santa Margarita Ranch EIR, Rincon Consultants biologists have been in correspondence with U.S. Fish and Wildlife Service (USFWS) regarding project-related VPFS and CRLF issues. In November 2005, discussions were initiated with the USFWS regarding potential on-site VPFS and CRLF habitat and future protocol survey efforts. On January 24, 2006, three weeks following heavy rainfall, the USFWS granted unofficial authorization to conduct VPFS and CRLF surveys in lieu of the pending habitat assessment. Information including the proposed project plan map, draft habitat map, and draft CRLF habitat assessment forms (conducted on October 24, 2005) was sent to Ms. Julie Vanderwier via email on February 1, 2006. The unofficial authorization was provided due to the potential of not observing VPFS on-site, if present, during wet season surveys because of their short life cycle (30 to 60 days). In addition, protocol guidelines for VPFS state that surveys shall begin following inundation of a pool and continue thereafter every 14 days for 120 days unless a VPFS is observed. On January 30, 2006, USFWS protocol surveys for VPFS were initiated and on February 2, 2006, USFWS protocol surveys for CRLF were initiated.

VPFS and CRLF can survive in a variety of pool habitats. The main difference between the two species is the VPFS requires a vernal or seasonal pool to have a dry period, typically summer through fall, and the CRLF requires a seasonal pool to retain water into late July to complete tadpole metamorphosis. Pool habitats within perennial and seasonal creeks also provide suitable breeding habitat for CRLF. Although there is some overlap in habitat between the two species, there are many differences that determine habitat suitability. Following are species-specific habitat descriptions for the VPFS and CRLF.

VPFS Habitat Description

VPFS occur in vernal, seasonal, or ephemeral pools from early December to early May. Vernal pool habitats occupied by VPFS are variable; however, most are found in grass or mud bottom swales, or basalt flow depression pools in unplowed grasslands. Other VPFS suitable habitats include sandstone rock outcrops and alkaline vernal pools (USFWS, 1994). The one characteristic the pools have in common is that they contain cool water (4.5 - 23°C), and are less predictable and short-lived than vernal pools with a larger watershed found in more mesic environments (Eriksen and Belk, 1999 and USFWS, 2004). In addition, the water temperature within a pool must drop below 10° C before a VPFS nauplius (juvenile fairy shrimp) will hatch from a dormant cyst (an encapsulated egg) (Helm 1998).

CRLF Habitat Description

CRLF can survive in a variety of habitat types, including aquatic, riparian, and upland habitats. Preferred aquatic habitat of the CRLF is characterized by dense shrubby, or emergent riparian vegetation, such as arroyo willow (*Salix lasiolepis*), cattails (*Typha* spp.), and bulrushes (*Scirpus* spp.), associated with deep (greater than two feet), still or slow-moving water. The CRLF will also utilize ephemeral ponds, intermittent streams, seasonal wetlands, springs, seeps, permanent ponds, perennial creeks, man-made aquatic features, marshes, dune ponds, lagoons, riparian corridors, blackberry thickets, nonnative annual grasslands, and oak savannas. CRLF have been known to successfully breed in artificial ponds with little or no emergent vegetation, although they generally use emergent aquatic vegetation to act as braces to anchor egg mass (USFWS 2002). Following are the methods and results of our habitat assessment.

METHODS

On October 24, 2005 and February 2, 2006, Rincon biologist, John H. Davis IV, conducted a VPFS and CRLF habitat assessment on the project site following USFWS survey guidelines (1996 and 2005). Habitat suitability for VPFS and CRLF was assessed within the seasonal pools and additional habitat suitability for CRLF was assessed for Trout and Tostada Creeks. Mr. Davis IV holds a USFWS permit to conduct protocol surveys for federally listed vernal pool branchiopods (Permit #TE-110095-0). On January 30, 2006, approximately one month following the heavy rains on January 2 and 3, 2006, all pools within the study area were investigated for inundation and surveyed for fairy shrimp as per USFWS protocol guidelines (1996). A subsequent visit was conducted on February 13, 2006 to perform protocol VPFS surveys and to measure and map the seasonal pools. In addition, the approximate maximum area and depth of seasonal pools were recorded onto a USFWS CRLF Habitat Assessment Form and the location of the pools was mapped onto a site-specific aerial photograph (see the attached Habitat Assessment Forms and Figure 3). Seasonal pools within the project site have been assigned the numbers SP 1-7 for the purpose of this habitat assessment. These seasonal pool numbers are followed in parentheses by previously labeled pond numbers for the entire property (Althouse and Meade, 2003). On-site creek habitats, including riparian and in-stream vegetation, riffles, runs, and pool descriptions, were also measured and recorded onto USFWS CRLF Habitat Assessment Forms. In addition, the study area for the on-site creek segments is illustrated on Figure 3.

Habitat suitability for VPFS and CRLF is defined by several environmental parameters. Rincon Consultants used the following qualifiers to assess suitable habitat for VPFS and CRLF.

- To qualify as potential VPFS habitat, a pool must have the ability to support seasonal water at a depth of 3.0 cm or greater for more than 45 days under optimal conditions, is not frequently and/or excessively disturbed (i.e. plowing or grading), and is located within the known range or vicinity of documented VPFS occurrences.
- To qualify as potential CRLF habitat, in-stream pools must be at least one foot deep, have slow-moving water, hold water until July, and contain emergent vegetation, willow roots, or twigs for egg mass attachment. For seasonal pools, they must hold water until July and contain at least 25% cover of emergent vegetation (USFWS 2002). In addition, the aquatic feature needs to be located within the known range or vicinity of documented CRLF occurrences.

RESULTS

Seasonal Pool Descriptions

Seven seasonal pools were identified on the project site that contain suitable habitat for the VPFS and CRLF. These pools are designated as Seasonal Pool 1 (SP 1), SP 2, SP 3, SP 4, SP 5, SP 6, and SP 7. All pools have a moderately impervious clay, loamy clay, or sandy loam soil substrate that supports seasonal pooling (USDA, 1983, Althouse and Meade, 2002, and personal observation). In addition, past field surveys identified the California fairy shrimp (*Linderiella occidentalis*) in two seasonal pools (SMR 9 and SMR 24) within the property, but

not on the project site (J. Thomas, 2003 and Althouse and Meade, 2003). The following are seasonal pool descriptions and include the location of the pools, measurements of maximum pool area and depth, and the surrounding habitat and substrate types. Also included is our determination of habitat suitability for the VPFS and CRLF. A table summarizing the on-site seasonal pools follows the descriptions.

SP 1

SP 1 (SMR 17) is a natural pool located in the northern portion of the project site just south of the town of Santa Margarita in a flat area at the end of a low gradient ephemeral drainage (Figure 3; Photo Point 5). An earthen berm constructed along the town's southern boundary has further impounded flow within the topographic depression, thereby increasing the size and depth of this pool. The drainage has a very shallow sandy loam to clay loam channel that spreads out as it approaches the low area supporting SP 1 (USDA 1983). The dominant wetland species within the ephemeral drainage and the shallow areas of SP 1 include Mexican rush (*Juncus mexicanus*), common spikerush (*Eleocharis macrostachya*), and curly dock (*Rumex crispus*). SP 1 covers a maximum area of approximately 25,536 m² (6.308 acres) and a maximum depth of approximately 80 cm. SP 1 is located less than 0.25 mile from Yerba Buena Creek and approximately 1.15 miles from Trout Creek which are known to support breeding populations of CRLF (please see the attached CNDDDB Results Map). In addition, during the January 30, February 13 and 27, and March 13, 2006 surveys, California fairy shrimp were observed in low to moderate numbers throughout the pool (between 100 to 1,000 individuals). Based on pool characteristics, the proximity to known VPFS and CRLF occurrences, the ability of SP 1 to support the California fairy shrimp, and the relatively undisturbed natural setting, SP 1 has potential to support VPFS and CRLF.

SP 2

SP 2 (SMR 12) is located in the central portion of the project site along an unnamed ranch road toward the top of a small hill (Figure 3; Photo Point 6). SP 2 was formed by the construction of an earthen dam within a low gradient ephemeral drainage. The pool is surrounded by mixed oak woodland habitat primarily consisting of coast live oak (*Quercus agrifolia*) and blue oak (*Quercus douglasii*). A ranch road lies to the west of the pool. SP 2 covers a maximum area of approximately 484 m² (0.120 acre) and has a maximum depth of approximately 180 cm. During the February 13, 2006 survey, two southwestern pond turtles (*Actinemys marmorata pallida*) were observed within the pool. SP 2 is located approximately 0.5 mile west Trout Creek and 1.0 mile east of Yerba Buena Creek. Based on pool characteristics, the proximity to known VPFS and CRLF occurrences, and the relatively undisturbed natural setting, SP 2 has potential to support VPFS and CRLF.

SP 3

SP 3 (SMR 23) is located in the central portion of the project site within a large wetland area between the oak woodland covered hills to the north and vineyards to the east and west (Figure 3; Photo Point 7). The dominant wetland species within SP 3 are Mexican rush and common spikerush. SP 3 covers a maximum area of approximately 147 m² (0.036 acre) and has a maximum depth of approximately 30 cm. SP 2 is located approximately 0.50 mile west of Trout Creek and 0.75 mile east of Yerba Buena Creek. Based on pool characteristics, the proximity to known VPFS and CRLF occurrences, and the relatively undisturbed natural setting, SP 3 has potential to support VPFS and CRLF.

SP 4

SP 4 (SMR 4) is located in the southern portion of the project site within an open wetland area surrounded by vineyards (Figure 3; Photo Point 8). The dominant wetland species within and surrounding SP 4 include red willow (*Salix laevigata*), Mexican rush, and common spikerush. SP 4 covers a maximum area of approximately 1,192 m² (0.295 acres) and has a maximum depth of approximately 145 cm. SP 4 is located less than 0.85 mile from Trout Creek. Based on pool characteristics, the proximity to known VPFS and CRLF occurrences, and the relatively undisturbed natural setting, SP 4 has potential to support VPFS and CRLF.

SP 5

SP 5 (SMR 5) is located in the southern portion of the project site within an open wetland area surrounded by vineyards (Figure 3; Photo Point 9). The dominant wetland species within SP 5 include Mexican rush and common spikerush. SP 5 covers a maximum area of approximately 7,807 m² (1.929 acres) and has a maximum depth of approximately 40 cm. SP 5 is located approximately 1.25 miles from Trout Creek. This pool was named the “frog pond” by Althouse and Meade (2003) due to the abundance of Pacific chorus frogs (*Pseudacris regilla*) and California (western) toads (*Bufo boreas halophilus*). Based on pool characteristics, the proximity to known VPFS and CRLF occurrences, and the relatively undisturbed natural setting, SP 4 has potential to support VPFS and CRLF.

SP 6

SP 6 (SMR 35) is located approximately 150 feet west of Highway 58 near a short branch of Trout Creek (Figure 3; Photo Point 10). SP 6 is situated within valley oak woodland and California annual grassland habitat. A very low gradient drainage and sheet flow from a small watershed supply water seasonally to this pool. The dominant emergent wetland vegetation within and surrounding SP 6 includes Mexican rush and common spikerush. SP 6 covers a maximum area of approximately 2,745 m² (0.678 acre) and a maximum depth of approximately 100 cm. SP 6 is located less than 0.10 mile from Trout Creek. In addition, during the January 30 and February 13 and 27, 2006 surveys, the California fairy shrimp was observed in high numbers throughout the pool (> 10,000 individuals). Based on pool characteristics, the proximity to known VPFS and CRLF occurrences, the ability of SP 6 to support the California fairy shrimp, and the relatively undisturbed natural setting, it is our opinion that SP 6 has potential to support VPFS and CRLF.

SP 7

SP 7 (SMR 19) is located just outside of the western project boundary in a wetland below Moore Ridge (Figure 3; Photo Point 11). The dominant emergent wetland vegetation within SP 7 includes Mexican rush and common spikerush. SP 7 covers a maximum area of approximately 697 m² (0.594 acre) and has a maximum depth of approximately 46 cm. During the February 27, 2006 survey, two southwestern pond turtles (*Actinemys marmorata pallida*) were observed within the pool. SP 7 is located less than 0.10 mile from Yerba Buena Creek. Based on pool characteristics, the proximity to known VPFS and CRLF occurrences, and the relatively undisturbed natural setting, SP 7 has potential to support VPFS and CRLF.

Table 1
Summary of Seasonal Pools Located Within the Project Site

Seasonal Pool	Maximum Pool Area	Maximum Depth	Pool Substrate	Notes
SP 1 (SMR 17)	25,536 m ² (6.308 acres)	80 cm	Clay soil	<ul style="list-style-type: none"> • Large wetland filled by runoff from ephemeral drainage and sheet flow. • Located directly adjacent to the town of Santa Margarita. • California fairy shrimp observed on 1/30/06.
SP 2 (SMR 23)	484 m ² (0.120 acre)	180 cm	Silty clay to clay soil	<ul style="list-style-type: none"> • Anthropogenic-created pool within an unnamed ephemeral drainage. • Southwestern pond turtle observed on 2/13/06.
SP 3 (SMR 12)	147 m ² (0.036 acre)	30 cm	Gravelly loam soil	<ul style="list-style-type: none"> • Natural pool within a large wetland.
SP 4 (SMR 4)	1,192 m ² (0.295 acre)	145 cm	Loam soil	<ul style="list-style-type: none"> • Natural pool within an unnamed ephemeral drainage.
SP 5 (SMR 5)	7,807 m ² (1.929 acres)	40 cm	Loam soil	<ul style="list-style-type: none"> • Natural pool within a large emergent wetland. • Known as the "Frog Pond"
SP 6 (SMR 35)	2,745 m ² (0.678 acre)	100 cm	Sandy loam to sandy clay soil	<ul style="list-style-type: none"> • Natural pool within an unnamed ephemeral drainage. • California fairy shrimp observed on 1/30/06.
SP 7 (SMR 19)	697 m ² (0.594 acre)	46 cm	Clay loam soil	<ul style="list-style-type: none"> • Natural pool within an emergent wetland. • Southwestern pond turtle observed 2/27/06.

Creek Descriptions

The segments of Trout Creek and Tostada Creek within the survey area were found to contain suitable habitat for the CRLF. The following creek descriptions include the location of the creeks, riparian vegetation, creek characteristics, and in-stream pool measurements. Also included is our determination of habitat suitability for the CRLF.

Trout Creek

Trout Creek is located within a flat area in the eastern portion of the project site between Pozo Road and the hills to the west (Figure 4; Photo Point 1 and 2). Trout Creek is a perennial creek that originates south of the project site in the San Lucia Mountains near Cuesta Ridge. From its origins it heads in a northerly direction through the property and project site and eventually converges with the Salinas River northeast of the property. The reach of Trout Creek on the project site is approximately 1.50 miles long and contains mature riparian forest habitat with riparian scrub and emergent perennial wetland habitats lining and submerged within its complex channel. Average bankfull width of Trout Creek is approximately 50.0 feet and the channel averages approximately 4.0 feet wide at normal flows. Substrate found in riffles is small sized gravel to cobbles, while coarse sand to medium gravel is common in most runs. Twelve in-stream pools have been identified within the on-site creek reach. On average, these pools are about 5-6 feet wide, 5-7 feet long, and 2-4 feet deep. They typically consist of coarse sand, but in many cases contain gravel and cobble substrate. The on-site portion of Trout Creek is located approximately 1.75 miles

from a known CRLF breeding population in an upstream portion of Trout Creek (Figure 4: CNNDB Results). Based on in-stream pool characteristics, the proximity to known CRLF occurrences, and the relatively natural setting, Trout Creek has potential to support CRLF.

Tostada Creek

Tostada Creek is located in the northern-central portion of the project site along an unnamed ranch road between two unnamed hills (Figure 3; Photo Point 3 and 4). Tostada Creek is a seasonal creek that originates within the project site near Moore Ridge and extends east until it converges with Trout Creek near Highway 58. Tostada Creek receives runoff from ephemeral drainages from Moore Ridge and in the hills that surround the lower portion of the creek. Tostada Creek is approximately 1.25 miles long and contains two very different reaches. To the west, the upper 0.75 mile long reach supports sparse riparian scrub and deer grass (*Muhlenbergia rigens*) habitats over an open channel, while to the east, the lower 0.50 mile reach supports riparian forest habitat consisting of red willow, foothill pine (*Pinus sabiniana*), and valley oak (*Quercus lobata*). Average bankfull width of Tostada Creek is approximately 40 feet and the channel averages 3-4 feet wide. Substrate found in riffles is small to large gravel, while coarse sand to medium gravel is common in most runs. Ten in-stream pools were identified within the on-site creek segment. On average, these pools are 4-5 feet wide, 4-6 feet long, and 1-3 feet deep. They typically have fine to coarse sand, but in some cases contain small to medium sized gravel substrate. Tostada Creek is located approximately 1.00 mile from a known CRLF breeding population in Yerba Buena Creek and 2.75 miles from a known CRLF breeding population in Trout Creek. Based on in-stream pool characteristics, the proximity to known CRLF occurrences, and the relatively natural setting, Tostada Creek has potential to support CRLF.

CONCLUSION

Rincon Consultants has identified suitable VPFS and CRLF habitat on the Santa Margarita Ranch Agriculture Residential Cluster Project EIR site. Suitable habitat for both VPFS and CRLF were identified within seven seasonal pools, which include SP 1-7 within the project site. Suitable CRLF habitat was also identified within Tostada Creek and the on-site segment of Trout Creek. The portions of the site included in this Habitat Assessment are displayed on Figure 3: Habitat Assessment Map. As previously stated, the USFWS provided verbal authorization to initiate VPFS and CRLF surveys on the project site (personal communication, Julie Vanderwier, January 24, 2006). Results of the survey to date have identified two frogs within the study area, one in Trout Creek and one in Tostada Creek. Based on these findings, the USFWS was contacted to evaluate the most appropriate manner to proceed. CRLF and VPFS surveys will be continued within the seasonal pools until the protocol is complete as per USFWS guidelines (1996 and 2005).

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Persons contacted:

Julie Vanderwier, U.S. Fish and Wildlife Service, November , 2005, January 5 and 24, and February 1, 14, and 24, 2006.

Thank you for the opportunity to provide environmental consulting services for this project. If you have any questions regarding our analysis or would like to discuss the findings, please feel free to call John H. Davis IV or Kevin Merk at (805) 547-0900.

Sincerely,

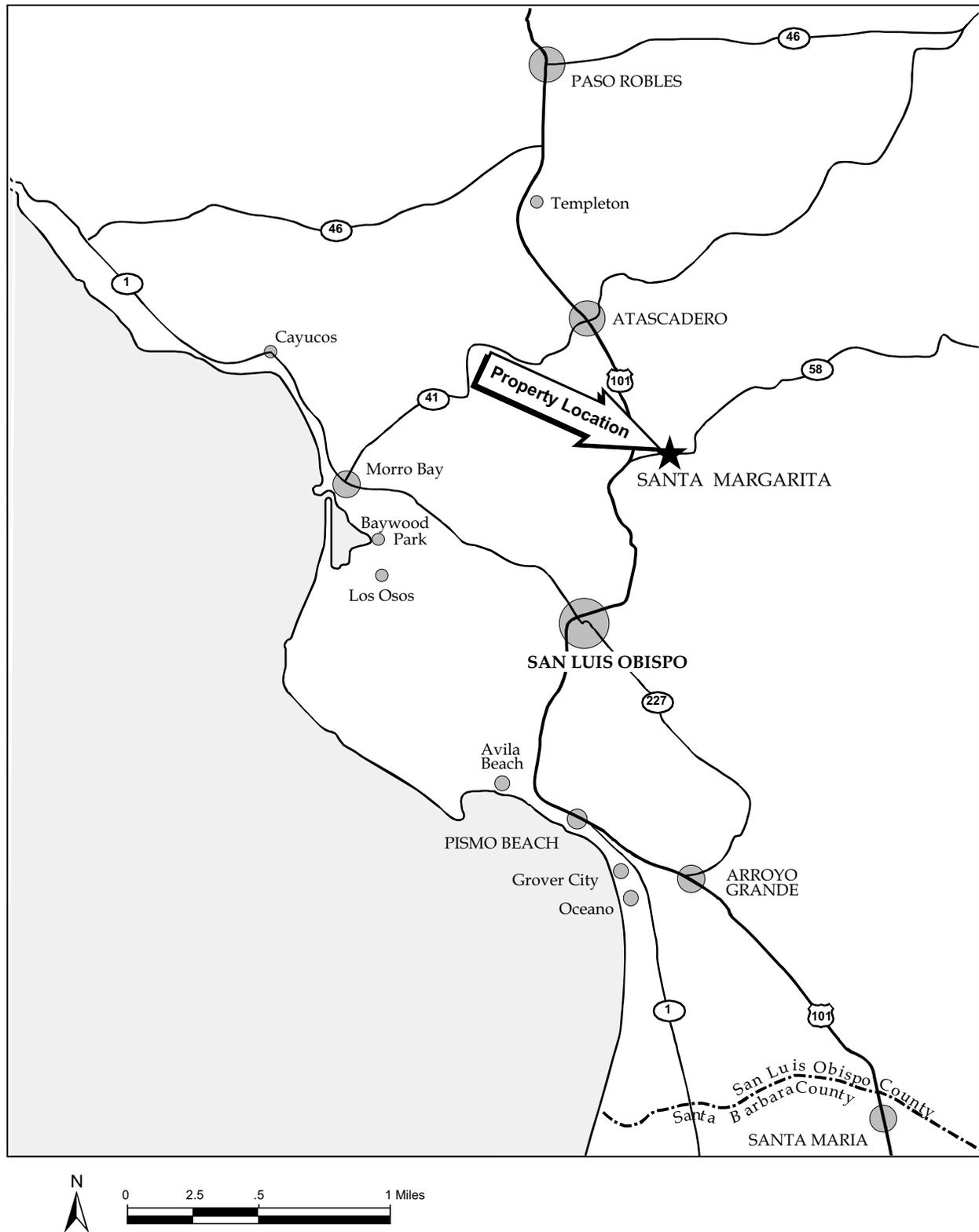
RINCON CONSULTANTS, INC.

John H. Davis IV
Associate Biologist

Kevin Merk
Senior Biologist
Manager Biological Resources

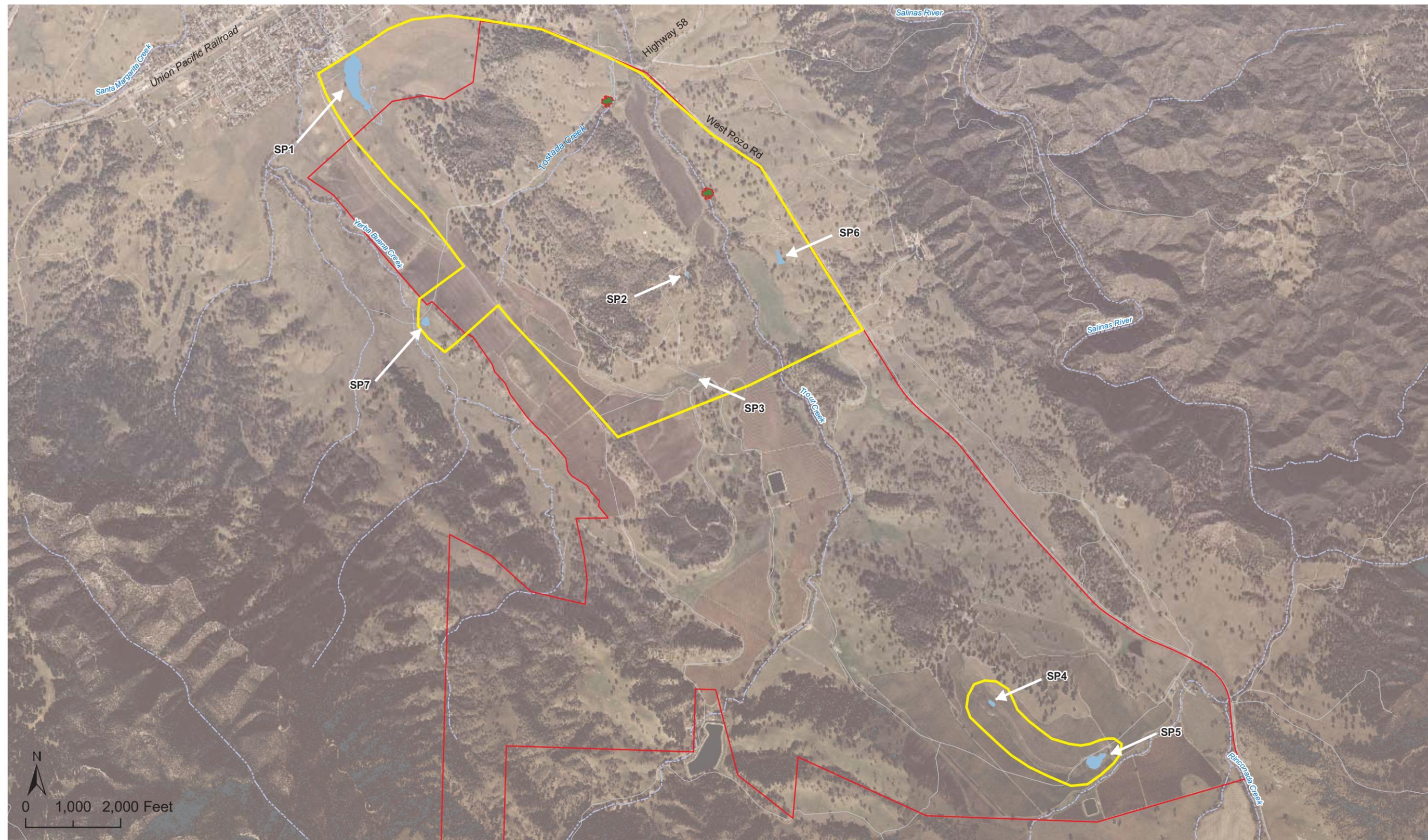
*Attachments: Figure 1: Project Vicinity Map
 Figure 2: Project Location Map
 Figure 3: Habitat Assessment Map
 Figure 4: CNDDDB Results Map
 Photo Plate
 Habitat Assessment Forms*

cc: Julie Vanderwier, USFWS

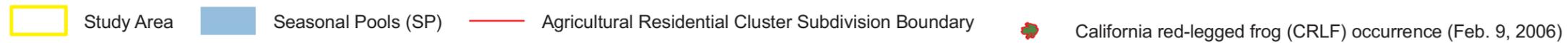


Regional Location

Figure 1



Imagery Source: EDA Design Professionals, 2005.

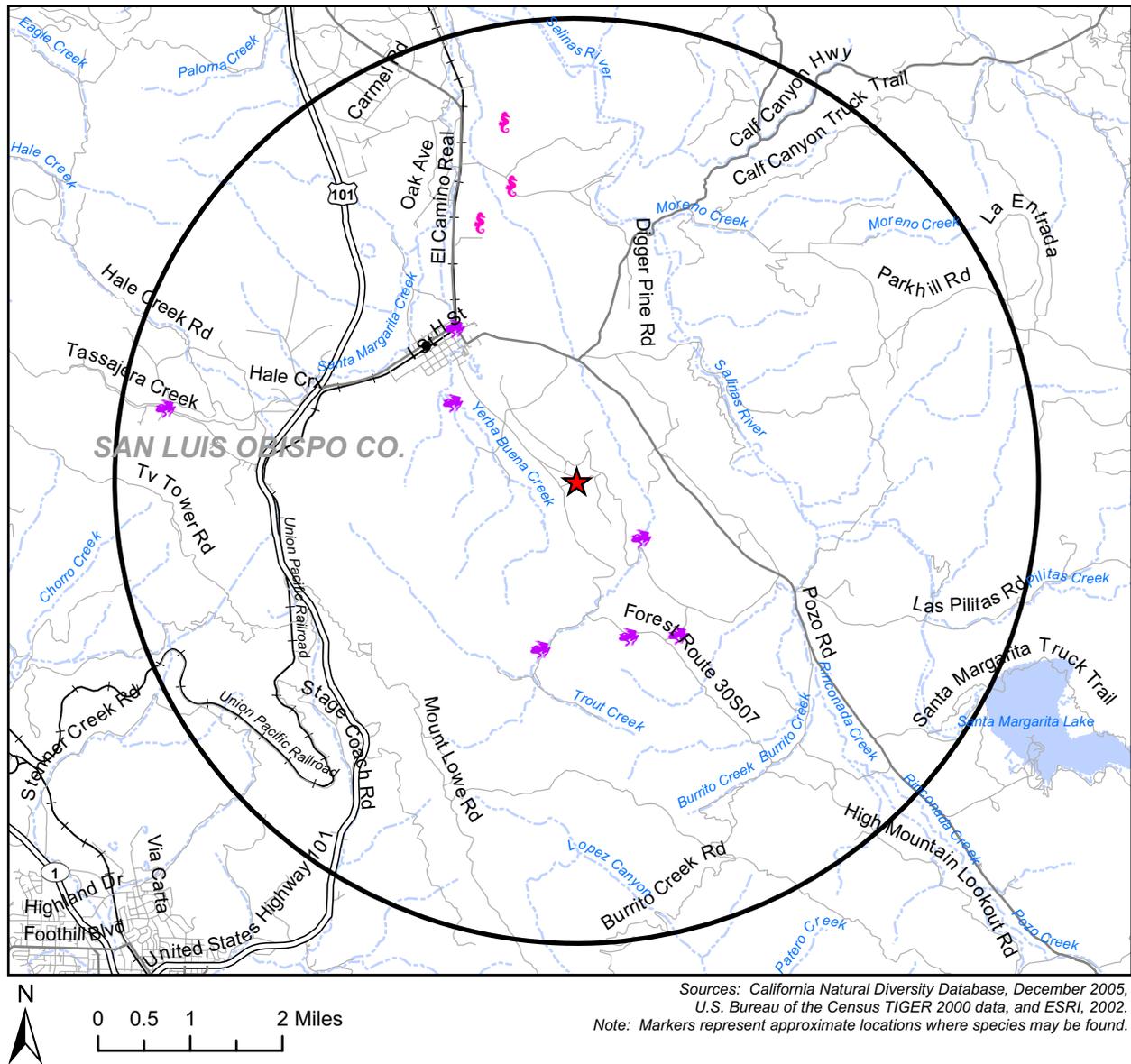


Habitat Assessment

Figure 3

County of San Luis Obispo





Legend

-  Project Location
-  5-Mile Radius
-  AAABH01022, California red-legged frog
-  ICBRA06010, California linderiella

Sensitive Elements Reported by the
 California Natural Diversity Database

Figure 4





Photo Point 1. Downstream view of Trout Creek's riparian and in-channel habitats taken within the central portion of the on-site creek segment. The riparian forest canopy includes Fremont cottonwood, red willow, and valley oak. This photo was taken on February 2, 2006.



Photo Point 2. Northern view of in-stream pool habitat within Trout Creek taken within the central portion of the on-site creek segment. Photo illustrates emergent vegetation and overhanging willows over a representative in-stream pool. This photo was taken on February 2, 2006.

Photo Plate





Photo Point 3. Upstream view of Tostada Creek’s riparian and in-channel habitats taken within the eastern portion of the creek. The riparian forest canopy includes foothill pine, red willow, and Fremont cottonwood. This photo was taken on February 2, 2006.



Photo Point 4. Close up view of in-stream pool habitat within Tostada Creek taken within the eastern portion of the creek. Photo illustrates a representative in-stream pool with an overhanging bank and woody downfall. This photo was taken on February 2, 2006.

Photo Plate





Photo Point 5. Northeast view of Seasonal Pool 1 taken from ranch access road. California annual grassland surrounds the pool and emergent wetland habitat occurs throughout the topographical low areas. This photo was taken on January 30, 2006.



Photo Point 6. South view of Seasonal Pool 2 taken from the earthen berm at the northern end of the pool. Mixed oak woodland habitat surrounds the pool. This photo was taken on January 30, 2006.

Photo Plate





Photo Point 7. South view of Seasonal Pool 3 taken from near the pools north edge. California annual grassland and wetland habitats surround the pool. This photo was taken on January 30, 2006.



Photo Point 8. Northeast view of Seasonal Pool 4 taken from a vineyard road to the west of the pool. Vineyards and emergent wetland habitats surround the pool. A dead valley oak can be seen in the foreground. This photo was taken on January 30, 2006.

Photo Plate





Photo Point 9. Southwest view of Seasonal Pool 5 from a vineyard road located to the north of the pool. Vineyards and emergent wetland habitats surround the pool. This photo was taken on January 30, 2006.



Photo Point 10. Southwest view of Seasonal Pool 6 taken from an area close to the north end of the pool. Valley oak savannah and California annual grassland habitats surround the pool. This photo was taken on January 30, 2006.

Photo Plate





Photo Point 11. Southwest view of Seasonal Pool 7 taken from an area to the north of the pool. California annual grassland, mixed oak woodland, and wetland habitats surround the pool. This photo was taken on January 30, 2006.

**Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet**

Site Assessment reviewed by: _____	(Last name) (first name)	(date)	(initials)
------------------------------------	--------------------------	--------	------------

Date of Site Assessment: 10/31/2005
(mm/dd/yyyy)

Site Assessment Biologists: DAVIS IV, JOHN
(Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: SAN LUIS OBISPO, SANTA MARGARITA, N 35° 23' 15.3" / W 120° 36' 4.5"
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: SANTA MARGARITA RANCH AGRICULTURAL RESIDENTIAL
 Brief description of proposed action: CLUSTER SUBDIVISION PROJECT AND FUTURE DEVELOPMENT PROGRAM EIR (SANTA MARGARITA RANCH EIR)

DEVELOPMENT CONSIST OF 112 SINGLE FAMILY RESIDENCES ON 145 ACRES. AGRICULTURE CONSIST OF CONSTRUCTION/ CONSERVATION OF 3,633 ACRE OF VINEYARDS (FIGURE 2).

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
- 2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
 If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 25,536 m² Maximum depth: 80 cm

Vegetation: emergent, overhanging, dominant species: Mexican rush, common spikerush, and curly dock - primarily on emergent wetland, w/ 1 FREMONT COTTONWOOD @ THE SOUTH END

Substrate: Dominated by clay soils

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: JUNE - JULY

STREAM: NA

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitats: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

SP1 IS Located in a large wetland at the end of an ephemeral drainage. The town of Santa Margarita forms its northern border. AREA IS USED FOR MODERATE CATTLE RANCHING. SP1 is dominated by emergent WETLAND VEGETATION, however, IT HAS NO OVERHEAD SHADING. A KNOWN CRLF BREEDING HABITAT IS LOCATED LESS THAN 0.25 miles west of SP1 in Yerba Buena Creek.

Necessary Attachments:

1. All field notes and other supporting documents
 2. Site photographs
- Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: [blacked out] (LWS Field Office) (date) (biologist)

Date of Site Assessment: 10/31/2005

Site Assessment Biologists: DAVISTU, JOHN (Last name) (first name) (Last name) (first name)

Site Location: SAN LUIS OBISPO (County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA RANCH EIR
Brief description of proposed action: SEE DATA SHEET 1 ; REPORT FOR DETAILS

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: Size: 484 m^2 Maximum depth: 180 cm

Vegetation: emergent, overhanging, dominant species: coast-live oak, blue oak are dominant overhanging veg, while curly dock, pink cocklebur, and ruderal plants are found at the water edge.
The pool is deep and void of emergent vegetation (in pond)
Substrate: Silty clay to clay soils

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: JULY-AUGUST

~~STREAM: NA~~

~~Bank full width: _____~~

~~Depth at bank full: _____~~

~~Stream gradient: _____~~

~~Are there pools (circle one)? YES NO~~

~~If yes,~~

~~Size of stream pools: _____~~

~~Maximum depth of stream pools: _____~~

~~Characterize non-pool habitat: run, riffle, glide, other: _____~~

~~Vegetation: emergent, overhanging, dominant species: _____~~

~~Substrate: _____~~

~~Bank description: _____~~

~~Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____~~

Other aquatic habitat characteristics, species observations, drawings, or comments:

located in an ephemeral drainage towards the top of a small hill. An EARTHEN BERM was constructed on the north side of the pool. SP 2 is a deep pool (~180cm) w/ mixed woodland & CA Annual GRASSLAND Habitat.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: (LWS Field Office) (date) (title)

Date of Site Assessment: 10/31/2005 (mm/dd/yyyy)

Site Assessment Biologists: DAVIS IV, JOHN (Last name) (first name) (Last name) (first name)

Site Location: SAN LUIS OBISPO, SANTA MARGARITA N35°22'13.7", W120°34'41.7" (County, General location name, UTM Coordinates or Lat./Long. or T-R-S)

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA RANCH EIR
Brief description of proposed action:
See DATA SHEET 1 : REPORT FOR DETAILS

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:
Size: 147m^2 Maximum depth: 30cm
Vegetation: emergent, overhanging, dominant species: Emergent vegetation w/ dominants including common spikerush, mexican rush, and curly dock. no overhanging vegetation.
Substrate: Gravelly - Loam soil.

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: MAY - JULY

STREAM: NA

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,

Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

~~Perennial or Ephemeral~~ (circle one). If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

Following Heavy rains, up to three pools form in the wetland area containing SP3. The other two pools are smaller in size and have a shorter inundation period. They are less likely to support CRLF; however, the entire wetland area is very close to Trout Creek (0.25 mile) and may provide a breeding area for CRLF dispersing from the creek.

Necessary Attachments:

- 1. All field notes and other supporting documents
- 2. Site photographs

Maps with important habitat features and species location

Appendix D. California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: (LWS Field Office) (Date) (biologist)

Date of Site Assessment: 10/31/05 (mm/dd/yyyy)

Site Assessment Biologists: DAVIS IV, JOHN (Last name) (first name) (Last name) (first name) (Last name) (first name) (Last name) (first name)

Site Location: SAN LUIS OBISPO, SANTA MARGARITA, N35°20'42.1", W120°34'10.1" (County, General location name, UTM Coordinates or Lat./Long. or T-R-S)

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA RANCH EIR
Brief description of proposed action: See Data sheet 1 & Report for project details

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION (if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: Size: 1.192 m^2 Maximum depth: 145 cm
Vegetation: emergent, overhanging, dominant species: Red willows overhang and dominant emergent veg includes mexican rush, common spike rush, and curly dock.
Substrate: Loamy soil

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: June - August

~~STREAM: NA~~

~~Bank full width: _____~~

~~Depth at bank full: _____~~

~~Stream gradient: _____~~

~~Are there pools (circle one)? YES NO~~

~~If yes,~~

~~Size of stream pools: _____~~

~~Maximum depth of stream pools: _____~~

~~Characterize non-pool habitat: run, riffle, glide, other: _____~~

~~Vegetation: emergent, overhanging, dominant species: _____~~

~~Substrate: _____~~

~~Bank description: _____~~

~~Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____~~

Other aquatic habitat characteristics, species observations, drawings, or comments:

LOCATED IN A LONG NARROW Spring feed wetland. A small earthen berm forms its southern edge. One large senescent valley oak is located on its western bank, young red willows are in the northern portion of the pool and extend northward in the drainage. Pool SP5 is located to the north in the same wetland. Moderate to heavy goat grazing occurs late spring through fall throughout the area.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D. California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10/31/2005 (mm/dd/yyyy)

Site Assessment Biologists: DAVIS IV, JOHN (Last name) (first name) _____ (Last name) (first name) _____ (Last name) (first name)

Site Location: SAN LUIS OBISPO, SANTA MARGARITA, N 25° 20' 55.7" (County, General location name, UTM Coordinates or Lat./Long. or T-R-S). W 120° 32' 36.6"

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA EIR
Brief description of proposed action: SEE DATA SHEET 1; REPORT FOR PROJECT DETAILS

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION (if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: Size: 7,807 m^2 Maximum depth: 40cm

Vegetation: emergent, overhanging, dominant species: Emergent wetland w/ dominants including Mexican rush, common spike rush, and curly dock. No overhanging vegetation.

Substrate: Loam soil

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: MAY-JULY

STREAM: NA

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

LOCATED AT THE TOP END OF A LOW GRADIENT EPHEMERAL DRAINAGE / WETLAND. ITS SURROUNDED BY VINEYARDS; HOWEVER THE WETLAND IS INTACT AND CONNECTS DOWNSTREAM W/ SP4. THE LOW POINT IN THE WETLAND IS SOMEWHERE BETWEEN SP4 & 5. SP5 WAS NAMED THE "FROG POND" BY ALTHOUSE & MEADE BECAUSE AN ABUNDANCE OF CA (WESTERN) TOADS & PAC. CHORUS FROG WERE OBSERVED THERE DURING AN INVENTORY OF THE RANCH.

Necessary Attachments:

1. All field notes and other supporting documents
 2. Site photographs
- Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: (LWS Field Office) (date) (biologist)

Date of Site Assessment: 10/31/2005 (mm/dd/yyyy)

Site Assessment Biologists: DAVIS IV, JOHN (Last name) (first name) (Last name) (first name)

Site Location: SAN LUIS OBISPO, SANTA MARGARITA (County, General location name, UTM Coordinates or Lat./Long. or T-R-S)

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA RANCH EIR
Brief description of proposed action:
SEE DATA SHEET 1 REPORT FOR PROJECT DETAIL

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:
Size: 2,745m^2 Maximum depth: 100cm
Vegetation: emergent, overhanging, dominant species: EMERGENT VEG
INCLUDES MEXICAN BUSH, COMMON SPIKEGRASS, & CURLY DOCK
1 VALLEY OAK OVERHANGS THE EASTERN POOL EDGE
Substrate: SANDY LOAM to SANDY CLAY LOAM

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: JULY

STREAM: NA

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

~~Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____~~

Other aquatic habitat characteristics, species observations, drawings, or comments:

LOCATED IN A LOW GRADE EPHEMERAL DRAINAGE
W/ VALLEY OAK SAVANNAH. SP6 IS A MODERATELY
DEEP (>100 cm) POOL W/ LITTLE OVERHEAD VEGETATION
OR EMERGENT VEGETATION. IT IS LOCATED CLOSE TO
TROUT CREEK AND CRLF OCCURRENCES THROUGH AND MAY
SERVE AS BREEDING HABITAT BASED ON THE POOL'S SEASONAL
DURATION AND PROTECTION (THE POOL IS SURROUNDED BY
SMALL HILLS).

Necessary Attachments:

1. All field notes and other supporting documents

2. Site photographs

Maps with important habitat features and species location

Appendix D. California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: (LWS Field Office) (date) (Biologist)

Date of Site Assessment: 10/31/2005 (mm/dd/yyyy)

Site Assessment Biologists: DAVIS III, JOHN (Last name) (first name) (Last name) (first name)

(Last name) (first name) (Last name) (first name)

Site Location: SAN LUIS OBISPO, SANTA MARGARITA, N35°22'25.8", W120°35'44.6" (County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA RANCH EIR
Brief description of proposed action: SEE DATA SHEET 1 THE REPORT FOR DETAILS

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION (if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: Size: 697m^2 Maximum depth: 46 cm

Vegetation: emergent, overhanging, dominant species: EMERGENT VEGETATION INCLUDES MEXICAN RUSH AND COMMON SPIKERUSH. CURLY DOCK IS ALSO COMMON. NO OVERHEAD VEG PRESENT.

Substrate: CLAY LOAM SOIL

Perennial (or Ephemeral) (circle one). If ephemeral, date it goes dry: MAY - JULY

STREAM: N/A

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

P 7 is LOCATED IN A TOPOGRAPHICAL DEPRESSION AND ADJACENT TO AN EPHEMERAL DRAINAGE/WETLAND THAT FLOWS DOWN FROM MOORE RIDGE, ^{KNOWN} CRLF BREEDING HABITAT IS LOCATED NEARBY IN YERBA BUENA CREEK, CA ANNUAL GRASSLANDS SURROUND THE WETLAND; SP 7, MODERATE CATTLE GRAZING OCCURS THROUGHOUT THE AREA.

Necessary Attachments:

1. All field notes and other supporting documents
 2. Site photographs
- Maps with important habitat features and species location

TROUT CREEK

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: _____
(LWS Field Office) (date) (biologist)

Date of Site Assessment: 10/31/2005*1; 02/02/06*2
(mm/dd/yyyy)

Site Assessment Biologists: DAVIS IV, JOHN*12 (Last name) (first name)
KNIGHT, WENDY*2 (Last name) (first name)
FARRELL, PAIGE*2 (Last name) (first name)

Site Location: SAN LUIS OBISPO, SANTA MARGARITA RANCH, 35.38079°N
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S). 100.57559°W

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA RANCH AGRICULTURE RESIDENTIAL
Brief description of proposed action: CLUSTER SUBDIVISION PROJECT AND FUTURE
DEVELOPMENT PROGRAM EIR
(SANTA MARGARITA RANCH EIR)
DEVELOPMENT CONSIST OF 112 SINGLE FAMILY HOUSES ON 145 ACRES,
AGRICULTURE CONSIST OF CONSTRUCTION/CONSERVATION OF
3,633 ACRE OF VINEYARDS (FIGURE 2).

- 1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO
- 2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? (YES) NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: NA

~~Size: _____ Maximum depth: _____
Vegetation: emergent, overhanging, dominant species: _____
Substrate: _____~~

~~Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____~~

STREAM:

Bank full width: 40-55' (x=50')

Depth at bank full: 10-17' (x=12')

Stream gradient: Class II (1-2%) to Class III (2-4%)

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: 5-6' wide, 5-7' long

Maximum depth of stream pools: 2-4'

Characterize non-pool habitat: run, riffle, glide, other: Much riffles over gravel & cobble, low gradient, moderate flow, short to moderate sized runs over coarse sand & gravel substrate

Vegetation: emergent, overhanging, dominant species: Dominant Riparian trees include valley oak, red willow, Fremont cottonwood, young willows common as understory & along the creek's channel. Emergent veg in channel.

Substrate: Coarse sand to small cobbles; medium sized gravel is the dominant substrate.

Bank description: Moderately to steeply sloping, Riparian vegetation primarily found within bankful often growing adjacent to the creek's channel. Bank is stable & vegetated in most areas

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

At least 12 in-stream pools were observed within the 1.50 mile long segment of Trout creek. The habitat in each pool is high quality with canopy cover, emergent vegetation, and downfall. The substrate of the pools is typically coarse sand to medium sized gravel. Exceptional habitat for the CRLF.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by: (DWS Field Office) (date) (biologist)

Date of Site Assessment: 10/31/2005*1; 02/02/2006*2

Site Assessment Biologists: DAVIS III, JOHN H*1,2; FARRELL, PAIGE*2; KNIGHT, WENDY*2

Site Location: SAN LUIS OBISPO, SANTA MARGARITA RANCH, 35.38370°N (County, General location name, UTM Coordinates or Lat/Long, or T-R-S). 120.58734°W

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: SANTA MARGARITA RANCH EIR
Brief description of proposed action:
SEE DATA SHEET 1 & THE REPORT FOR DETAILS

- 1) Is this site within the current or historic range of the CRF (circle one)? YES NO
2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: NA
Size: Maximum depth:
Vegetation: emergent, overhanging, dominant species:
Substrate:

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry:

STREAM:

Bank full width: 5-40 (\bar{x} =30)
Depth at bank full: 3-12' (\bar{x} =8)
Stream gradient: CLASS II (1-2%) to CLASS III (2-4%)

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: 4-5' wide x 4-6' long
Maximum depth of stream pools: 1-3'

Characterize non-pool habitat: run, riffle, glide, other: Short riffles over coarse sand to small gravel, light to moderate flow, short runs to very long runs over many sand substrate

Vegetation: emergent, overhanging, dominant species: Dominant riparian trees include red willow, foothill pine, fremont cottonwood which gives way to young red willows & deergrass to the west

Substrate: Fine sand to med sized gravel

Bank description: Moderately to very steeply sloping, riparian vegetation confined to bank full. Bank is stable? vegetated to the east, but open & eroding to the west.

Perennial or Ephemeral (circle one). If ephemeral, date it goes dry: JUNE - AUGUST

Other aquatic habitat characteristics, species observations, drawings, or comments:

TOSTADA CREEK HAS TWO VERY DIFFERENT SEGMENTS: TO THE EAST, IT HAS A WELL DEVELOPED RIPARIAN ZONE AND EIGHT DECENT SIZED POOLS AND TO THE WEST IT HAS A SCRUB COVER TO OPEN CHANNEL WITH FEWER & SMALLER POOLS. THE EAST PORTION HAS GOOD CRLE BREEDING HABITAT, WHEREAS THE WESTERN PORTION MAY BE USED MORE FOR DISPERSAL OF CRLE. TOSTADA CONVERGES W/ TRAIT CREEK NEAR

Necessary Attachments:

HIGHWAY 58.

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

*California Red-Legged Frog Protocol Survey for Robert
Mondavi's Safe Harbor Area and the Vicinity of Taco Creek*

Althouse and Meade, July 2004

California Red-legged Frog
(Rana aurora draytonii)
Protocol Survey

for
Robert Mondavi's Safe Harbor Area
and the vicinity of
Taco Creek

Robert Mondavi's Cuesta Ridge Vineyard
Santa Margarita, California



Prepared for

Robert Mondavi Winery
c/o Robert Lavine
3426 Empressa Drive, Suite A
San Luis Obispo, CA 93401-7327

by

ALHOUSE AND MEADE, INC.
BIOLOGICAL AND ENVIRONMENTAL SERVICES
1875 Wellsona Road
Paso Robles, CA 93446
(805) 467-1041

July 2004

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Executive Summary

- A protocol level survey for California red-legged frog (CRLF) was conducted in April 2004 on the Robert Mondavi Safe Harbor Agreement Area in the Cuesta Ridge Vineyard near Santa Margarita, California. The survey encompassed lands within the Safe Harbor Area and adjacent aquatic habitats.
- This protocol survey is responsive to the Safe Harbor Agreement between Robert Mondavi Winery and the United States Fish and Wildlife Service that specifies an annual protocol level survey of the Safe Harbor Area for CRLF.
- This document presents the results of a site assessment and a protocol level survey of the Safe Harbor Area according to the current United States Fish and Wildlife Service publication, "Guidelines on Site Assessment and Field Surveys for California Red-legged Frogs (*Rana aurora draytonii*), U.S. Fish and Wildlife Service, February 18, 1997".
- No California red-legged frogs were observed within the Robert Mondavi Safe Harbor Area on the Cuesta Ridge Vineyard.
- One sub-adult California red-legged frog was observed in Pond 2b in the Taco Creek drainage, approximately 0.44 miles upstream from the Safe Harbor Area. A maximum of five adult California-red-legged frogs were observed in Pond 4a between Taco Creek and Trout Creek, approximately 0.98 miles from the Safe Harbor Area.

Introduction

This report presents the results of a protocol level survey for California red-legged frog (CRLF) conducted for the Robert Mondavi Safe Harbor Agreement Area on the Cuesta Ridge Vineyard near Santa Margarita, California. California red-legged frog (CRLF) is a federally listed threatened species. The protocol survey encompassed the property included in a Safe Harbor Agreement between Robert Mondavi Winery and the United States Fish and Wildlife Service, and also included nearby aquatic habitats not within the Safe Harbor area. The information in this protocol survey report is presented according to the current United States Fish and Wildlife Service publication, "Guidelines on Site Assessment and Field Surveys for California Red-legged Frogs (*Rana aurora draytonii*), U.S. Fish and Wildlife Service, February 18, 1997". These guidelines require a habitat site assessment and a field survey, the results of which are presented here, beginning on page 2 and page 12, respectively. This protocol survey is responsive to the requirement specified in the Safe Harbor Agreement with Robert Mondavi Winery for an annual protocol level survey of the Safe Harbor Agreement Area for California red-legged frog.

Property Location and History

The Robert Mondavi Safe Harbor Area is located along Taco Creek, a small ephemeral drainage on the Santa Margarita Ranch, San Luis Obispo County, California (Figure 1). Taco Creek ends at Rinconada Creek approximately 50 yards west of the intersection of Pozo Road and Las Pilitas Road, five miles east of the town of Santa Margarita. The watershed of Taco Creek is approximately 750 acres, composed of 310 acres of vineyard, 370 acres of grazing land outside of the vineyard lease, and 40 acres of wetlands and vegetated vineyard buffers. The drainage is a portion of the headwaters of the Salinas River, approximately 130 miles upstream from Monterey Bay. Taco Creek flows northeast from Los Padres National Forest, through the Santa Margarita Ranch and Phase 1 of Robert Mondavi's Cuesta Ridge Vineyard, and meets Rinconada Creek approximately one mile upstream from the confluence of Rinconada Creek and the Salinas River. The Salinas River Basin is within Recovery Unit 6, as defined in the recovery plan for the California red-legged frog (USFWS 2002, pg. 49).

A site assessment conducted in June 2001, by Althouse and Meade, Inc. identified no known occurrences of California red-legged frog within five miles of the Cuesta Ridge Vineyard and concluded that the property contained only marginal habitat for this species. The work conducted in 2001 was in preparation for the Safe Harbor Agreement between the Robert Mondavi Winery and the United States Fish and Wildlife Service. Protocol surveys for California red-legged frog were initiated on Taco Creek and surrounding areas in May 2002 by Paul W. Collins, Curator of Vertebrate Zoology at the Santa Barbara Museum of Natural History, under contract with Althouse & Meade, Inc. This survey resulted in the observation of one adult California red-legged frog in a scour pool located just west of the Mondavi lease (Pond 2b). During the same survey, five adult California red-legged frogs were observed in Trout Creek, approximately 1.9 miles away from the Taco Creek Safe Harbor Agreement Area. However, no California red-

legged frogs were observed in Taco Creek within the Mondavi lease. Based on the site assessments and protocol survey, the baseline for the California red-legged frog Safe Harbor Agreement was set at zero.

Site Assessment California Red-legged Frog

The habitat description in this report is based on the description used in the protocol survey report for CRLF on Taco Creek by Paul W. Collins (Collins 2002). In the Collins report Taco Creek was divided into five survey segments (Table 1, Figure 1). Only one of the segments (Segment 4) is within the Mondavi lease. The other four segments are on the Santa Margarita Ranch, outside of the Mondavi lease. A portion of Taco Creek is between Segment 4 and Segment 5, and was not surveyed because it is on the Rinconada Ranch, a property not owned or operated by the Santa Margarita Ranch, LLC. The segments are numbered moving from downstream to upstream. Segment 1 runs from the confluence of Taco Creek and Rinconada Creek upstream to the base of a large bedrock outcrop, and includes a large scour pool at the base of the bedrock segment. Segment 2 contains all of the scour pools in the sandstone bedrock formation. Segment 3 continues from the upstream end of the sandstone bedrock to a residential access road that crosses Taco Creek. Segment 4 runs from the road crossing upstream through the Mondavi lease to the ranch property boundary. Segment 5 begins where the creek leaves the Santa Margarita Ranch at Pond 2b. Segment 5 continues upstream to include Pond 2a, Pond 3a, and Pond 3b.

Five additional ponds outside the Taco Creek drainage were surveyed. Two ponds are in a wetland bio-swale and tributary to Taco Creek (Pond 1 and Pond 5). These are the only two ponds within the Safe Harbor Agreement Area. Pond 4a, Pond 4b, and Pond 34 are located in a small drainage between Taco Creek and Trout Creek (Table 1). Locations of segments and ponds are shown in Figure 1.

TABLE 1. Taco Creek was separated into five segments to facilitate data collection and pool habitat descriptions. Nine ponds were included in the survey area.

Segment	Length (ft)	Location
Segment 1	330	Confluence of Taco and Rinconada Creeks upstream to base of bedrock pools
Segment 2	165	Bedrock pools
Segment 3	695	Top of bedrock pools to trailer access road.
Segment 4	4900	Entire length of Mondavi lease
Off property	2350	Reach of Taco Creek south of Santa Margarita Ranch property
Segment 5	2090	Pond 2b to Pond 3b, upstream of Mondavi lease. Includes Ponds 2a, 2b, 3a, and 3b
Ponds	Size	Location
Pond 1	< 1 acre	Within Mondavi lease, in tributary to Taco Creek
Pond 2a	< 1 acre	Segment 5
Pond 2b	< 1 acre	Segment 5
Pond 3a	< 1 acre	Segment 5

Ponds	Size	Location
Pond 3b	< 1 acre	Segment 5
Pond 4a	2 acres (17 acre feet)	Between Taco and Trout Creeks
Pond 4b	< 1 acre	Seep below Pond 4a dam
Pond 5	1 acre	Within Mondavi lease, in tributary to Taco Creek
Pond 34	< 1 acre	Approx. 100 meters below Pond 4a dam

Habitat Descriptions and Assessment

On April 8, 2004 Cletis England of Althouse & Meade, Inc. surveyed the length of Taco Creek and described the present condition of pool habitats in preparation for a protocol level survey for California red-legged frog. A total of thirty-five potential pools were identified within the Taco Creek Safe Harbor Area (Segment 4). Twenty-one of these pools had standing water at the time of our survey (Table 2). Five segments of Taco Creek and nine ponds were included in the protocol survey on April 12 and 14, 2004. Each of these areas is described and evaluated as habitat for California red-legged frog.

Taco Creek Segments

Segments one through three are below the Mondavi lease. Segment four is within the lease. Segment five is above the lease.

Segment 1 (Lower segment, from Rinconada Creek to bedrock pools): Most of Segment 1 was dry by the time the field surveys began in April 2004. A large scour pool at the base of the bedrock outcrop was the only pool in Segment 1 that contained potential CRLF breeding habitat (Photo 6). This pool is perennial in above average rainfall years, but has not held water later than July during the last two years. A small, shallow pool situated just downstream of this large pool did not hold enough water in 2004 to be good CRLF habitat (Photo 5). The larger scour pool had an overhanging willow (*Salix laevigata*) on the east side of the pool. The smaller pool had an overhanging willow and areas of exposed root mats and debris that offered suitable escape cover for CRLF during high water conditions. Most of segment 1 was vegetated with a canopy of willow riparian woodland. There was no additional suitable breeding habitat for CRLF along the remainder of this reach of Taco Creek. Bullfrogs and crayfish were noted as abundant along this stretch of creek in previous studies (Collins 2002). During our surveys in April 2004, no crayfish were observed, and only one bullfrog was counted, basking on the bank of the largest pool at the base of the bedrock formation. Rinconada Creek was very shallow at the confluence with Taco Creek in April 2004. It is unlikely that a breeding population of CRLF is present in this segment of Taco Creek or in the adjacent areas of Rinconada Creek.

Segment 2 (Bedrock segment): This segment is known as the bedrock pools segment because of a series of scour pools that have developed where the stream crosses an exposed outcrop of sandstone bedrock. The bedrock had a series of 1.0 to 2.5 foot deep scour pools that hold standing water into the spring. Several of these pools are overhung by small willow trees that provide protective cover in the form of overhanging and

submerged limbs and root mats. These features provide suitable refuge for CRLF. The bedrock pools segment had no surface flow and dwindling pools in April 2004. It appeared likely that water would not be present long enough this year in these pools for successful metamorphosis of CRLF larvae.

Segment 3 (Upper lower segment, below vineyard lease): This segment of Taco Creek was shaded by a canopy of red willows (*Salix laevigata*) over much of its length. Several scour pools up to three feet deep have formed below willow roots. During the rainy season these pools are good CRLF habitat. The pools are deep, well shaded, and have exposed root mats and woody debris. However, once the surface flow subsides, most of these pools quickly dry. This segment of Taco Creek was dry in April 2004. In most years this segment will not retain pools long enough for successful metamorphosis of larval CRLF. Woody debris and low branches provide good escape cover for adult CRLF when water is present.

Segment 4 (Middle segment, within the Mondavi lease): The middle segment of Taco Creek runs the length of Mondavi's Cuesta Ridge Vineyard. One hundred foot setbacks are in place between the vineyard and the creek. This is the primary Safe Harbor Agreement Area for Taco Creek. Very little willow or oak canopy remains along the drainage. This segment did not have surface flows at the time of our surveys, but did contain standing water in shallow pools (Photos 8, 9). Thirty-five potential pools were found in this section of creek on April 8, 2004. Twenty-one of these pools had standing water (Table 2). Large woody debris piles were found in three locations in this segment. Two debris piles were suspended over three foot deep pools. The best CRLF habitat in this segment of Taco Creek was associated with log jams of large woody debris with an intermittent canopy of willow trees. The deepest pool in this segment was a scour pool with emergent cattails near a burned cottonwood snag. The pool was ten feet by fifteen feet and four feet deep. Segment 4 was found to contain more pools with standing water and suitable CRLF features than any of the other segments. CRLF may use these pools during the wetter months while moving from breeding ponds to Rinconada Creek and the Salinas River. During years of above average rainfall, some of the pools in this segment may provide adequate breeding habitat for CRLF. Pacific chorus frog (*Pseudacris regilla*) and Western toad (*Bufo boreas*) larvae were present in low to moderate numbers. CRLF was not observed in Segment 4.

Segment 5 (Upper segment, above vineyard lease): This reach of Taco Creek contains two man-made agricultural ponds (Pond 2a and 3a) and two moderately deep scour pools (Pond 2b and Pond 3b). There were also a number of smaller scour pools along this reach that were dry during our surveys. The dominant habitat along this stream segment is annual grassland and oak savanna. Portions of the stream channel along this segment are overhung by oak trees (blue, valley and coast live) and there is one small patch of willows just upstream of Pond 2a. The best CRLF habitat in this segment is found in scour pools associated with tree roots. Breeding habitat is limited by non-native predators, lack of cover, and lack of semi-permanent pools.

Ponds

Pond 1 (within the Mondavi lease) is a small agricultural pond (<0.1 acre) created by an earthen dam in a tributary to Taco Creek (Photo 1). The pond is fed from a spring immediately upstream. This pond dries up in average rainfall years, and holds water through the summer in above average years. The maximum depth of the pond in April 2004 was four feet. A large valley oak has fallen over at the western edge of the pond. Submerged tree branches provided good refuge for frogs. Young willow saplings and large stands of spikerush (*Eleocharis macrostachya*) and blue wild rye (*Elymus glauca*) occur along the pond margins. Pond 1 contains suitable breeding habitat for CRLF in most years. Depth and available cover are adequate, however the presence of many adult bullfrogs may prevent CRLF from successfully breeding in this pond. CRLF has not been observed in Pond 1.

Pond 2a is the deepest and only permanent source of water in Segment 5 of Taco Creek (Photo 2). This pond contains a large breeding population of bullfrogs (*Rana catesbeiana*) and black bullhead catfish (*Ictalurus melas*), two introduced species that are known to prey upon CRLF. No willow canopy is present. Emergent vegetation consists only of spikerush (*Eleocharis macrostachya*). During storm events this pond overtops the dam and releases young catfish and bullfrog larvae into Taco Creek. Adult CRLF may occasionally use this pond while moving from Pond 2b to Pond 4a.

Pond 2b is a small but deep scour pool located below the earthen dam of Pond 2a (Photo 3). It contains all of the features that CRLF are known to prefer and was the only location in Taco Creek where this species was recorded during the field surveys in 2004. This was also the first location where CRLF was identified on the Santa Margarita Ranch (Collins 2002). Excellent cover is created by roots from an adjacent valley oak that catch woody debris. CRLF and southwestern pond turtles are found in this pond. The dimensions of the pond are six feet wide by twelve feet long, with a maximum depth of four feet. Pond 2b holds standing water long into the summer and may support breeding CRLF.

Pond 3a is a small, seasonal agricultural pond created by an earthen dam within the Taco Creek drainage. Spikerush is the dominant emergent vegetation along the pond margins. Pond 3a was very low during our surveys, with maximum depths of less than eighteen inches. Bullfrogs have not been recorded in this pond. The lack of overhanging and emergent vegetation, and the relatively shallow depth of two feet or less makes this pond less than ideal for breeding CRLF.

Pond 3b is a small scour pool located approximately one hundred meters upstream of Pond 3a. Dense brush tangles and moderate depth make this pool adequate for CRLF when water is present. Pond 3b was dry in April 2004. This pond is approximately five feet long and three feet wide, with a maximum depth of two feet.

Pond 4a is a seventeen acre-foot agricultural pond in a tributary to Trout Creek. Pond 4a is approximately one mile from the Safe Harbor Area and approximately one-half mile to Pond 2a in the upper Taco Creek drainage. In April 2004, depths in Pond 4a ranged from a few inches in the shallow margins to over four feet. No willow or shrub canopy is

present along the shoreline. Emergent vegetation is dominated by spikerush (*Eleocharis macrostachya*) and water smartweed (*Polygonum amphibium*). In October 2003, Pond 4a was excavated under a California Department of Fish and Game 1603 permit in order to return it to its former capacity. This agricultural pond is typically a permanent water source in years of average rainfall. The summer of 2002 was the first time the pond had gone dry in many years (Kathy Loftus, Ranch Manager, pers. comm.). Historically, this pond was perennial and contained large mouth bass, carp, and blue-gill. CRLF was not detected in this pond during amphibian surveys in the spring of 2002. However, at least five adult CRLF were observed in Pond 4a on both April 12 and 14, 2004. Five adult and thirty-four juvenile red-legged frogs were counted in the drying pond on September 17, 2003. This site may be the largest breeding locality for CRLF in the vicinity.

Pond 4b is a small wetland depression formed below the dam of Pond 4a. In years of above-average rainfall, this pool holds standing water to eighteen inches deep. Several species of rush (*Juncus bufonius*, *J. phaeocephalus*, *J. effusus*) and annual grasses are dominant. Pond 4b was dry at the time of our surveys in April 2004. This pool is not adequate CRLF habitat.

Pond 5 (Frogpond Wetland, within the Mondavi lease) is a large, shallow wetland located on the north side of Taco Creek, below Pond 1. The ephemeral pond that forms at this location during winter rains is less than an acre in size, and less than eighteen inches deep. No willow canopy is associated with the pond margins. One large valley oak overhangs the eastern corner, but provides very little shade and no cover for amphibians. Emergent vegetation consists of low growing spikerush, (*Eleocharis macrostachya*). This pond was dry during our surveys in April 2004. In years when rainfall lasts into May, Pond 5 could provide suitable breeding habitat for CRLF. In normal years this pond provides aquatic habitat in the corridor between Taco Creek and Pond 1. Large numbers of western toads were observed breeding in this pond in 2002.

Pond 34 is a small, seasonal agricultural pond created by an earthen dam below Pond 4a. It rarely fills until a large winter storm event occurs, and then dries up early in the spring. No emergent vegetation is associated with the pond margins. A tall canopy of valley oaks shades the pool. This pond was very low in April 2004, with a maximum depth of six inches. Due to the short period it typically holds water, Pond 34 is not suitable breeding habitat for CRLF. This pond may provide an aquatic habitat in the movement corridor for frogs moving between Pond 4a and Trout Creek.

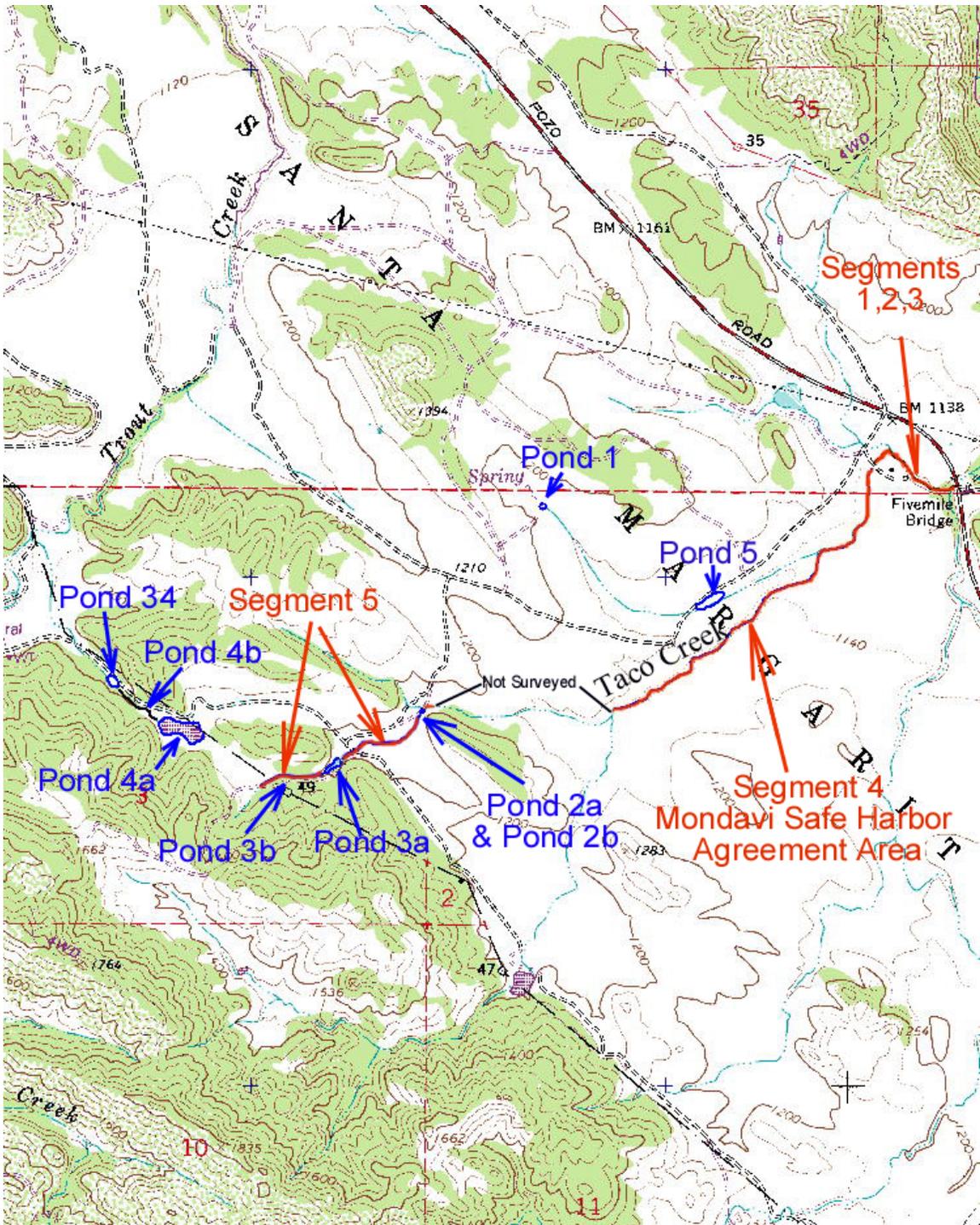


FIGURE 1. Protocol surveys for CRLF included nine ponds and 1.5 miles of Taco Creek. Segment 4 includes the length of Taco Creek within the Mondavi lease. The reach of Taco Creek outside the Santa Margarita Ranch boundary was not surveyed, and is not highlighted.

TABLE 2. Pool data for Segment 4 of Taco Creek, within the Mondavi lease. The data was collected on April 8, 2004.

Pool Number	Average Width (ft)	Average Length (ft)	Maximum Depth (ft)	Condition of pool	Notes
1	4	7	1	Dry	At culvert inlet of road crossing to residence
2	4	10	2	Dry	
3	7	12	1.5	Dry	
4	4.5	10	1	Dry	
5	10	25	4	Dry	
6	3	45	1	Dry	
7	0.5	2.5	0.2	Water	W. toad larvae, 1 chorus frog
8	6.5	27	1	Water	Woody debris piles
9	3.5	15	0.5	Water	P. chorus frog tadpoles
10	2	10	0.4	Water	
11	10	15	4	Water	Next to old burned cottonwood
12	5	20	1	Water	
13	2	4	0.3	Water	
14	3.5	10	0.4	Water	
15	6	30	2.5	Water	
16	6.5	15	2.5	Water	
17	7	10	3	Dry	
18	6	15	2	Dry	
19	4.5	20	1	Dry	
20	12	15	3	Dry	
21	5	20	2.5	Dry	
22	5	15	2	Dry	
23	3	7	4	Dry	
24	2.5.	8	0.6	Dry	
25	4	4	0.8	Dry	
26	5	10	1.5	Dry	
27	0.5	6	0.2	Dry	
28	6	8	0.7	Dry	
29	5	15	0.7	Dry	
30	2	20	1.5	Water	1 second yr bullfrog tadpole
31	7	30	3	Water	2 adult bullfrogs
32	2	20	0.6	Water	
33	1	3	0.1	Water	
34	3	10	0.3	Water	
35	2	4	0.3	Water	At vineyard fence

Known Localities of California Red-legged Frog

Database Review

The database review conducted for this assessment includes records for California red-legged frog from three sources. First, the California Natural Diversity Database (CNDDDB) was searched (May 2, 2004 data). The results of this search form the basis for our database review. All 10 CRLF records in the CNDDDB from five USGS 7.5 minute quadrangles (Atascadero, Santa Margarita, Santa Margarita Lake, Lopez Mountain, and Wilson Corner) were reviewed. Second, the Museum of Vertebrate Zoology, University of California, Berkeley, maintains an on-line specimen locality record database. This database was accessed on May 19, 2004. A specimen query for CRLF in San Luis Obispo County resulted in 11 specimen records, none of which were from the vicinity of Santa Margarita. Third, consultant reports and other published reports were checked for information about the distribution of CRLF in the project area. These sources revealed four additional CRLF occurrences in the area not listed in the CNDDDB. Two of these occurrences are specimen records reported by Paul W. Collins (Collins, 2004) from a sensitive wildlife records database maintained by the Santa Barbara Museum of Natural History (reported as California Academy of Science (CAS) Catalogue and Cal Poly San Luis Obispo (CPSLO) Specimen Record). We also report occurrences reported in a protocol survey on Paloma Creek in Atascadero conducted by Jordan Environmental Services in 2003, although these occurrences have not been reported to the CNDDDB as of May 2004.

Reports of CRLF within 1.6 kilometers (1 mile) of the property

Two records for CRLF occur within 1.6 kilometers (1 mile) of the Robert Mondavi Safe Harbor Agreement Area (Table 3, Figure 3). The closest record, CNDDDB #626, is from a small scour pool in Taco Creek located approximately 0.44 miles upstream from the Cuesta Ridge Vineyard lease. Paul W. Collins reported this sighting in 2002 during the first protocol level survey on the Santa Margarita Ranch for CRLF in Taco Creek in preparation for the Safe Harbor Agreement. The second record, CNDDDB #728, is from a large agricultural pond (Pond 4a) located between Taco and Trout Creeks on the Santa Margarita Ranch, approximately 0.98 miles WNW from the Safe Harbor Agreement Area. Five adult and 34 juvenile CRLF were counted on September 17, 2003 by Althouse and Meade, Inc. biologists.

Reports of CRLF within 8 kilometers (5 miles) of the property

Eight records for CRLF occur within 8 kilometers (5 miles) of the Robert Mondavi Safe Harbor Agreement Area (Table 3, Figure 3). The closest two occurrences are within one mile and are described above. Two occurrences are old specimen records, one from the California Academy of Sciences and one from the California Polytechnic State University vertebrate collection. The other four records are recent observations of live frogs found in local drainages in Santa Margarita.

Mike Hill of the California Department of Fish and Game reported four adults in Yerba Buena Creek at the Santa Margarita Community Park on February 7, 2002 (CNDDDB #494). Paul W. Collins reported five adult frogs in Trout Creek on the Santa Margarita

Ranch on May 18, 2002 (CNDDDB #628). Jason Dart, a biologist from Althouse & Meade, Inc. reported four juvenile frogs in Trout Creek on September 27, 2002 (CNDDDB #627), and fourteen juveniles in Yerba Buena Creek, immediately south of the town of Santa Margarita, on September 25, 2003 (CNDDDB #741).

TABLE 3. Fourteen records of California red-legged frog (*Rana aurora draytonii*) were found from within a five quadrangle search area surrounding the Taco Creek Safe Harbor Agreement Area. The approximate distance to the Taco Creek Safe Harbor Agreement Area is given for each occurrence. The following abbreviations are referenced in the table below: California Natural Diversity Database (CNDDDB), California Polytechnic State University, San Luis Obispo (CPSLO), and California Academy of Sciences (CAS).

Record No.	Location	Date	Approximate Distance to Project Site	Source
None	Salinas River at Santa Margarita	None recorded	<5 miles	CPSLO Specimen Record
CAS 85428	Santa Margarita	11 Dec 1945	<5 miles	CAS Catalogue
CNDDDB 157	Tributary to Reservoir Canyon Cr, ~4.0 Km E of San Luis Obispo	1 May 1995	11 miles	CNDDDB Record
CNDDDB 312	Morro Cr, adjacent to Hwy 41, 4 mi SW of Atascadero	19 Jul 1999	13.3 miles	CNDDDB Record
CNDDDB 395	Vicinity of McLain Spring, Kathleen Valley, S. of Atascadero	18 May 2000	8.15 miles	CNDDDB Record
CNDDDB 494	Yerba Buena Creek just S of Railroad tracks, Santa Margarita Community Park, Santa Margarita	7 Feb 2002	4.4 miles	CNDDDB Record
CNDDDB 528	Tassajera Cr, along Tasajera Cr Rd 1.1 mi NW Hwy 101, 3 mi WSW of Santa Margarita	8 Jul 2002	6.44 miles	CNDDDB Record
CNDDDB 626	Pond 2b in Taco Cr, Tributary to Rinconada Cr, Santa Margarita Ranch	18 May 2002	0.44 miles	CNDDDB Record
CNDDDB 627	Trout Cr, tributary to the Salinas River, 1 mi ESE of Millar Flat, Santa Margarita Ranch	27 Sep 2002	1.47 miles	CNDDDB Record
CNDDDB 628	Trout Cr, tributary to Water Canyon Cr, 2.5 mi E of Cuesta Pass, Santa Margarita Ranch	18 May 2002	1.9 miles	CNDDDB Record
Not Reported as of May 2004	Paloma Creek between Hwy 101 and El Camino Real, Atascadero	16 Mar 2003	8.5 miles	Jordan Environmental Services (2003)

Record No.	Location	Date	Approximate Distance to Project Site	Source
Not Reported as of May 2004	Wetland adjacent to North fork Paloma Cr (Dove Cr.), N of Hwy 101 and S of El Camino Real, Atascadero	16 Mar 2003	8.6 miles	Jordan Environmental Services (2003)
CNDDDB 728	Ag Pond 4A along unnamed tributary to Trout Creek, Santa Margarita Ranch	17 Sep 2003	0.98 miles	CNDDDB Record
CNDDDB 741	Yerba Buena Creek, south of town, Santa Margarita Ranch	25 Sep 2003	3.84 miles	CNDDDB Record

Protocol Survey for California Red-legged Frog

Althouse and Meade, Inc. conducted a survey for California-red-legged frog according to the current listed protocol of the United States Fish and Wildlife Service, on April 12 and 14, 2004 (see Appendix A for protocols). The habitat assessment of the site was conducted by Cletis England. Jason Dart and Cletis England conducted the protocol survey. Cletis England has attended the California red-legged frog workshop by Dr. Norm Scott, and has conducted CRLF surveys while employed by the California Department of Fish and Game. Jason Dart has been trained in CRLF and other amphibian survey methodology by Paul Collins, Curator of Vertebrate Zoology at the Santa Barbara Museum of Natural History, and by Daniel E. Meade, Ph.D.

Consultation

Daniel E. Meade, Ph.D. consulted with Mary Root of the United States Fish and Wildlife Service on March 31, 2004 to discuss protocols for red-legged frog surveys in San Luis Obispo County. Due to the below average annual rainfall for this season, it was agreed upon that a protocol level survey for the Taco Creek Safe Harbor Agreement may be conducted prior to the May 1st date listed as the start date for protocol CRLF surveys in the USFWS publication, "Guidelines on Site Assessment and Field Surveys for California Red-legged Frogs (*Rana aurora draytonii*), U.S. Fish and Wildlife Service, February 18, 1997".

Methods

We surveyed aquatic habitat and areas containing wetland vegetation on the property four times, twice during the day and twice at night (Table 3). Two investigators conducted each survey. The survey area included the length of Taco Creek from its confluence with Rinconada Creek to the wetlands upstream of agricultural Pond 3b, except for a short stretch where Taco Creek leaves the property (Figure 1). Four additional ponds were surveyed that lie outside the Taco Creek drainage: Pond 1, Pond 5, Pond 4a, and Pond 34 (Figure 1). Day surveys were conducted in the evening and the night surveys were conducted after the sky was completely dark. All surveys were conducted on foot. The surveyors walked the drainage from bottom to top, giving special attention to locating pools and cover during the day survey that presented the highest likelihood of finding CRLF during the night survey. Night surveys covered the same area, and incorporated the use of flashlights to locate amphibians by eye-shine. Each investigator used a 4 D-cell focused beam light to illuminate potential red-legged frog habitat along the stream corridor. Each survey was completed in approximately two hours. All surveys were completed without entering the water to prevent damaging amphibian egg masses that may have been present. All pools quietly were approached and surveyed from a short distance with binoculars before closer inspection. During night surveys the combination of binoculars and flashlights allowed for the careful examination of eye-shines along pool margins, undercut banks, and root mats. The water column and pool bottoms were searched upon closer approach. Water temperatures were taken with a mercury lab

thermometer during each survey at pools along the water course, and are reported as an average (Table 4).

Results

No California red-legged frogs were found within the Robert Mondavi Safe Harbor Agreement Area. One sub-adult red-legged frog was found in Pond 2b in the Taco Creek drainage, approximately 0.44 miles upstream from the Safe Harbor Area. Five adult red-legged frogs were counted in Pond 4a, approximately 0.98 miles from the Safe Harbor Area (Table 4, Photo 10). Bullfrogs were encountered in Pond 1, Pond 2a, Pond 2b, Pond 4a, Segment 1, and Segment 4 (Photo 11). Western toads were observed moving overland in all of the survey areas. Pacific chorus frog tadpoles were found in low abundance in pools throughout Taco Creek. Pacific chorus frog adults and tadpoles were observed in Pond 3a and Pond 4a. No Southwestern pond turtles were observed in any of the survey areas. Two California red-sided garter snakes were observed at Pond 4a.

Weather conditions were good for the surveys with temperature ranging from 52 °F to 64 °F during the day surveys and from 43 °F to 55 °F during the night surveys. Winds were generally calm, and visibility was good. There was no moonlight during the night surveys.

TABLE 4. Results of the California red-legged frog surveys for Robert Mondavi's Safe Harbor Area and the vicinity of Taco Creek.

Survey Date/Time	Weather Conditions	<i>Rana aurora draytonii</i>	<i>Rana catesbeiana</i>	CRLF outside Safe Harbor Area
Day Survey #1 April 12, 2004 7:00 – 8:30 pm	Air Temp: 53-64 °F Water Temp: 74 °F Clear, calm, cool	Adults: 0 Subadults: 1 Tadpoles: 0	Adults: 10 Subadults: ~40 Tadpoles: 1	1 subadult CRLF in Pond 2b.
Night Survey #1 April 12, 2004 7:30 – 8:30 pm	Air Temp: 42-50 °F Water Temp: 74 °F Clear, calm, cool	Adults: 4 Subadults: 1 Tadpoles: 0	Adults: 14 Subadults: ~40 Tadpoles: 0	1 subadult CRLF in Pond 2b. 4 adult CRLF in Pond 4a.
Day Survey #2 April 14, 2004 8:45 – 10:30 pm	Air Temp: 52-63 °F Water Temp: 74 °F Clear, calm, cool	Adults: 0 Subadults: 1 Tadpoles: 0	Adults: 13 Subadults: >30 Tadpoles: 0	1 subadult CRLF in Pond 2b.
Night Survey #2 April 14, 2004 8:45 – 10:30 pm	Air Temp: 41-44 °F Water Temp: 74 °F Clear, calm, cool	Adults: 5 Subadults: 1 Tadpoles: 0	Adults: 15 Subadults: >30 Tadpoles: 0	1 subadult CRLF in Pond 2b. 5 adult CRLF in Pond 4a .

Discussion

California red-legged frog was not found within the Robert Mondavi Safe Harbor Agreement Area. One sub-adult was observed in Pond 2b on both April 12 and 14, 2004, approximately 0.44 miles upstream of the Safe Harbor Area. A maximum of five adult California red-legged frogs were observed in Pond 4a during the survey period, approximately 0.98 miles from the Safe Harbor Area.

Adequate breeding habitat was identified for CRLF in Segment 1, Segment 4, Segment 5, Pond 1, and Pond 4a. The Robert Mondavi Safe Harbor Agreement Area (Segment 4) was found to have good potential habitat for CRLF. The limitation to successful breeding this year was primarily the low rainfall amount and short rainfall season. Habitat for CRLF is improving in the Safe Harbor Agreement Area, with good growth of willow along the channel and oaks on the bank tops. CRLF found in Pond 2b, upstream of the Safe Harbor Area, and CRLF found nearby in Pond 4a are encouraging. The improvement of habitat in Segment 5 and nearby occurrences of CRLF continues to offer good opportunity for expansion of CRLF into the Safe Harbor Agreement Area.



FIGURE 2. Taco Creek is located on the Santa Margarita Ranch in the Lopez Mountain quadrangle, San Luis Obispo County, California. The dark highlights represent the survey areas of Taco Creek included in this study.

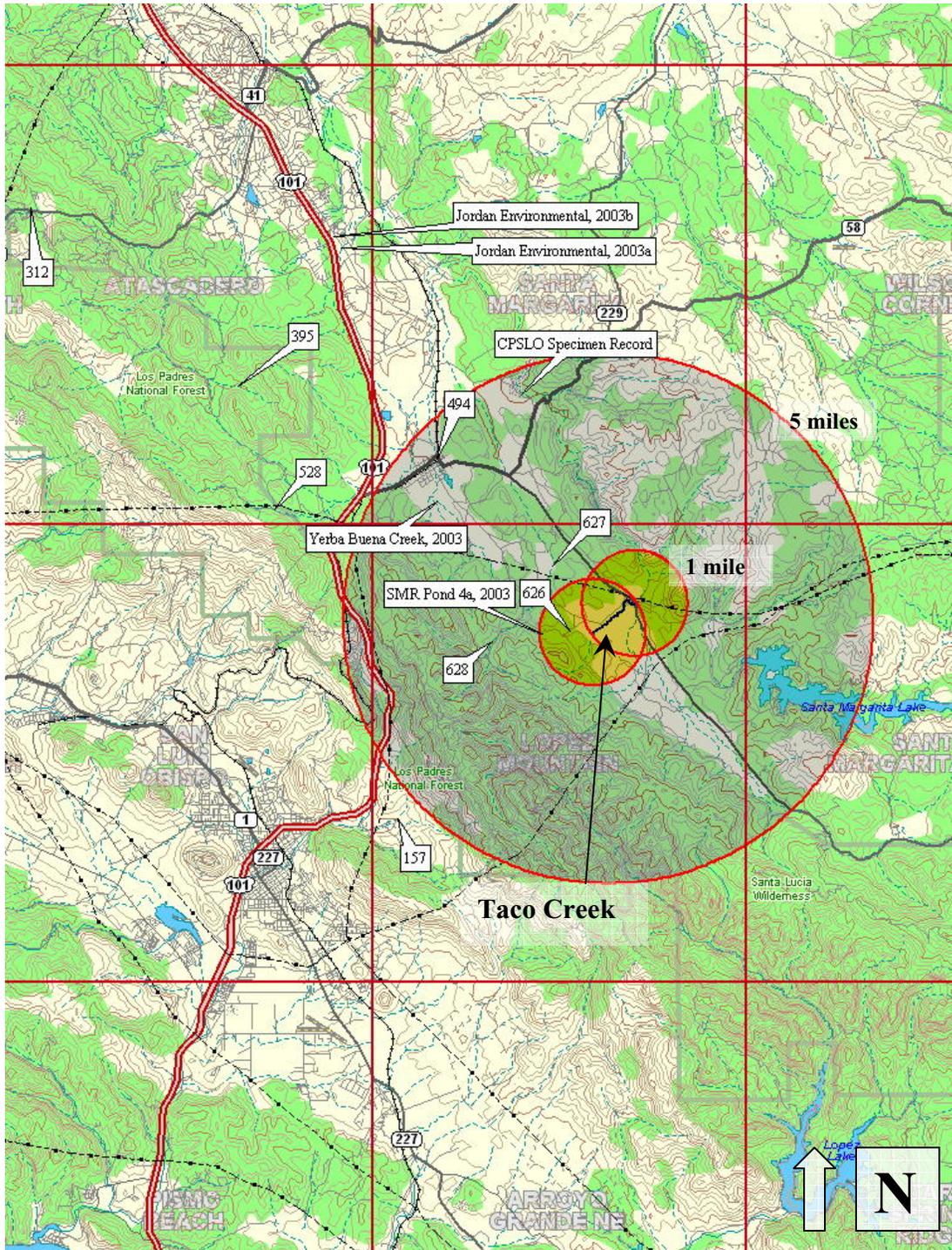


FIGURE 3. Map of CRLF localities in the vicinity of the Taco Creek Safe Harbor Agreement Area. The large circle represents a five-mile radius from the center of the Taco Creek Safe Harbor Agreement Area. The two small circles each represent a one-mile radius from the west and east ends of the Taco Creek Safe Harbor Agreement Area. Eight locality records occur within five miles of Taco Creek. One record, CAS 85428, is not mapped due to non-specific location information. It is reported as being collected in "Santa Margarita" on December 11, 1945.

Site Photographs



Photo 1. Pond 1 is a spring-fed stock pond within the vineyard Safe Harbor Agreement area for CRLF.



Photo 2. Pond 2a is a large permanent agricultural pond with breeding populations of bullfrogs and black bullhead catfish.



Photo 3. Pond 2b is a scour pool located below the earthen dam of Pond 2a. One sub-adult CRLF was observed in this pond during our 2004 surveys.



Photo 4. Pond 3a was very shallow in April 2004. Pacific chorus frog tadpoles were the only amphibian species found in this pond.



Photo 5. A few shallow pools remained in Segment 1 in April 2004. The tree canopy is primarily red willow.



Photo 6. A deep scour pool is located under shrubs below the bedrock pools. This location is the end of Segment 1 (the scour pool) and the beginning of Segment 2 (the bedrock). The scour pool is good potential CRLF habitat.



Photo 7. The bedrock pools in Segment 2 had no surface flows. Pools were diminishing.



Photo 8. Much of Segment 4 has no canopy cover. Pools are moderately deep with little shoreline vegetation.



Photo 9. The stream channel in Segment 4 has a few areas of dense willow and cottonwood canopy that overhang pools, providing good cover for CRLF.



Photo 10. An adult California red-legged frog (*Rana aurora draytonii*) photographed in Pond 4a on April 12, 2004. Note the prominent dorsolateral folds, orange-brown coloration, and small tympanum.



Photo 11. A juvenile bullfrog (*Rana catesbeiana*) photographed in Pond 4a on April 12, 2004. Note the lack of dorsolateral folds, greenish color, and large tympanum.

References

- Althouse and Meade, Inc. 2003. Biological Assessment for a 64 Acre Property “Dove Creek” (APN 45-331-01,02,04; 45-342-01,02,03,04,05,06; 45-352-05; 45-381-07,08,09,10) at El Camino Real and Santa Barbara Road, Atascadero, California. Prepared for Bermant Development Company and Summit Investments, LLC, Santa Barbara, CA. 34 pp + Appendices.
- California Natural Diversity Database. 2003. The Resource Agency; Department of Fish and Game. Database searched on April 10 and May 19, 2003. Information dated November 3, 2003.
- Collins, Paul W. 2002. Results of Surveys for California Red-legged Frog (*Rana aurora draytonii*) along Taco Creek on the Santa Margarita Ranch, San Luis Obispo County, California. July 2002.
- Collins, Paul W. 2004. Results of Site Evaluation and Survey for California red-legged frog (*Rana aurora draytonii*), Dove and Paloma Creeks, Atascadero, San Luis Obispo County, California. April 6, 2004.
- Jordan Environmental Services. 2003. Letter Report dated April 22, 2003 to Mr. Bruce Buckingham, Bermant Development Company, Santa Barbara Ca. 5 pp.
- U. S. Fish and Wildlife Service. 1997. Guidance on Site Assessment and Field Surveys for California Red-legged Frogs. February 18, 1997.
- U.S. Fish and Wildlife Service. 2002. Recovery Plan for the California Red-legged Frog. May 28, 2002.

Exhibit A - USFWS CRLF Protocol

From USFWS web site, Ventura Field Office, June 11, 2003

<http://ventura.fws.gov/SurveyProt/calredlegfrog.htm>

**Guidance on Site Assessment and Field Surveys
for California Red-legged Frogs (*Rana aurora draytonii*)
U.S. Fish and Wildlife Service**

February 18, 1997

I. Introduction

A final rule determining threatened status for the California red-legged frog (*Rana aurora draytonii*) under the Endangered Species Act of 1973, as amended (Act), was published on May 23, 1996 (61 *Federal Register* 25813) and became effective on June 24, 1996. Since then the United States Fish and Wildlife Service (Service) has received numerous requests from private and government entities for guidance in planning for the protection of the California red-legged frog at the sites of proposed developments or of other land use activities. This document provides guidance for two procedures to accurately assess California red-legged frog status in the vicinity of a project site: (1) an assessment of California red-legged frog locality records and potential California red-legged frog habitat in and around the project area; and (2) focused field surveys of aquatic habitats to determine whether California red-legged frogs are present. Both procedures may be recommended because California red-legged frogs are mobile and, during different life history stages or different seasons of the year, may occupy a variety of aquatic and upland habitats. Both procedures should be incorporated into any assessment of the potential effects of projects on California red-legged frogs, unless field surveys are determined to be unnecessary based on the site assessment (see "Interpreting the results of the site assessment" section).

Ongoing contact and discussions with the Service before, during, and after site assessments and field surveys are a crucial element of this guidance. Results of the site assessment and field survey should also be reported to the Service (see "Reporting the results" sections below); however, results of the site assessment should be reported prior to proceeding with field surveys. The addresses and phone numbers of the appropriate field office are provided in section V below.

II. Site Assessment

Careful evaluation of the following information about California red-legged frogs and their habitats in the vicinity of projects or other land use activities is important because this information indicates the likelihood that California red-legged frogs may occur on the project site.

Protocol

1. Is the project site within the range of the California red-legged frog?

Because knowledge of the distribution of the California red-legged frog is likely to change as new locality information becomes available, surveyors should contact the appropriate Service field office (see section V below) to determine if a project site is within the range of this species.

2. What are the known localities of California red-legged frogs within the project site and within 8 kilometers (km) (five miles) of the project boundaries?

The surveyor should consult the Natural Diversity Data Base (NDDB) maintained by the California Department of Fish and Game's Natural Heritage Division to determine known localities of California red-legged frogs. Information on the NDDB is attached to the end of this document. Other information sources on local occurrences of California red-legged frogs should be consulted. These sources may include, but are not limited to, biological consultants, local residents, amateur herpetologists, resource managers and biologists from municipal, State, and Federal agencies, environmental groups, and herpetologists at museums and universities. The surveyor should report to the Service all known California red-legged frog localities within the project site and within 8 km of the project boundaries.

3. What are the habitats within the project site and within 1.6 km (one mile) of the project boundaries?

Describe the upland and aquatic habitats within the project site and within 1.6 km of the project boundaries. The aquatic habitats should be mapped and characterized (e.g. ponds vs. creeks; pool, riffle, rootball, vegetation). The information provided in section 4 of the attached appendix serves as a guide to the features that will indicate possible California red-legged frog habitat.

Reporting the results of the site assessment. Surveyors should prepare a report that includes the following: photographs of the project site, survey dates and times, names of surveyors, a description of the methods used, and a map of the site showing habitat as requested in section II(3) above. The report should include copies of those portions of the 7.5' topographic quads that contain the site and the area within 1.6 km of its boundaries. A list of California red-legged frog localities as requested in section II(2) above should be included. The report should be provided to the appropriate Service field office (see section V below).

Interpreting the results of site assessment. After completing elements 1-3 of the site assessment above, the appropriate Service field office should be contacted for technical assistance. Based on the information provided from the site assessment, the Service will provide guidance on how California red-legged frogs should be addressed, including whether field surveys are needed or whether incidental take authorization should be obtained through section 7 consultation or a section 10(a)(1)(B) permit pursuant to the Act. A protocol for field surveys is presented below.

III. Field surveys

Frogs can be detected opportunistically in various habitats depending on weather and time of year. Aquatic sampling during the summer months is a reliable method of detecting frogs. Care should be taken to apply a level of effort and to use a style of surveying appropriate to the site. For instance, survey methods may differ according to habitat extent and type (e.g. deep pond, shallow pond, creek). In addition, field work should be conducted according to the best professional judgement of the surveyor (e.g. dogs should not be brought on surveys as they disturb frogs). The Service recommends that surveyors have field experience in the identification of California amphibians. The Service is willing to cooperate with surveyors who have specific needs not addressed by this field survey protocol and who may wish to propose alternative methods.

Protocol

1. Surveys should be conducted between May 1 and November 1. These sampling dates were selected because they allow surveys to be conducted with minimal disturbance of breeding frogs, eggs, or tadpoles during a period when frogs can be reliably detected.
2. All aquatic habitat identified during the site assessment should be surveyed four times, twice during the day and twice at night. Surveyors should wait at least twenty-four hours and possibly longer, to meet the environmental conditions described in section III(3) below, before repeating surveys at the same site.
3. Day-surveys should be conducted on clear, sunny days. Night-surveys should be conducted on warm, still nights between one hour after sunset and 12 midnight. Warm, still nights are preferable for surveying because the probability of observing frogs tends to decrease under cold, windy conditions. In some circumstances where safety issues preclude night-surveys, the Service can provide alternatives to the surveyor on a case-by-case basis to ensure that safe surveys are conducted.
4. Surveyors should work along the entire shore (either on the bank or in the water), visually scanning all shoreline areas in all aquatic habitats identified during the site assessment. This methodology should be applied to both day- and night-surveys. In the case of water bodies covered with

floating vegetation such as duckweed, both the shoreline and surface of the water should be scanned. When wading, surveyors should take maximum care to avoid disturbing sediments, vegetation, and any visible larvae. When walking on the bank, surveyors should take care to not crush rootballs, overhanging banks, and stream side vegetation that might provide shelter for frogs.

5. When conducting night-surveys for eyeshine, flashlights and headlamps that use one 6-volt or four to six D-cell batteries are recommended. High-powered spotlights are prohibited to avoid harming frogs.

6. Although not required, photographs of frogs observed during field surveys may aid in verification of species identifications. Surveyors should limit photography to the extent necessary to document the presence of California red-legged frogs and should not attempt to photograph frogs if this is likely to disturb them.

Reporting the results of field surveys. Any information on California red-legged frog distribution resulting from field surveys should be sent to the Natural Diversity Data Base (NDDDB) administered by the Natural Heritage program of the California Department of Fish and Game. Information about the NDDDB is attached to the end of this document. Copies of the NDDDB form should be mailed immediately to both the Service and CDFG.

Surveyors should also prepare a final report that includes the following: copies of all field notes, data sheets, photographs of the project site and of frogs observed, and a typed summary providing survey dates and times (both begin and end times), names of surveyors, temperature (water and air), wind speed, a description of the methods used, numbers and size classes of all amphibians observed, a map of the site showing survey locations, habitat and frog sightings, a copy of the NDDDB form, and a description of possible threats to California red-legged frogs observed at the site. The report should be provided to the appropriate Service field office (see section V below).

Interpreting the results of field surveys. Based on the results of field surveys, the Service will provide guidance on how California red-legged frog should be addressed. If California red-legged frogs are found, the Service will work with the project proponent through the section 7 or section 10(a)(1)(B) process to determine a further course of action, including the consideration of avoidance or minimization measures and whether incidental take authorization is needed. If frogs are observed but not identified to species, additional survey effort may be recommended. If the Service recommended that field surveys be conducted and if California red-legged frogs were not identified during these field surveys conducted according to this protocol, the Service will consider the California red-legged frog not to be present on the project site and will not recommend any further take avoidance or mitigation measures. The Service may question the results of field surveys conducted under this protocol for any of the following reasons: 1) if the appropriate Service field office was not contacted prior to field surveys being conducted; 2) if field surveys were conducted in a manner inconsistent with this protocol; 3) if field

surveys were incomplete; or 4) if the reporting requirements, including submission of NDDDB forms, were not fulfilled.

IV. Statement on permitted activities.

This field survey protocol allows for conducting visual surveys for California red-legged frogs. Surveys following this protocol do not require a section 10(a)(1)(A) recovery permit pursuant to the Act. Activities that would require a section 10(a)(1)(A) recovery permit include: 1) any capture or handling of California red-legged frog adults, larvae, or eggs; 2) any activity intended to significantly modify the behavior of California red-legged frogs; 3) any activity that subjects California red-legged frogs to some environmental condition not naturally present (e.g. experiments designed to study a frog's response to heat, moisture, noise) other than low-level illumination for night surveys as described in section III(5); and 4) any survey methods not covered in this field survey protocol if any form of "take" would occur during such activities. All surveyors using this field survey protocol should make all possible efforts to avoid unintentionally disturbing California red-legged frogs or their habitat. Surveyors should direct inquiries about section 10(a)(1)(A) recovery permits to the Service's Regional Office (see section V below).

V. Service Contacts

For project sites and land use activities in Santa Cruz, Monterey, San Benito, San Luis Obispo, Santa Barbara, and Ventura Counties, portions of Los Angeles and San Bernardino Counties outside of the Los Angeles Basin, and portions of Kern, Inyo and Mono Counties east of the Sierra Crest and south of Conway Summit, contact:

Ventura Field Office,
2493 Portola Road, Suite B
Ventura, California, 93003 (805/644-1766).

For project sites and land use activities in all other areas of the state south of the Transverse Ranges, contact:

Carlsbad Field Office
2730 Loker Avenue West
Carlsbad, California, 92008 (619/431-9440).

For project sites and land use activities in all other areas of the state, contact:

Sacramento Field Office
3310 El Camino Avenue, Suite 130
Sacramento, California 95821
(916/979-2725).

For information on section 10(a)(1)(A) recovery permits, contact:

Regional Office,
Eastside Federal Complex 911 N.E., 11th Avenue
Portland, Oregon 97232-4181
(503) 231-6241.

February 18, 1997
U.S. Fish and Wildlife Service Guidance on Site Assessment and Field Surveys for
California Red-legged Frogs

Appendix
California red-legged frog ecology and distribution.

1. Identification

The California red-legged frog *Rana aurora draytonii* is a relatively large aquatic frog ranging from 4 to 13 centimeters (cm) (1½ to 5 inches) from the tip of the snout to the vent. From above the California red-legged frog can appear brown, gray, olive, red or orange, often with a pattern of dark flecks or spots. The skin usually does not look rough or warty. The back of the California red-legged frog is bordered on either side by an often prominent dorsolateral fold of skin running from the eye to the hip. The hindlegs are well-developed with large webbed feet. A cream, white, or orange stripe usually extends along the upper lip from beneath the eye to the rear of the jaw. The undersides of adult California red-legged frogs are white, usually with patches of bright red or orange on the abdomen and hindlegs. The groin area can show a bold black mottling with a white or yellow background.

California red-legged frog tadpoles range from 14 to 80 millimeters (mm) (½ to 3 1/4 inches) in length. They are generally brownish with darker marbling and lack distinct black or white spotting or speckling. Large California red-legged frog tadpoles often have a wash of red coloration on their undersides.

Positive diagnostic marks should be used to accurately distinguish California red-legged frogs from other species of frogs that may be observed. A positive diagnostic mark is some attribute of the animal that will not be found on any other animal one might expect to encounter at the same locality. The following features are positive diagnostic marks that, if observed, will distinguish California red-legged frogs from yellow-legged frogs *Rana boylei* and bullfrogs *Rana catesbeiana*:

- a. Prominent dorsolateral folds (thick upraised fold of skin running from eye to hip) on any frog greater than 5 cm long from snout to vent. Young yellow-legged frogs can show reddish folds; these usually fade as the

frogs attain maturity.

b. Bright red dorsum.

c. Well defined stripe as described above running along upper lip.

Because California red-legged frogs are often confused with bullfrogs, surveyors should note those features that might be found on bullfrogs that will rarely be observed on California red-legged frogs. These features are:

a. Bright yellow on throat.

b. Uniform bright green snout.

c. Body length greater than 15 cm (6 inches).

d. Tympanum (ear disc) distinct and much larger than eye.

Please note that some frogs may lack all of the above characteristics given for both California red-legged frogs and bullfrogs. Surveyors should regard such frogs as "unidentified."

California red-legged frogs are cryptic because their coloration tends to help them blend in with their surroundings, and they can remain immobile for one half hour or more. When an individual California red-legged frog is disturbed, it may jump into the water with a distinct "plop." The California red-legged frog may do this either when the surveyor is still distant or when a surveyor is very near. Bullfrogs exhibit similar behavior but will often emit a "squawk" as they dive into the water. Because a California red-legged frog is unlikely to make such a sound, a "squawk" from a fleeing frog will be considered sufficient to positively identify the frog as a bullfrog.

2. Reproduction

California red-legged frogs breed during the winter and early spring from late November through April. Adults engage in complex courtship behaviors that result in the female depositing from 2,000 to 6,000 eggs, each measuring between 2 and 3 mm. California red-legged frog eggs are typically laid in a loose mass attached to emergent vegetation near the surface of the water body, where they can be easily dislodged. Eggs hatch within 6 to 14 days after deposition at which time the newly hatched tadpoles are delicate. California red-legged frog tadpoles transform into juvenile frogs in 3.5 to 7 months.

3. Movement

California red-legged frogs may move up to 1.6 km (one mile) up or down a drainage and are known to wander throughout riparian woodlands up to several dozen meters from the water. On rainy nights California red-legged frogs may roam away from aquatic sites as

much as 1.6 km. California red-legged frogs will often move away from the water after the first winter rains, causing sites where California red-legged frogs were easily observed in the summer months to appear devoid of this species.

4. Habitat

California red-legged frogs occur in different habitats depending on their life stage and the season. All life history stages are most likely to be encountered in and around breeding sites, which are known to include coastal lagoons, marshes, springs, permanent and semi-permanent natural ponds, ponded and backwater portions of streams, as well as artificial impoundments such as stock ponds, irrigation ponds, and siltation ponds. California red-legged frog eggs are usually found in ponds or in backwater pools in creeks attached to emergent vegetation such as *Typha* and *Scirpus*. California red-legged frog tadpoles remain in these habitats until metamorphosis in the summer months. Young California red-legged frogs can occur in slow moving, shallow riffle zones in creeks or along the margins of ponds. In the summer, older California red-legged frogs are often found close to a pond or a deep pool in a creek where emergent vegetation, undercut banks, or semi-submerged rootballs afford shelter from predators. Older California red-legged frogs may also take shelter in small mammal burrows and other refugia on the banks up to several dozen meters from the water any time of the year and can be encountered in smaller, even ephemeral bodies of water in a variety of upland settings. California red-legged frogs are frequently encountered in open grasslands occupying seeps and springs. Such bodies may not be suitable for breeding but may function as foraging habitat or refugia for wandering frogs. Creeks and ponds where California red-legged frogs are found often have dense growths of woody riparian vegetation, especially willows (*Salix* sp.). The absence of *Typha*, *Scirpus*, and *Salix* at an aquatic site does not rule out the possibility that the site provides habitat for California red-legged frogs, but the presence of one or all of these plants is an important indicator that the site may provide foraging or breeding habitat for California red-legged frogs.

Exhibit B – California Red-legged Frog Records

in the vicinity of Taco Creek
San Luis Obispo County

- Specimen records for *Rana aurora draytonii* in San Luis Obispo County from the Museum of Vertebrate Zoology, University of California, Berkeley.
- CNDDDB reports for *Rana aurora draytonii* within the four quadrangles surrounding the project site (Atascadero, Lopez Mountain, Santa Margarita, Santa Margarita Lake, Wilson Corner).

Rana aurora draytonii

<p>MVZ No.: 31611 Accn No.: 5880 Locality: Poly Canyon, Brizziolari Creek, ca. 2 mi N San Luis Obispo San Luis Obispo Co., California, United States Lat/Long: 35.325282; -120.661497 (max error distance: 0.50 mi) Collector(s): R. R. Miller , R. G. Miller Collecting Date: 19 Jun 1939</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>
<p>MVZ No.: 31612 Accn No.: 5880 Locality: Poly Canyon, Brizziolari Creek, ca. 2 mi N San Luis Obispo San Luis Obispo Co., California, United States Lat/Long: 35.325282; -120.661497 (max error distance: 0.50 mi) Collector(s): R. R. Miller , R. G. Miller Collecting Date: 19 Jun 1939</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>
<p>MVZ No.: 44874 Accn No.: 7827 Locality: 3.5 mi E and 0.5 mi N McChesney Mt.; elevation 1900 ft San Luis Obispo Co., California, United States Lat/Long: 35.285637; -120.174110 (max error distance: 1 mi) Collector(s): George W. Salt (#72) Collecting Date: 4 Sep 1947</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>

Rana aurora draytonii

<p>MVZ No.: 44875 Accn No.: 7827 Locality: 3.5 mi E and 0.5 mi N McChesney Mt.; elevation 1900 ft San Luis Obispo Co., California, United States Lat/Long: 35.285637; -120.174110 (max error distance: 1 mi) Collector(s): Alden H. Miller (#6337) Collecting Date: 7 Sep 1947</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>
<p>MVZ No.: 44876 Accn No.: 7827 Locality: 3.5 mi E and 0.5 mi N McChesney Mt.; elevation 1900 ft San Luis Obispo Co., California, United States Lat/Long: 35.285637; -120.174110 (max error distance: 1 mi) Collector(s): Alden H. Miller (#6338) Collecting Date: 7 Sep 1947</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>
<p>MVZ No.: 59684 Accn No.: 8859 Locality: Y-Oso Public Camp Oso Creek San Luis Obispo Co., California, United States Lat/Long: 35.182721; -120.266850 (max error distance: 4500 ft) Collector(s): Richard G. Zweifel (#2179) Collecting Date: 3 May 1953</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>

Rana aurora draytonii

<p>MVZ No.: 59685 Accn No.: 8859 Locality: Reservoir Canyon, 2 mi E San Luis Obispo; elevation 500 ft San Luis Obispo Co., California, United States Lat/Long: 35.285141; -120.609502 (max error distance: 0.50 mi) Collector(s): Richard G. Zweifel (#2182) Collecting Date: 3 May 1953</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>
<p>MVZ No.: 62499 Accn No.: 8971 Locality: 0.5 mi S McKittrick Hwy., San Juan River San Luis Obispo Co., California, United States Lat/Long: 35.558351; -120.261440 (max error distance: 3 mi) Collector(s): Joseph B. Gorman Jr. (#159) Collecting Date: 10 Apr 1950</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: unknown Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>
<p>MVZ No.: 187300 Accn No.: 12289 Locality: 12 mi NE Arroyo Grande San Luis Obispo Co., California, United States Lat/Long: 35.207310; -120.379830 (max error distance: 3 mi) Collector(s): J. Miller (#25) Collecting Date: 25 Jul 1960</p>	<p>Parts: whole animal (alcohol) Tissues: None Sex: female Age: adult/juv. Stomach Contents: not examined Voucher Disposition: in collection</p>

Rana aurora draytonii

<p>MVZ No.: 230550 Accn No.: 13386 Locality: no locality data, recieved from U.S.G.S. San Luis Obispo Co., California, United States Collector(s): Galen B. Rathbun Collecting Date: Apr 1996</p>	<p>Parts: skeleton Tissues: None Sex: not recorded Age: adult/juv. Voucher Disposition: in collection</p>
<p>MVZ No.: 230551 Accn No.: 13386 Locality: no locality data, recieved from U.S.G.S. San Luis Obispo Co., California, United States Collector(s): Galen B. Rathbun Collecting Date: Apr 1996</p>	<p>Parts: skeleton Tissues: None Sex: not recorded Age: adult/juv. Voucher Disposition: in collection</p>

*Inventory of Wildlife and Plant Species on the Six Rancho
Parcels of the Santa Margarita Ranch*

Althouse and Meade, June 2003

Inventory of Wildlife and Plant Species
on the
Six Rancho Parcels
of the
Santa Margarita Ranch

Prepared for

Santa Margarita Ranch, LLC
750 Pismo Street
San Luis Obispo, CA 93401
805-544-4477

by

ALTHOUSE AND MEADE, INC.
1875 Wellsona Road
Paso Robles, CA 93446
805-467-1041

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INTRODUCTION

In March 2002, Althouse and Meade, Inc. initiated a survey of the biological resources on the Santa Margarita Ranch. The objective of the survey effort was to identify the resident plants and animals, and to determine if any rare, threatened, or endangered species of plants or animals exist within the six rancho parcels. We also searched for sensitive natural communities within the six rancho parcels.

Surveys were conducted by a team of biologists from the following organizations:

Althouse and Meade, Inc. – Dan Meade, Ph.D., LynneDee Althouse, Ph.D.c., Jason Dart, B.S., Cletis England, B.S., Cassie Murphy, B.S., Jodi Isaacs, M.S., Julie Thomas, M.S.

California Polytechnic State University, professors – Dave Keil, Ph.D., V.L. Holland, Ph.D., Francis Villablanca, Ph.D. (student research supervisor)

California Polytechnic State University, students – Holly Messer, Mike Tyner, Michaela Maria Koenig, Richardo Ortega, Erica Shipley, Christina L. DeMerritt, Andrew Harmer, Daniel Bohlman, Lisa Elaine Andeano

Santa Barbara Museum of Natural History – Paul Collins, Curator of Vertebrate Zoology

Audubon Society – Tom Edell, Volunteer birder

National Marine Fisheries – Darren Brumback (now with Bureau of Land Management in Oregon)

California Department of Fish and Game – Dave Highland and Mike Hill

During 2002, seasonal rainfall was lower than average, resulting in a short growing season for annual plants and a truncated breeding season for aquatic organisms. Most ponds were completely dry by the end of August. Rainfall in 2003 started early and lasted long into spring, allowing us ample opportunities to survey for annual plants and aquatic species.

PROJECT AREA

The six rancho parcels of the Santa Margarita Ranch cover 9800+ acres north of the Cuesta Grade, east of Highway 101, and south of the Garden Farms community. Three of the parcels surround the town of Santa Margarita. The south end of the rancho parcels reaches approximately 1300 feet in elevation, and the north end is about 930 feet in elevation at Trout Creek, north of the Hansen Mine access road. The eastern point is east of Rinconada Creek, with the eastern boundary paralleling Pozo Road. The western boundary is Highway 101. The northern boundary is Garden Farms, and the southern boundary includes numerous patent parcels and the US Forest Service.

Four main creeks flow across the Ranch. From east to west the creeks are: Rinconada, Trout, Yerba Buena, and Santa Margarita Creek. Rinconada Creek flows directly to the Salinas River, northwest of Las Pilitas Road. Rinconada enters the Salinas River above

Pierce Dam. Trout Creek flows through the middle of the ranch, under Highway 58, and joins Yerba Buena Creek in Garden Farms. Yerba Buena Creek drains the western side of the ranch. Santa Margarita Creek enters the ranch west of town, under Highway 101, north of Highway 58, and joins Yerba Buena Creek south of Garden Farms. Santa Margarita Creek enters the Salinas River east of El Camino Real in the vicinity of Garden Farms.

METHODS

Surveys were conducted on foot, with access via roadway and on horseback. Over 2000 hours of survey time were applied during five consecutive seasons: spring, summer, fall of 2002, and winter through spring 2003. Plant communities were noted and all plant and animal species were identified to the extent necessary to determine rarity and listing status.

Plant specimens not identifiable in the field were collected and brought back to the lab for taxonomic determination. Those plants that could not be identified in the laboratory were brought to the Robert F. Hoover Herbarium and confirmed with specimens on file. Some specimens were brought for determination by Dr. David Keil, curator of the Hoover Herbarium. Voucher specimens of botanical interest will be archived by Dave Keil and Althouse and Meade, Inc. in the herbarium this fall.

Animal identification was typically achieved by direct observation and with the aid of binoculars. Surveys were conducted during all times of the day and night. Spot-lights were used for medium and large mammals. Small mammal traps for rodents and other small mammals were used under the direction of Dr. Francis Villablanca. Mammals trapped during the night were identified in the morning and immediately released. Bats were surveyed by direct observation. Night-time bat surveys employed a computer system called "Anabat" that collects and records the sonic frequencies of the bat calls, and stores the information in graphical format. The graphs were interpreted by Paul Collins and compared with other surveys in San Luis Obispo County.

Aquatic habitats were surveyed with a combination of techniques including visual observation, wading, dip-netting, seining, and night-time surveys, according to US Fish and Wildlife protocols. Voucher specimens of fairy shrimp were collected by Julie Thomas and submitted to the California Academy of Sciences. Voucher specimens of reptiles and amphibians were collected by Paul Collins of the Santa Barbara Museum of Natural History.

RARE PLANTS AND ANIMALS

Our surveys identified one sensitive natural plant community, 10 rare plant taxa, and 35 sensitive animal taxa on the Santa Margarita Ranch six rancho parcels (Table 1). Fourteen additional sensitive bird species observed on the Ranch were not nesting, a listing status requirement for those species (Table 2). Definitions of the CNDDDB¹ ranking and status abbreviations used in Tables 1 and 2 are included in Appendix A.

TABLE 1. Forty-three rare species and one sensitive natural plant community observed on the Santa Margarita Ranch six rancho parcels.			
Common Name	Scientific Name	CNDDB Rank	CNPS Status²
Sensitive Natural Communities - 1 Type			
Valley Needlegrass Grassland	<i>Nassella pulchra</i>	G1S3.1	na
Rare Plants - 10 Species			
Santa Lucia Manzanita	<i>Arctostaphylos luciana</i>	G2S2.2	List 1B RED code 2-2-3
Catalina Mariposa Lily	<i>Calochortus catalinae</i>	G3S3.2	List 4 RED code 1-2-3
La Panza Mariposa Lily	<i>Calochortus simulans</i>	G3S2.3	List 1B RED code 2-1-3
San Luis Obispo Morning Glory	<i>Calystegia subacaulis</i> ssp. <i>episcopalis</i>	G3T1S1.2	List 1B RED code 3-2-3
Obispo Indian Paintbrush	<i>Castilleja densiflora</i> ssp. <i>obispoensis</i>	G5T2S2.2	List 1B RED code 2-2-3
Straight-awned Spineflower	<i>Chorizanthe rectispina</i>	G1S1.2	List 1B RED code 3-1-3
San Luis Obispo County Lupine	<i>Lupinus ludovicianus</i>	G2S2.2	List 1B RED code 3-2-3
Paso Robles Navarretia	<i>Navarretia jaredii</i>	G3S3.3	List 4 RED code 1-1-3
Michael's Rein Orchid	<i>Piperia michaelii</i>	G3?S3.3	List 4 RED code 1-2-3
Caper-fruited Tropicocarpum	<i>Tropicocarpum capparideum</i>	G1 S1.1	List 1B RED code 3-3-3

¹ Question marks are from the NDDDB to indicate when there is a question regarding endangerment or threat to a taxon.

² CNPS: California Native Plant Society. RED code: Rarity-Endangerment-Distribution code. See Appendix A for status definitions.

Common Name	Scientific Name	CNDDDB Rank	Federal/State Status ³
Reptiles - 3 Species			
Silvery Legless Lizard	<i>Aniella pulchra pulchra</i>	G3G4T2T3QS2	DFG: CSC FS: Sensitive
Southwestern Pond Turtle	<i>Clemmys marmorata pallida</i>	G3G4T2T3QS2	DFG: CSC BLM/FS: Sensitive
Coast Horned Lizard	<i>Phrynosoma coronatum frontale</i>	G4T3T4S3S4	DFG: CSC BLM: Sensitive
Amphibians - 3 Species			
California Red-legged Frog	<i>Rana aurora draytonii</i>	G4T2T3S2S3	Federally Threatened DFG: CSC
Western Spadefoot Toad	<i>Scaphiopus hammondi</i>	G3S3	DFG: CSC BLM: Sensitive
Coast Range Newt	<i>Taricha torosa torosa</i>	G5T4S4	DFG: CSC
Fish - 1 Species			
Steelhead - Central California Coast ESU	<i>Oncorhynchus mykiss</i>	G5S2	Federally Threatened DFG: CSC
Birds - 19 Species			
Cooper's Hawk (Nesting)	<i>Accipiter cooperii</i>	G5S3	DFG: CSC
Sharp-shinned Hawk (Nesting)	<i>Accipiter striatus</i>	G5S3	DFG: CSC
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	G5S2	PRBO: 2nd Priority List
Golden Eagle (Nesting & Wintering)	<i>Aquila chrysaetos</i>	G5S3	DFG: CSC FWS: BCC CDF/BLM: Sensitive
Ferruginous Hawk (Wintering)	<i>Buteo regalis</i>	G4S3S4	DFG: CSC Audubon: Watch List FWS: BCC BLM: Sensitive
Lawrence's Goldfinch (Nesting)	<i>Carduelis lawrencei</i>	G3G4S3	USBC: Watch List FWS: BCC Audubon: Watch List
Lark Sparrow (Nesting)	<i>Chondestes grammacus</i>	G5S?	None
Olive-sided Flycatcher (Nesting)	<i>Contopus cooperi</i>	G4S4	Audubon: Watch List USBC: Watch List FWS: BCC PRBO: 2nd Priority List

³ BLM: Bureau of Land Management
CSC: California Special Concern species
FS: Forest Service
CDF: California Department of Forestry

USBC: United States Bird Conservation
BCC: Birds of Conservation Concern
WBWG: Western Bat Working Group
PRBO: Point Reyes Bird Observatory

Common Name	Scientific Name	CNDDB Rank	Federal/State Status ³
Yellow Warbler (Nesting)	<i>Dendroica petechia brewsteri</i>	G5T3?S2	DFG: CSC PRBO: 2nd Priority List
White-tailed Kite (Nesting)	<i>Elanus leucurus</i>	G5S3	DFG: Fully Protected
California Horned lark	<i>Eremophila alpestris</i>	G5T3S3	DFG: CSC PRBO: 3rd Priority List
Merlin (Wintering)	<i>Falco mexicanus</i>	G5S3	DFG: CSC
Bald Eagle (Nesting and wintering)	<i>Haliaeetus leucocephalus</i>	G4S2	Federally Threatened State Endangered DFG: Fully protected CDF: Sensitive
Yellow-breasted Chat (Nesting)	<i>Icteria virens</i>	G5S3	DFG: CSC PRBO: 3rd Priority List
Loggerhead Shrike (Nesting)	<i>Lanius ludovicianus</i>	G4S4	DFG: CSC FWS: BCC PRBO: 2nd Priority List
Oak Titmouse	<i>Parus (=Baeolophus) inornatus</i>	G5S?	USBC: Watch List Audubon: Watch List
Nuttall's Woodpecker (Nesting)	<i>Picoides nuttallii</i>	G5S?	USBC: Watch List Audubon: Watch List
Purple Martin (Nesting)	<i>Progne subis</i>	G5S3	DFG: CSC PRBO: 1st Priority List
California Thrasher	<i>Toxostoma redivivum</i>	G5S?	USBC: Watch List Audubon: Watch List
Crustacean - 1 Species			
California Linderiella	<i>Linderiella occidentalis</i>	G2G3S2S3	None
Mammals - 8 Species			
Pallid Bat	<i>Antrozous pallidus</i>	G5S3	DFG: CSC FS/BLM: Sensitive WBWG: High priority
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	G4S2S2	DFG: CSC FS/BLM: Sensitive WBWG: High priority
Western Red Bat	<i>Lasiurus blossevillii</i>	G5S2S3	FS: Sensitive WBWG: High Priority.
Hoary Bat	<i>Lasiurus cinereus</i>	G5S3	WBWG: Medium Priority
Small-footed Myotis	<i>Myotis ciliolabrum</i>	G5S2S3	BLM: Sensitive WBWG: Medium Priority
Long-legged Myotis	<i>Myotis volans</i>	G5S4?	WBWG: High priority.
Yuma Myotis	<i>Myotis yumanensis</i>	G5S4?	BLM: Sensitive WBWG: Low-med Priority
American Badger	<i>Taxidea taxus</i>	G5S4	DFG: CSC

Table 2 lists fourteen sensitive bird species observed on the Santa Margarita Ranch six rancho parcels that were not nesting. Nesting is a requirement for the listing status of these species. For example, great blue heron rookeries are protected, but not their feeding habitat. No rookeries of this species were found.

Table 2. Fourteen sensitive species observed on the ranch, but presence was not consistent with listing status (i.e., not nesting).			
Common Name	Scientific Name	CNDDDB Rank	Federal/State Status
Tricolored Blackbird (Nesting colony)	<i>Agelaius tricolor</i>	G2S2	DFG: CSC FWS: BCC USBC: Watch List Audubon: Watch List BLM: Sensitive
Great Egret (Rookery site)	<i>Ardea alba</i>	G5S4	CDF: Sensitive
Great Blue Heron (Rookery site)	<i>Ardea herodias</i>	G5S4	CDF: Sensitive
Costa's Hummingbird (Nesting)	<i>Calypte costae</i>	G5S?	USBC: Watch List Audubon: Watch List
Northern Harrier (Nesting)	<i>Circus cyaneus</i>	G5S3	DFG: CSC PRBO: 2nd Priority List
Hermit Warbler (Nesting)	<i>Dendroica occidentalis</i>	G4G5S3?	Audubon: Watch List
Prairie Falcon (Nesting)	<i>Falco mexicanus</i>	G5S3	CSC: Nesting FWS: BCC PRBO: 3rd Priority List
Lewis' Woodpecker (Nesting)	<i>Melanerpes lewis</i>	G4S?	Audubon: Watch List FWS: BCC
Osprey (Nesting)	<i>Pandion haliaetus</i>	G5S3	CSC: Nesting CDF: Sensitive
American White Pelican (Nesting colony)	<i>Pelicanus erythrorhynchos</i>	G3S1	DFG: CSC
Rufous Hummingbird (Nesting)	<i>Selasphorus rufus</i>	G5S1S2	FWS: BCC USBC: Watch List Audubon: Watch List
Allen's Hummingbird (Nesting)	<i>Selasphorus sasin</i>	G5S?	USBC: Watch List Audubon: Watch List
Red-breasted Sapsucker (Nesting)	<i>Sphyrapicus ruber</i>	G5S?	None
Yellow-headed Blackbird (Nesting)	<i>Xanthocephalus xanthocephalus</i>	G5S3S4	PRBO: 2nd Priority List

PLANT COMMUNITIES

The six ranch parcels contain 11 plant communities that are briefly described below. The flora and fauna within those communities includes 619 plant taxa, and 236 animal taxa (Table 3 on page 9 and Table 4 on page 24).

Chamise chaparral

The chaparral on the rancho parcels is typically dominated by chamise (*Adenostoma fasciculatum*), ceanothus (*Ceanothus cuneatus*), scrub oak (*Quercus berberidifolia*), and buckwheat (*Eriogonum fasciculatum*). Mammals found within this community include dusky-footed woodrat (*Neotoma fuscipes*), brush mouse (*Peromyscus boylei*), California mouse (*Peromyscus californicus*), deer mouse (*Peromyscus maniculatus*), pinon mouse (*Peromyscus truei*), and brush rabbit (*Sylvilagus bachmani*). Common birds include California thrasher (*Toxostoma redivivum*), blue-gray gnatcatcher (*Polioptila caerulea*), and Bewick's wren (*Thryomanes bewickii*).

Blue oak woodland

Most of the oaks on the Santa Margarita Ranch are blue oaks (*Quercus douglasii*) with scattered valley oaks (*Q. lobata*) in deep alluvial soil. Hybrids of blue and valley oaks have not been genetically confirmed, but the hybrid types observed are called *Quercus jolonensis*. Non-native annual grasses with numerous native annual and perennial forbs dominate the understory of the blue oak woodland. Animal residents include deer, badger, bobcat, skunk, mountain lion, pigs, coyote, fox, and bear. Common birds include white-breasted nuthatch (*Sitta carolinensis*), Nuttall's woodpecker (*Picoides nuttallii*), and Western scrub jay (*Aphelocoma californica*).

Coast live oak woodland

Coast live oaks (*Quercus agrifolia*) dominate the north-facing slopes and a large portion of the parcel south of Santa Margarita. The coast live oak woodland on the steep slopes of the southern parcel provides a dense canopy. The woodland was burned in 1995, allowing the development of thick, perennial understory plants such as poison oak (*Toxicodendron diversilobum*), blackberry (*Rubus ursinus*), and snowberry (*Symphoricarpos mollis*). Animal residents include deer, badger, bobcat, skunk, mountain lion, pigs, coyote, fox, and bear. Common birds include California towhee (*Pipilo crissalis*), acorn woodpecker (*Melanerpes formicivorus*), and orange-crowned warbler (*Vermivora celata*).

Mixed oak woodland

Many areas that are sufficiently moist contain all three dominant species of oak: blue, valley, and coast live. The mixed oak woodland habitats have diverse understory vegetation and associated tree species. Moist canyons may have sycamores (*Platanus racemosa*) and California bay laurel (*Umbellularia californica*). Drier hillsides may contain grey pine (*Pinus sabiniana*) and big-berry manzanita (*Arctostaphylos glauca*). Many birds and mammals occur in these woodlands. Common birds include spotted towhee (*Pipilo maculatus*), California quail (*Callipepla californica*), and band-tailed pigeon (*Columba fasciata*).

California annual grassland

Most of the grassland on the Santa Margarita Ranch is dominated by non-native annual species that were introduced from the Mediterranean region. Common species include soft-chess brome (*Bromus hordeaceus*), wild oats (*Avena barbata* and *A. fatua*), and rattail fescue (*Vulpia myuros*). Moist grassland habitats are often dominated by a non-native ryegrass (*Lolium multiflorum*). Badger, coyote, fox, rodents and raptors are common in this habitat. Nesting birds include Western meadowlark (*Sturnella neglecta*), California quail (*Callipepla californica*), and grasshopper sparrow (*Ammodramus savannarum*).

Perennial grassland

Among the annual grasses, there are occasional small patches of perennial bunchgrass (usually less than an acre). The three most common native perennial grasses are purple needlegrass (*Nassella pulchra*), deergrass (*Muhlenbergia rigens*), and California oatgrass (*Danthonia californica*). Valley needlegrass grassland occurs on the Santa Margarita Ranch and is listed by the California Department of Fish and Game as a Sensitive Natural Community. Purple needlegrass is a dominant species in this habitat type.

Emergent wetland

Numerous drainages contain wetland plants that emerge from shallow ponded water. Most of the emergent wetlands appear to have been historically farmed or manipulated by heavy equipment. The dominant emergent wetland plant is spikerush (*Eleocharis macrostachya*). Common birds include great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and green heron (*Butorides virescens*).

Ephemeral pools

Several man-made ephemeral pools occur on the ranch parcels. The pools are often surrounded by spikerush and occupied by a progression of annual native plants such as popcorn flower (*Plagiobothrys bracteatus*.) and alkali mallow (*Malvella leprosa*) that emerge as the pools begin to dry up. Ephemeral aquatic organisms found in these pools include ostracods, copepods, conchostracans, and fairy shrimp. California Linderiella (*Linderiella occidentalis*) is a species of fairy shrimp that was found in one of these pools

(Pond 9). Several vernal wetland pools occur on the ranch that are naturally formed in clay depressions in grassland habitats. California Linderella was found in two of these pools (Pools 24 & 31). Western spadefoot toad tadpoles were found co-occurring with the fairy shrimp in Pool 31. Common birds found in ephemeral pools include killdeer (*Charadrius vociferous*), spotted sandpiper (*Actitis macularia*), and mallard (*Anas platyrhynchos*).

Riparian zone

The riparian zone typically forms a band of verdant shrubs and trees along the perimeter of the perennial and long-lasting ephemeral drainages. Willows (*Salix lasiolepis* and *S. laevigata*) dominate creeks with deep, heavy soil. Cottonwoods (*Populus fremontii*), sycamores (*Platanus racemosa*) and valley oaks (*Quercus lobata*) dominate deep alluvium that often contains a gravel layer. Coast live oaks (*Q. agrifolia*) are scattered throughout most riparian zones. Maples (*Acer macrophyllum*) and bays (*Umbellularia californica*) also occur at the higher elevations, in the steep drainages on the north-facing slope of the Santa Lucia Mountains. In the lower reaches of the creeks, the riparian zone had been eliminated by historical farming and grazing practices. These areas are recovering with willow and cottonwood dominant canopies. Common birds include Pacific slope flycatcher (*Empidonax difficilis*), yellow warbler (*Dendroica petechia brewsteri*), and song sparrow (*Melospiza melodia*).

Stockponds

There are over thirteen licensed stock ponds and a number of additional old, shallow ponds on the Santa Margarita Ranch. Emergent wetland vegetation is dominated by spikerush. Pondweed (*Potamogeton foliosus*) and an aquatic buttercup (*Ranunculus aquatilis*) are the dominant aquatic species. Bullfrogs (*Rana catesbeiana*) are dominant in many of these ponds. However, in Pond 4a California red-legged frogs and bullfrogs have co-existed for several years. The stockponds are used by other wildlife such as ducks, herons, and many small to large mammals.

Farmland

Barley and oat hay are the primary crops farmed without irrigation on the flats north and east of Santa Margarita. Approximately 1600 acres are currently dryland farming areas. About 400 acres have been irrigated in the past, and include areas that are currently in alfalfa, and being prepared for corn, bell peppers, and carrots. Wine grapes are the primary irrigated crop on 600 acres within two of the parcels south of the town of Santa Margarita. The vineyards are surrounded by deer fence designed to allow smaller animals to move through the fences. Bobcat, coyote, and fox have been observed within the vineyard. Over 100 species of birds have been observed using the vineyards habitat, and more than 100 species of plants have been counted in the intercrop areas.

PLANT LIST

TABLE 3. The plant list includes 626 taxa observed on the Santa Margarita Ranch six rancho parcels. The plant list is organized from ferns and fern allies, to gymnosperms, dicots, and monocots. Plant species are organized by family, species, and subspecies or variety. Plant taxonomy is according to the Jepson Manual (1993)⁴.

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Ferns and Fern Allies					
Azollaceae	<i>Azolla filiculoides</i>			N	mosquito fern
Blechnaceae	<i>Woodwardia fimbriata</i>			N	chain fern
Dennstaedtiaceae	<i>Pteridium aquilinum</i>	var.	<i>pubescens</i>	N	bracken fern
Dryopteridaceae	<i>Dryopteris arguta</i>			N	wood fern
Dryopteridaceae	<i>Polystichum californicum</i>			N	California sword fern
Equisetaceae	<i>Equisetum laevigatum</i>			N	smooth scouring rush
Marsileaceae	<i>Marsilea vestita</i>	ssp.	<i>vestita</i>	N	water-clover fern
Polypodiaceae	<i>Polypodium californicum</i>			N	California polypody
Pteridaceae	<i>Adiantum jordanii</i>			N	California maiden-hair
Pteridaceae	<i>Aspidotis californica</i>			N	California lace fern
Pteridaceae	<i>Cheilanthes covillei</i>			N	Coville's lipfern
Pteridaceae	<i>Pellaea andromedifolia</i>	var.	<i>andromedifolia</i>	N	coffee fern
Pteridaceae	<i>Pellaea mucronata</i>	var.	<i>mucronata</i>	N	bird's foot fern
Pteridaceae	<i>Pentagramma triangularis</i>	ssp.	<i>triangularis</i>	N	oldback fern
Selaginellaceae	<i>Selaginella bigelovii</i>			N	spike-moss
Gymnosperms					
Cupressaceae	<i>Cupressus macrocarpa</i>			N	Monterey cypress
Cupressaceae	<i>Juniperus</i> sp.			Planted	Juniper
Pinaceae	<i>Pinus sabiniana</i>			N	foothill pine
Dicots					
Aceraceae	<i>Acer macrophyllum</i>			N	big-leaf maple
Aceraceae	<i>Acer negundo</i>			N	box elder
Amaranthaceae	<i>Amaranthus albus</i>			I	tumbleweed amaranth
Amaranthaceae	<i>Amaranthus blitoides</i>			N	amaranth
Anacardiaceae	<i>Rhus trilobata</i>			N	skunkbush
Anacardiaceae	<i>Schinus molle</i>			I	peruvian pepper tree
Anacardiaceae	<i>Toxicodendron diversilobum</i>			N	poison-oak
Apiaceae	<i>Anthriscus caucalis</i>			I	bur-chervil
Apiaceae	<i>Berula erecta</i>			N	cutleaf water-parsnip
Apiaceae	<i>Bowlesia incana</i>			N	bowlesia
Apiaceae	<i>Conium maculatum</i>			I	poison-hemlock
Apiaceae	<i>Daucus pusillus</i>			N	rattlesnake weed
Apiaceae	<i>Foeniculum vulgare</i>			I	fennel

⁴ Hickman, James C. 1993. The Jepson Manual. University of California Press, Berkeley, California.

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Apiaceae	<i>Lomatium dasycarpum</i>	ssp.	<i>dasycarpum</i>	N	biscuit root
Apiaceae	<i>Lomatium utriculatum</i>			N	biscuit root
Apiaceae	<i>Osmorhiza brachypoda</i>			N	sweet root
Apiaceae	<i>Osmorhiza chilensis</i>			N	osmorhiza
Apiaceae	<i>Sanicula bipinnata</i>			N	poison sanicle
Apiaceae	<i>Sanicula bipinnatifida</i>			N	purple sanicle
Apiaceae	<i>Sanicula crassicaulis</i>			N	sanicle
Apiaceae	<i>Sanicula laciniata</i>			N	sanicle
Apiaceae	<i>Scandix pecten-veneris</i>			N	shepherd's needle, venus' needle
Apiaceae	<i>Torilis arvensis</i>	ssp.	<i>purpurea</i>	I	hedge-parsley
Apiaceae	<i>Yabea microcarpa</i>			N	yabea
Apocynaceae	<i>Vinca major</i>			P	periwinkle
Araliaceae	<i>Aralia californica</i>			N	spikenard, elk clover
Asclepiadaceae	<i>Asclepias eriocarpa</i>			I	Indian milkweed
Asclepiadaceae	<i>Asclepias fascicularis</i>			N	narrow-leaved milkweed
Asclepiadaceae	<i>Asclepias vestita</i>			N	woolly milkweed
Asteraceae	<i>Balsamorhiza deltoides</i>			N	balsamroot
Asteraceae	<i>Achillea millefolium</i>			N	yarrow
Asteraceae	<i>Achyraea mollis</i>			N	blow-wives
Asteraceae	<i>Acourtia microcephala</i>			N	sacapellote
Asteraceae	<i>Agoseris grandiflora</i>			N	agoseris
Asteraceae	<i>Agoseris heterophylla</i>			N	agoseris
Asteraceae	<i>Ambrosia psilostachya</i>			N	western ragweed
Asteraceae	<i>Anthemis cotula</i>			I	mayweed, dog-fennel
Asteraceae	<i>Artemisia biennis</i>			I	biennial wormwood
Asteraceae	<i>Artemisia californica</i>			N	California sagebrush
Asteraceae	<i>Artemisia douglasiana</i>			N	mugwort
Asteraceae	<i>Artemisia dracuncululus</i>			N	tarragon
Asteraceae	<i>Aster chilensis</i>			N	common aster
Asteraceae	<i>Aster radulinus</i>			N	rough-leaved aster
Asteraceae	<i>Baccharis douglasii</i>			N	marsh baccharis
Asteraceae	<i>Baccharis pilularis</i>			N	coyote bush
Asteraceae	<i>Baccharis salicifolia</i>			N	mule-fat, seep-willow
Asteraceae	<i>Carduus pycnocephalus</i>			I	italian thistle
Asteraceae	<i>Centaurea calcitrapa</i>			I	purple star-thistle
Asteraceae	<i>Centaurea cyanus</i>			I	bachelor's button
Asteraceae	<i>Centaurea melitensis</i>			I	tochalote
Asteraceae	<i>Centaurea solstitialis</i>			I	yellow star thistle
Asteraceae	<i>Chaenactis glabriuscula</i>	var.	<i>glabriuscula</i>	N	yellow pincushion
Asteraceae	<i>Chamomilla occidentalis</i>			I	chamomile
Asteraceae	<i>Chamomilla suaveolens</i>			I	pineapple weed
Asteraceae	<i>Chondrilla juncea</i>			I	skeleton weed
Asteraceae	<i>Cichorium intybus</i>			I	chicory
Asteraceae	<i>Cirsium occidentale</i>	var.	<i>californicum</i>	N	California thistle
Asteraceae	<i>Cirsium occidentale</i>	var.	<i>venustum</i>	N	red thistle

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Asteraceae	<i>Cirsium vulgare</i>			I	bull thistle
Asteraceae	<i>Conyza bonariensis</i>			I	asthmaweed
Asteraceae	<i>Conyza canadensis</i>			I	common horseweed
Asteraceae	<i>Cotula coronopifolia</i>			I	brass buttons
Asteraceae	<i>Erigeron foliosus</i>	var.	<i>foliosus</i>	N	leafy daisy
Asteraceae	<i>Erigeron philadelphicus</i>			N	Philadelphia fleabane
Asteraceae	<i>Eriophyllum confertiflorum</i>	var.	<i>confertiflorum</i>	N	golden-yarrow
Asteraceae	<i>Euthamia occidentalis</i>			N	western goldenrod
Asteraceae	<i>Filago californica</i>			N	herba impia
Asteraceae	<i>Filago gallica</i>			I	herba impia
Asteraceae	<i>Gnaphalium bicolor</i>			N	bicolored everlasting
Asteraceae	<i>Gnaphalium californicum</i>			N	California everlasting
Asteraceae	<i>Gnaphalium canescens</i>	ssp.	<i>beneolens</i>	N	fragrant everlasting
Asteraceae	<i>Gnaphalium luteo-album</i>			I	cudweed
Asteraceae	<i>Gnaphalium palustre</i>			N	marsh cudweed
Asteraceae	<i>Gnaphalium purpureum</i>			N	purple cudweed
Asteraceae	<i>Gnaphalium stramineum</i>			N	cotton-batting plant
Asteraceae	<i>Hazardia squarrosa</i>	var.	<i>grindelioides</i>	N	saw-toothed goldenbush
Asteraceae	<i>Helenium puberulum</i>			N	sneezeweed
Asteraceae	<i>Helianthus gracilentus</i>			N	slender sunflower
Asteraceae	<i>Hemizonia congesta</i>	ssp.	<i>luzulifolia</i>	N	hayfield tarweed
Asteraceae	<i>Hemizonia pentactis</i>			N	Salinas River tarplant
Asteraceae	<i>Hemizonia pungens</i>	ssp.	<i>pungens</i>	N	common spikeweed
Asteraceae	<i>Hesperevax acaulis</i>	var.	<i>robustior</i>	N	hesperevax
Asteraceae	<i>Hesperevax caulescens</i>			N	hogwallow-starfish
Asteraceae	<i>Hesperevax sparsiflora</i>	var.	<i>sparsiflora</i>	N	Few-flowered evax
Asteraceae	<i>Heterotheca grandiflora</i>			N	telegraph weed
Asteraceae	<i>Heterotheca oregana</i>	var.	<i>compacta</i>	N	rayless goldenaster
Asteraceae	<i>Hypochaeris glabra</i>			I	smooth cat's-ear
Asteraceae	<i>Lactuca saligna</i>			I	willow-leaved lettuce
Asteraceae	<i>Lactuca serriola</i>			I	prickly lettuce
Asteraceae	<i>Lagophylla ramosissima</i>	ssp.	<i>ramosissima</i>	N	slender hareleaf
Asteraceae	<i>Lasthenia californica</i>			N	common goldfields
Asteraceae	<i>Lasthenia glaberrima</i> ⁵			N	water goldfields
Asteraceae	<i>Layia platyglossa</i>			N	common tidytips
Asteraceae	<i>Lessingia filaginifolia</i>	var.	<i>filaginifolia</i>	N	California-aster
Asteraceae	<i>Madia elegans</i>	ssp.	<i>densifolia</i>	N	showy tarweed
Asteraceae	<i>Madia exigua</i>			N	miniature tarweed
Asteraceae	<i>Madia gracilis</i>			N	slender tarweed
Asteraceae	<i>Madia madioides</i>			N	woodland tarweed
Asteraceae	<i>Madia sativa</i>			N	coast tarweed
Asteraceae	<i>Micropus californicus</i>	var.	<i>californicus</i>	N	cottonweed
Asteraceae	<i>Micropus californicus</i>	var.	<i>subvestitus</i>	N	cottonweed

⁵ Known in San Luis Obispo County from only 3 sites and extirpated from one of these. Collected here in 1964 by the late Robert F. Hoover.

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Asteraceae	<i>Microseris douglasii</i>	ssp.	<i>douglasii</i>	N	microseris
Asteraceae	<i>Microseris douglasii</i>	ssp.	<i>tenella</i>	N	microseris
Asteraceae	<i>Microseris elegans</i>			N	microseris
Asteraceae	<i>Picris echioides</i>			I	bristly ox-tongue
Asteraceae	<i>Psilocarphus tenellus</i>	var.	<i>globiferus</i>	N	round woolly marbles
Asteraceae	<i>Psilocarphus tenellus</i>	var.	<i>tenellus</i>	N	woolly marbles
Asteraceae	<i>Senecio vulgaris</i>			I	common groundsel
Asteraceae	<i>Silybum marianum</i>			I	milk thistle
Asteraceae	<i>Soliva sessilis</i>			I	burweed
Asteraceae	<i>Sonchus asper</i>	ssp.	<i>asper</i>	I	prickly sow-thistle
Asteraceae	<i>Sonchus oleraceus</i>			I	common sow-thistle
Asteraceae	<i>Stebbinsoseris heterocarpa</i>			N	stebbinsoseris
Asteraceae	<i>Stylocline gnaphalioides</i>			N	everlasting nest straw
Asteraceae	<i>Taraxacum officinale</i>			I	dandelion
Asteraceae	<i>Uropappus lindleyi</i>			N	silver puffs
Asteraceae	<i>Xanthium spinosum</i>			N	spiny cocklebur, spanish-thistle
Asteraceae	<i>Xanthium strumarium</i>			N	cocklebur
Betulaceae	<i>Alnus rhombifolia</i>			N	white alder
Boraginaceae	<i>Amsinckia menziesii</i>	var.	<i>intermedia</i>	N	rancher's fireweed
Boraginaceae	<i>Amsinckia menziesii</i>	var.	<i>menziesii</i>	N	rancher's fireweed
Boraginaceae	<i>Amsinckia spectabilis</i>	var.	<i>microcarpa</i>	N	fireweed
Boraginaceae	<i>Cryptantha intermedia</i>			N	popcorn flower
Boraginaceae	<i>Cryptantha microstachys</i>			N	cryptantha
Boraginaceae	<i>Cryptantha muricata</i>			N	cryptantha
Boraginaceae	<i>Cryptantha nevadensis</i>			N	cryptantha
Boraginaceae	<i>Cynoglossum grande</i>			N	hound's tongue
Boraginaceae	<i>Heliotropium curassavicum</i>			N	heliotrope
Boraginaceae	<i>Plagiobothrys bracteatus</i>			N	popcorn flower
Boraginaceae	<i>Plagiobothrys canescens</i>			N	popcorn flower
Boraginaceae	<i>Plagiobothrys collinus</i>	var.	<i>fulvescens</i>	N	popcorn flower
Boraginaceae	<i>Plagiobothrys fulvus</i>	var.	<i>campestris</i>	N	popcorn flower
Boraginaceae	<i>Plagiobothrys nothofulvus</i>			N	popcorn flower
Boraginaceae	<i>Plagiobothrys tenellus</i>			N	popcorn flower
Boraginaceae	<i>Plagiobothrys trachycarpus</i>			N	popcorn flower
Boraginaceae	<i>Plagiobothrys undulatus</i> ⁶			N	popcorn flower
Brassicaceae	<i>Barbarea orthoceras</i>	var.	<i>dolichocarpa</i>	N	wintercress
Brassicaceae	<i>Barbarea vulgaris</i>			I	common wintercress
Brassicaceae	<i>Brassica nigra</i>			I	black mustard
Brassicaceae	<i>Capsella bursa-pastoris</i>			I	shepherd's purse
Brassicaceae	<i>Cardamine californica</i>	var.	<i>californica</i>	N	milk maids
Brassicaceae	<i>Cardamine californica</i>	var.	<i>integrifolia</i>	N	milk maids
Brassicaceae	<i>Cardamine oligosperma</i>			N	bittercress
Brassicaceae	<i>Cardaria chalapensis</i>			I	lens-pod hoarycress

⁶ Known in San Luis Obispo County only from this vicinity (4 miles south of Santa Margarita) where first collected in 1964 by the late Robert F. Hoover.

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Brassicaceae	<i>Hirschfeldia incana</i>			I	perennial mustard
Brassicaceae	<i>Lepidium densiflorum</i>	var.	<i>densiflorum</i>	N	pepperwort
Brassicaceae	<i>Lepidium nitidum</i>	var.	<i>nitidum</i>	N	pepperwort
Brassicaceae	<i>Lepidium strictum</i>			N	pepperwort
Brassicaceae	<i>Nasturtium officinale</i>			N	common watercress
Brassicaceae	<i>Raphanus sativus</i>			I	wild radish
Brassicaceae	<i>Rorippa curvisiliqua</i>			N	water cress
Brassicaceae	<i>Rorippa nasturtium-aquaticum</i>			N	water cress
Brassicaceae	<i>Sinapis arvensis</i>			I	charlock
Brassicaceae	<i>Sisymbrium irio</i>			I	London rocket
Brassicaceae	<i>Sisymbrium officinale</i>			I	hedge mustard
Brassicaceae	<i>Sisymbrium orientale</i>			I	oriental rocket
Brassicaceae	<i>Thysanocarpus curvipes</i>			N	lace pod
Brassicaceae	<i>Thysanocarpus laciniatus</i>			N	fridgepod
Brassicaceae	<i>Tropidocarpum capparideum</i>			N	Caper-fruited tropidocarpum
Brassicaceae	<i>Tropidocarpum gracile</i>			N	tropidocarpum
Callitrichaceae	<i>Callitriche heterophylla</i>	var.	<i>bolanderi</i>	N	water-starwort
Callitrichaceae	<i>Callitriche marginata</i>			N	water-starwort
Caprifoliaceae	<i>Lonicera interrupta</i>			N	chaparral honeysuckle
Caprifoliaceae	<i>Lonicera involucrata</i>	var.	<i>ledebourii</i>	N	twinberry
Caprifoliaceae	<i>Sambucus mexicana</i>			N	elderberry
Caprifoliaceae	<i>Symphoricarpos albus</i>	var.	<i>laevigatus</i>	N	common snowberry
Caprifoliaceae	<i>Symphoricarpos mollis</i>			N	creeping snowberry
Caryophyllaceae	<i>Cerastium fontanum</i>	ssp.	<i>vulgare</i>	I	mouse-ear chickweed
Caryophyllaceae	<i>Cerastium glomeratum</i>			I	mouse-ear chickweed
Caryophyllaceae	<i>Minuartia californica</i>			N	minuartia
Caryophyllaceae	<i>Minuartia pusilla</i>			I	sandwort
Caryophyllaceae	<i>Sagina apetala</i>			N	dwarf pearlwort
Caryophyllaceae	<i>Silene gallica</i>			I	windmill pink
Caryophyllaceae	<i>Spergula arvensis</i>	ssp.	<i>arvensis</i>	I	stickwort
Caryophyllaceae	<i>Spergularia bocconii</i>			I	starwort
Caryophyllaceae	<i>Spergularia rubra</i>			I	spurry
Caryophyllaceae	<i>Stellaria media</i>			I	common chickweed
Caryophyllaceae	<i>Stellaria pallida</i>			I	chickweed
Chenopodiaceae	<i>Chenopodium album</i>			I	lamb's-quarter
Chenopodiaceae	<i>Chenopodium californicum</i>			N	California goosefoot
Chenopodiaceae	<i>Chenopodium chenopodioides</i>			I	goosefoot
Chenopodiaceae	<i>Chenopodium murale</i>			I	common goosefoot
Convolvulaceae	<i>Calystegia longipes</i>			N	morning glory
Convolvulaceae	<i>Calystegia macrostegia</i>	ssp.	<i>cyclostegia</i>	N	morning glory
Convolvulaceae	<i>Calystegia malacophylla</i>			N	morning glory
Convolvulaceae	<i>Calystegia subacaulis</i>	ssp.	<i>episcopalis</i>	N	San Luis Obispo morning glory
Convolvulaceae	<i>Convolvulus arvensis</i>			I	field bindweed

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Cornaceae	<i>Cornus glabrata</i>			N	brown dogwood
Cornaceae	<i>Cornus sericea</i>	var.	<i>occidentalis</i>	N	american dogwood
Crassulaceae	<i>Crassula aquatica</i>			N	water pygmyweed
Crassulaceae	<i>Crassula connata</i>			N	common pygmyweed
Crassulaceae	<i>Crassula tillaea</i>			I	crassula
Crassulaceae	<i>Dudleya lanceolata</i>			N	dudleya
Crassulaceae	<i>Dudleya pulverulenta</i>	ssp.	<i>pulverulenta</i>	N	chalk dudleya
Cucurbitaceae	<i>Marah fabaceus</i>	var.	<i>agrestis</i>	N	man-root
Cucurbitaceae	<i>Marah fabaceus</i>	var.	<i>fabaceus</i>	N	man-root
Cuscutaceae	<i>Cuscuta californica</i>	var.	<i>breviflora</i>	N	cuscuta
Cuscutaceae	<i>Cuscuta californica</i>	var.	<i>californica</i>	N	cuscuta
Datisceae	<i>Datisca glomerata</i>			N	durango root
Dipsacaceae	<i>Dipsacus sativus</i>			I	Fuller's teasel
Elatinaceae	<i>Elatine californica</i>			N	waterwort
Ericaceae	<i>Arbutus menziesii</i>			N	Pacific madrone
Ericaceae	<i>Arctostaphylos glandulosa</i>	ssp.	<i>glandulosa</i>	N	Eastwood manzanita
Ericaceae	<i>Arctostaphylos glauca</i>			N	bigberry manzanita
Ericaceae	<i>Arctostaphylos luciana</i>			N	Santa Lucia manzanita
Euphorbiaceae	<i>Chamaesyce ocellata</i>			N	prostrate spurge
Euphorbiaceae	<i>Eremocarpus setigerus</i>			N	turkey-mullein, dove weed
Euphorbiaceae	<i>Euphorbia peplus</i>			I	petty spurge
Euphorbiaceae	<i>Euphorbia spathulata</i>			N	spurge
Fabaceae	<i>Astragalus curtipes</i>			N	Morro milkvetch
Fabaceae	<i>Genista monspessulana</i>			I	french broom
Fabaceae	<i>Glycyrrhiza lepidota</i>			I	wild licorice
Fabaceae	<i>Hoita macrostachya</i>			N	leather-root
Fabaceae	<i>Hoita orbicularis</i>			N	hoita
Fabaceae	<i>Lotus corniculatus</i>			I	trefoil
Fabaceae	<i>Lotus humistratus</i>			N	bird-foot lotus
Fabaceae	<i>Lotus micranthus</i>			N	pink-deervetch
Fabaceae	<i>Lotus purshianus</i>	var.	<i>purshianus</i>	N	Spanish-clover
Fabaceae	<i>Lotus scoparius</i>	var.	<i>scoparius</i>	N	deerweed, California broom
Fabaceae	<i>Lotus stipularis</i>			N	stipulate lotus
Fabaceae	<i>Lotus strigosus</i>			N	lotus
Fabaceae	<i>Lupinus albifrons</i>	var.	<i>douglasii</i>	N	bush lupine
Fabaceae	<i>Lupinus albifrons</i>	var.	<i>abramsii</i>	N	bush lupine
Fabaceae	<i>Lupinus bicolor</i>			N	miniature lupine
Fabaceae	<i>Lupinus concinnus</i>			N	bajada lupine
Fabaceae	<i>Lupinus hirsutissimus</i>			N	stinging lupine
Fabaceae	<i>Lupinus ludovicianus</i>			N	San Luis Obispo County lupine
Fabaceae	<i>Lupinus microcarpus</i>	var.	<i>densiflorus</i>	N	chick lupine
Fabaceae	<i>Lupinus nanus</i>			N	sky lupine
Fabaceae	<i>Lupinus succulentus</i>			N	succulent lupine, Arroyo lupine

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Fabaceae	<i>Lupinus truncatus</i>			N	lupine
Fabaceae	<i>Medicago minima</i>			I	hairy bur-clover
Fabaceae	<i>Medicago polymorpha</i>			I	common bur-clover
Fabaceae	<i>Medicago sativa</i>			I	alfalfa
Fabaceae	<i>Melilotus alba</i>			I	white sweet-clover
Fabaceae	<i>Melilotus indica</i>			I	sour-clover, annual sweetclover
Fabaceae	<i>Melilotus officinalis</i>			I	yellow sweet-clover
Fabaceae	<i>Pisum sativum</i>			P	pea
Fabaceae	<i>Rupertia physoides</i>			N	California-tea
Fabaceae	<i>Senna multiglandulosa</i>			I	senna
Fabaceae	<i>Trifolium barbigerum</i>	var.	<i>barbigerum</i>	N	trifolium
Fabaceae	<i>Trifolium ciliolatum</i>			N	trifolium
Fabaceae	<i>Trifolium depauperatum</i>	var.	<i>amplectens</i>	N	bladder clover
Fabaceae	<i>Trifolium depauperatum</i>	var.	<i>truncatum</i>	N	bladder clover
Fabaceae	<i>Trifolium fragiferum</i>			I	strawberry clover
Fabaceae	<i>Trifolium fucatum</i>			N	bull clover
Fabaceae	<i>Trifolium gracilentum</i>	var.	<i>gracilentum</i>	N	pinpoint clover
Fabaceae	<i>Trifolium hirtum</i>			I	rose clover
Fabaceae	<i>Trifolium incarnatum</i>			P	crimson clover
Fabaceae	<i>Trifolium microcephalum</i>			N	miniature clover
Fabaceae	<i>Trifolium pratense</i>			I	red clover
Fabaceae	<i>Trifolium subterraneum</i>			I	subterranean clover
Fabaceae	<i>Trifolium variegatum</i>			N	white-tip clover
Fabaceae	<i>Trifolium willdenovii</i>			N	tomcat clover
Fabaceae	<i>Trifolium wormskioldii</i>			N	marsh clover
Fabaceae	<i>Vicia americana</i>	var.	<i>americana</i>	N	american vetch
Fabaceae	<i>Vicia gigantea</i>			N	giant vetch
Fabaceae	<i>Vicia lutea</i> ⁷			I	yellow vetch
Fabaceae	<i>Vicia sativa</i>	ssp.	<i>nigra</i>	I	narrow-leaved vetch, common vetch
Fabaceae	<i>Vicia sativa</i>	ssp.	<i>sativa</i>	I	common vetch, spring vetch
Fabaceae	<i>Vicia villosa</i>	ssp.	<i>varia</i>	I	hairy vetch, winter vetch
Fagaceae	<i>Lithocarpus densiflorus</i>	var.	<i>densiflorus</i>	N	tan oak, tanbark oak
Fagaceae	<i>Quercus agrifolia</i>	var.	<i>agrifolia</i>	N	coast live oak
Fagaceae	<i>Quercus berberidifolia</i>			N	scrub oak
Fagaceae	<i>Quercus chrysolepis</i>			N	canyon live oak
Fagaceae	<i>Quercus douglasii</i>			N	blue oak
Fagaceae	<i>Quercus garryana</i>	var.	<i>breweri</i>	N	Oregon oak
Fagaceae	<i>Quercus johntuckeri</i>			N	desert scrub oak
Fagaceae	<i>Quercus lobata</i>			N	valley oak
Gentianaceae	<i>Centaurium davyi</i>			N	centaury
Gentianaceae	<i>Centaurium exaltatum</i>			N	centaury
Geraniaceae	<i>Erodium botrys</i>			I	storkbill filaree

⁷ First record for San Luis Obispo County for this introduced species.

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Geraniaceae	<i>Erodium cicutarium</i>			I	redstem filaree
Geraniaceae	<i>Erodium moschatum</i>			I	greenstem filaree
Geraniaceae	<i>Geranium dissectum</i>			I	geranium
Geraniaceae	<i>Geranium molle</i>			I	geranium
Geraniaceae	<i>Geranium pusillum</i>			I	geranium
Geraniaceae	<i>Geranium rotundifolium</i>			I	geranium
Grossulariaceae	<i>Ribes californicum</i>	var.	<i>californicum</i>	N	hillside gooseberry
Grossulariaceae	<i>Ribes divaricatum</i>	var.	<i>pubiflorum</i>	N	straggly gooseberry
Grossulariaceae	<i>Ribes malvaceum</i>	var.	<i>malvaceum</i>	N	chaparral currant
Grossulariaceae	<i>Ribes menziesii</i>			N	canyon gooseberry
Grossulariaceae	<i>Ribes quercetorum</i>			N	oak gooseberry, yellow gooseberry
Grossulariaceae	<i>Ribes sanguineum</i>	var.	<i>glutinosum</i>	N	pink flowering currant
Grossulariaceae	<i>Ribes speciosum</i>			N	fuchsia-flowered gooseberry
Hydrophyllaceae	<i>Emmenanthe penduliflora</i>	var.	<i>penduliflora</i>	N	whispering bells
Hydrophyllaceae	<i>Eriodictyon tomentosum</i>			N	mountain balm
Hydrophyllaceae	<i>Nemophila menziesii</i>	var.	<i>integrifolia</i>	N	baby-blue-eyes
Hydrophyllaceae	<i>Nemophila pedunculata</i>			N	nemophila
Hydrophyllaceae	<i>Phacelia distans</i>			N	wild-heliotrope
Hydrophyllaceae	<i>Phacelia imbricata</i>	var.	<i>imbricata</i>	N	wild-heliotrope
Hydrophyllaceae	<i>Phacelia ramosissima</i>	var.	<i>austrolittoralis</i>	N	shrubby phacelia
Hydrophyllaceae	<i>Pholistoma auritum</i>	var.	<i>auritum</i>	N	fiesta flower
Hydrophyllaceae	<i>Pholistoma membranaceum</i>			N	pholistoma
Juglandaceae	<i>Juglans californica</i>	var.	<i>hindsii</i>	N	California black walnut
Lamiaceae	<i>Agastache urticifolia</i>			N	horsemint
Lamiaceae	<i>Lamium amplexicaule</i>			I	henbit, dead nettle
Lamiaceae	<i>Marrubium vulgare</i>			I	horehound
Lamiaceae	<i>Mentha arvensis</i>			N	field mint
Lamiaceae	<i>Monardella villosa</i>	var.	<i>obispoensis</i>	N	coyote-mint
Lamiaceae	<i>Pogogyne serpylloides</i>			N	pogogyne
Lamiaceae	<i>Salvia columbariae</i>			N	chia
Lamiaceae	<i>Salvia mellifera</i>			N	black sage
Lamiaceae	<i>Salvia spathacea</i>			N	hummingbird sage
Lamiaceae	<i>Satureja douglasii</i>			N	yerba buena
Lamiaceae	<i>Stachys ajugoides</i>	var.	<i>rigida</i>	N	hedge nettle
Lamiaceae	<i>Stachys albens</i>			N	woolly hedge-nettle
Lamiaceae	<i>Stachys bullata</i>			N	common hedge-nettle
Lamiaceae	<i>Stachys pycnantha</i>			N	short-spike hedge-nettle
Lamiaceae	<i>Trichostema lanatum</i>			N	woolly blur-curls
Lamiaceae	<i>Trichostema lanceolatum</i>			N	vinegar-weed
Lauraceae	<i>Umbellularia californica</i>			N	California bay
Limnanthaceae	<i>Limnanthes douglasii</i>	var.	<i>nivea</i>	N	meadowfoam
Lythraceae	<i>Lythrum hyssopifolium</i>			I	loosestrife
Malvaceae	<i>Malva nicaeensis</i>			I	bull mallow
Malvaceae	<i>Malvella leprosa</i>			N	alkali-mallow
Malvaceae	<i>Sidalcea malviflora</i>			N	checker mallow

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Oleaceae	<i>Forestiera pubescens</i>			N	desert-olive
Onagraceae	<i>Camissonia campestris</i>	ssp.	<i>campestris</i>	N	Mojave sun cups
Onagraceae	<i>Camissonia campestris</i>	ssp.	<i>obispoensis</i>	N	sun cups
Onagraceae	<i>Camissonia graciliflora</i>			N	hill sun cups
Onagraceae	<i>Camissonia hirtella</i>			N	sun cups
Onagraceae	<i>Camissonia micrantha</i>			N	sun cups
Onagraceae	<i>Clarkia affinis</i>			N	farewell-to-spring
Onagraceae	<i>Clarkia cylindrica</i>	ssp.	<i>cylindrica</i>	N	farewell-to-spring
Onagraceae	<i>Clarkia purpurea</i>	ssp.	<i>purpurea</i>	N	wine cups
Onagraceae	<i>Clarkia purpurea</i>	ssp.	<i>quadrivulnera</i>	N	four-spot
Onagraceae	<i>Clarkia purpurea</i>	ssp.	<i>viminea</i>	N	wine cups
Onagraceae	<i>Clarkia speciosa</i>	ssp.	<i>speciosa</i>	N	clarkia
Onagraceae	<i>Clarkia unguiculata</i>			N	elegant clarkia
Onagraceae	<i>Epilobium brachycarpum</i>			N	annual willow-herb
Onagraceae	<i>Epilobium canum</i>	ssp.	<i>canum</i>	N	California-fuchsia, zauschneria
Onagraceae	<i>Epilobium ciliatum</i>	ssp.	<i>ciliatum</i>	N	willow-herb
Onagraceae	<i>Epilobium ciliatum</i>	ssp.	<i>watsonii</i>	N	willow-herb
Onagraceae	<i>Epilobium cleistogamum</i>			N	willow herb
Onagraceae	<i>Epilobium densiflorum</i>			N	willow-herb
Onagraceae	<i>Epilobium pygmaeum</i>			N	willow-herb
Orobanchaceae	<i>Orobanche uniflora</i>			N	naked broom-rape
Oxalidaceae	<i>Oxalis pes-caprae</i>			I	Bermuda-buttercup
Paeoniaceae	<i>Paeonia californica</i>			N	California peony
Papaveraceae	<i>Dendromecon rigida</i>			N	bush poppy
Papaveraceae	<i>Eschscholzia californica</i>			N	California poppy
Papaveraceae	<i>Platystemon californicus</i>			N	cream-cups
Plantaginaceae	<i>Plantago elongata</i>			N	plantain
Plantaginaceae	<i>Plantago erecta</i>			N	California plantain
Plantaginaceae	<i>Plantago lanceolata</i>			N	english plantain
Plantaginaceae	<i>Plantago major</i>			N	common plantain
Platanaceae	<i>Platanus racemosa</i>			N	California sycamore
Polemoniaceae	<i>Gilia achilleifolia</i>	ssp.	<i>achilleifolia</i>	N	California gilia
Polemoniaceae	<i>Gilia achilleifolia</i>	ssp.	<i>multicaulis</i>	N	California gilia
Polemoniaceae	<i>Gilia capitata</i>	ssp.	<i>staminea</i>	N	blue-headed gilia
Polemoniaceae	<i>Gilia clivorum</i>			N	purple-spot gilia
Polemoniaceae	<i>Gilia tenuiflora</i>	ssp.	<i>amplifaucalis</i>	N	gilia
Polemoniaceae	<i>Leptodactylon californicum</i>			N	prickly phlox
Polemoniaceae	<i>Linanthus bicolor</i>			N	whisker-brush
Polemoniaceae	<i>Linanthus ciliatus</i>			N	whisker-brush
Polemoniaceae	<i>Linanthus liniflorus</i>			N	linanthus
Polemoniaceae	<i>Linanthus parviflorus</i>			N	baby-stars
Polemoniaceae	<i>Navarretia atractyloides</i>			N	navarretia
Polemoniaceae	<i>Navarretia hamata</i>	ssp.	<i>parviloba</i>	N	navarretia
Polemoniaceae	<i>Navarretia jaredii</i>			N	Paso Robles navarretia
Polygonaceae	<i>Chorizanthe membranacea</i>			N	pink spineflower

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Polygonaceae	<i>Chorizanthe palmeri</i>			N	Palmer's spineflower
Polygonaceae	<i>Chorizanthe rectispina</i>			N	straight-awned spineflower
Polygonaceae	<i>Chorizanthe staticoides</i>			N	turkish-rugging
Polygonaceae	<i>Eriogonum elongatum</i>	var.	<i>elongatum</i>	N	elongate buckwheat
Polygonaceae	<i>Eriogonum fasciculatum</i>	var.	<i>fasciculatum</i>	N	California buckwheat
Polygonaceae	<i>Eriogonum fasciculatum</i>	var.	<i>foliosum</i>	N	California buckwheat
Polygonaceae	<i>Eriogonum gracile</i>			N	slender buckwheat
Polygonaceae	<i>Eriogonum nudum</i>	var.	<i>indictum</i>	N	naked buckwheat
Polygonaceae	<i>Eriogonum nudum</i>	var.	<i>westonii</i>	N	naked buckwheat
Polygonaceae	<i>Eriogonum roseum</i>			N	wand buckwheat
Polygonaceae	<i>Polygonum amphibium</i>	var.	<i>stipulaceum</i>	N	water smartweed
Polygonaceae	<i>Polygonum arenastrum</i>			I	common knotweed
Polygonaceae	<i>Pterostegia drymarioides</i>			N	notchleaf
Polygonaceae	<i>Rumex acetosella</i>			N	sour dock, sheep-sorrel
Polygonaceae	<i>Rumex conglomeratus</i>			I	knotted dock
Polygonaceae	<i>Rumex crispus</i>			I	curly dock
Polygonaceae	<i>Rumex kernerii</i>			N	Kerner's dock
Polygonaceae	<i>Rumex pulcher</i>			I	fiddle dock
Polygonaceae	<i>Rumex salicifolius</i>	var.	<i>crassus</i>	N	willow dock
Polygonaceae	<i>Rumex salicifolius</i>	var.	<i>denticulatus</i>	N	willow dock
Polygonaceae	<i>Rumex salicifolius</i>	var.	<i>salicifolius</i>	N	willow dock
Portulacaceae	<i>Calandrinia ciliata</i>			N	red maids
Portulacaceae	<i>Claytonia parviflora</i>	ssp.	<i>parviflora</i>	N	miner's-lettuce
Portulacaceae	<i>Claytonia perfoliata</i>	ssp.	<i>mexicana</i>	N	miner's-lettuce
Portulacaceae	<i>Claytonia perfoliata</i>	ssp.	<i>perfoliata</i>	N	miner's-lettuce
Portulacaceae	<i>Lewisia rediviva</i>			N	bitterroot
Portulacaceae	<i>Montia fontana</i>			N	water chickweed, blinks
Primulaceae	<i>Anagallis arvensis</i>			I	scarlet pimpernel
Primulaceae	<i>Dodecatheon clelandii</i>	ssp.	<i>insulare</i>	N	shooting star
Primulaceae	<i>Trientalis latifolia</i>			N	pacific starflower
Ranunculaceae	<i>Clematis lasiantha</i>			N	pipestems
Ranunculaceae	<i>Clematis ligusticifolia</i>			N	virgin's bower
Ranunculaceae	<i>Delphinium parryi</i>	ssp.	<i>parryi</i>	N	Parry's larkspur
Ranunculaceae	<i>Delphinium variegatum</i>	ssp.	<i>variegatum</i>	N	royal larkspur
Ranunculaceae	<i>Ranunculus aquatilis</i>	var.	<i>capillaceus</i>	N	water buttercup
Ranunculaceae	<i>Ranunculus californicus</i>			N	California buttercup
Ranunculaceae	<i>Ranunculus hebecarpus</i>			N	annual buttercup
Ranunculaceae	<i>Thalictrum fendleri</i>	var.	<i>fendleri</i>	N	meadow-rue
Rhamnaceae	<i>Ceanothus cuneatus</i>	var.	<i>cuneatus</i>	N	buckbrush
Rhamnaceae	<i>Ceanothus leucodermis</i>			N	chaparral whitethorn
Rhamnaceae	<i>Ceanothus oliganthus</i>	var.	<i>oliganthus</i>	N	explorer's bush
Rhamnaceae	<i>Ceanothus thyrsiflorus</i>			N	blue-blossom ceanothus
Rhamnaceae	<i>Rhamnus californica</i>	ssp.	<i>californica</i>	N	coffeeberry
Rhamnaceae	<i>Rhamnus crocea</i>			N	redberry
Rhamnaceae	<i>Rhamnus ilicifolia</i>			N	holly-leaved redberry

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Rhamnaceae	<i>Rhamnus tomentella</i>	ssp.	<i>tomentella</i>	N	hoary-leaved coffeeberry
Rosaceae	<i>Adenostoma fasciculatum</i>			N	chamise
Rosaceae	<i>Adenostoma sparsifolium</i>			N	red shanks, ribbonwood
Rosaceae	<i>Aphanes occidentalis</i>			N	lady's-mantle
Rosaceae	<i>Cercocarpus betuloides</i>	var.	<i>betuloides</i>	N	mohogany
Rosaceae	<i>Fragaria vesca</i>			N	wood strawberry
Rosaceae	<i>Heteromeles arbutifolia</i>			N	toyon, christmas berry
Rosaceae	<i>Holodiscus discolor</i>			N	ocean spray, cream-bush
Rosaceae	<i>Horkelia cuneata</i>	ssp.	<i>cuneata</i>	N	coast horkelia
Rosaceae	<i>Potentilla glandulosa</i>	ssp.	<i>glandulosa</i>	N	sticky cinquefoil
Rosaceae	<i>Prunus ilicifolia</i>	ssp.	<i>ilicifolia</i>	N	holly-leaf cherry
Rosaceae	<i>Prunus virginiana</i>	var.	<i>demissa</i>	N	western choke-cherry
Rosaceae	<i>Rosa californica</i>			N	California wild rose
Rosaceae	<i>Rubus ursinus</i>			N	black berry
Rosaceae	<i>Sanguisorba minor</i>			I	burnet
Rubiaceae	<i>Galium andrewsii</i>	ssp.	<i>gatense</i>	N	bedstraw
Rubiaceae	<i>Galium andrewsii</i>	ssp.	<i>intermedium</i>	N	bedstraw
Rubiaceae	<i>Galium angustifolium</i>	ssp.	<i>angustifolium</i>	N	bedstraw
Rubiaceae	<i>Galium aparine</i>			N	bedstraw, goose grass
Rubiaceae	<i>Galium californicum</i>	ssp.	<i>flaccidum</i>	N	California bedstraw
Rubiaceae	<i>Galium californicum</i>	ssp.	<i>maritimum</i>	N	bedstraw
Rubiaceae	<i>Galium parisiense</i>			N	bedstraw
Rubiaceae	<i>Galium porrigens</i>	var.	<i>porrigens</i>	N	bedstraw
Rubiaceae	<i>Galium porrigens</i>	var.	<i>tenue</i>	N	bedstraw
Salicaceae	<i>Populus balsamifera</i>	ssp.	<i>trichocarpa</i>	N	black cottonwood
Salicaceae	<i>Populus fremontii</i>	ssp.	<i>fremontii</i>	N	Fremont cottonwood
Salicaceae	<i>Salix laevigata</i>			N	red willow
Salicaceae	<i>Salix lasiolepis</i>			N	Arroyo willow
Salicaceae	<i>Salix lucida</i>	ssp.	<i>lasiandra</i>	N	willow
Saxifragaceae	<i>Heuchera micrantha</i>			N	alumroot
Saxifragaceae	<i>Lithophragma affine</i>			N	woodland star
Saxifragaceae	<i>Lithophragma cymbalaria</i>			N	woodland star
Saxifragaceae	<i>Lithophragma heterophyllum</i>			N	woodland star
Saxifragaceae	<i>Saxifraga californica</i>			N	California saxafrage
Scrophulariaceae	<i>Antirrhinum kelloggii</i>			N	snapdragon
Scrophulariaceae	<i>Castilleja affinis</i>	ssp.	<i>affinis</i>	N	Indian paintbrush
Scrophulariaceae	<i>Castilleja attenuata</i>			N	valley tassels
Scrophulariaceae	<i>Castilleja densiflora</i>	ssp.	<i>densiflora</i>	N	owl's clover
Scrophulariaceae	<i>Castilleja densiflora</i>	ssp.	<i>gracilis</i>	N	owl's clover
Scrophulariaceae	<i>Castilleja densiflora</i>	ssp.	<i>obispoensis</i>	N	Obispo Indian paintbrush
Scrophulariaceae	<i>Castilleja exserta</i>	ssp.	<i>exserta</i>	N	purple owl's clover
Scrophulariaceae	<i>Castilleja minor</i>	ssp.	<i>spiralis</i>	N	paintbrush
Scrophulariaceae	<i>Collinsia heterophylla</i>			N	Chinese houses
Scrophulariaceae	<i>Collinsia sparsiflora</i>	var.	<i>collina</i>	N	collinsia

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Scrophulariaceae	<i>Keckiella cordifolia</i>			N	heart-leaved penstemon
Scrophulariaceae	<i>Kickxia spuria</i>			N	kickxia
Scrophulariaceae	<i>Linaria canadensis</i>			N	toadflax
Scrophulariaceae	<i>Mimulus aurantiacus</i>			N	monkeyflower
Scrophulariaceae	<i>Mimulus cardinalis</i>			N	monkeyflower
Scrophulariaceae	<i>Mimulus floribundus</i>			N	monkeyflower
Scrophulariaceae	<i>Mimulus guttatus</i>			N	stream monkeyflower
Scrophulariaceae	<i>Pedicularis densiflora</i>			N	Indian warrior
Scrophulariaceae	<i>Penstemon centranthifolius</i>			N	scarlet bugler
Scrophulariaceae	<i>Penstemon heterophyllus</i>	var.	<i>heterophyllus</i>	N	pennstemon
Scrophulariaceae	<i>Scrophularia californica</i>	ssp.	<i>californica</i>	N	California figwort
Scrophulariaceae	<i>Triphysaria pusilla</i> ⁸			N	owl's clover
Scrophulariaceae	<i>Verbascum virgatum</i>			I	wand mullein
Scrophulariaceae	<i>Veronica anagallis-aquatica</i>			I	water speedwell
Scrophulariaceae	<i>Veronica catenata</i>			I	chain speedwell
Scrophulariaceae	<i>Veronica peregrina</i>	ssp.	<i>xalapensis</i> ⁹	N	speedwell
Scrophulariaceae	<i>Veronica persica</i>			I	Persian speedwell
Solanaceae	<i>Datura stramonium</i>			N	jimson weed
Solanaceae	<i>Nicotiana acuminata</i>	var.	<i>multiflora</i>	I	tobacco
Solanaceae	<i>Solanum douglasii</i>			N	nightshade
Solanaceae	<i>Solanum xantii</i>			N	nightshade
Urticaceae	<i>Hesperocnide tenella</i>			N	western nettle
Urticaceae	<i>Urtica dioica</i>	ssp.	<i>holosericea</i>	N	stinging nettle
Urticaceae	<i>Urtica urens</i>			I	dwarf nettle
Valerianaceae	<i>Plectritis ciliosa</i>	ssp.	<i>ciliosa</i>	N	plectritis
Verbenaceae	<i>Phyla nodiflora</i>	var.	<i>nodiflora</i>	N	common lippia
Verbenaceae	<i>Verbena bracteata</i>			N	verbena
Verbenaceae	<i>Verbena lasiostachys</i>	var.	<i>lasiostachys</i>	N	verbena
Verbenaceae	<i>Verbena lasiostachys</i>	var.	<i>scabrida</i>	N	verbena
Violaceae	<i>Viola pedunculata</i>			N	johnny jump-up
Violaceae	<i>Viola purpurea</i>	ssp.	<i>purpurea</i>	N	mountain violet
Viscaceae	<i>Phoradendron macrophyllum</i>			N	big leaf mistletoe
Viscaceae	<i>Phoradendron villosum</i>			N	oak mistletoe
Vitaceae	<i>Vitis californica</i>			N	California wild grape
Vitaceae	<i>Vitis vinifera</i>			P	wine grape
Monocots					
Agavaceae	<i>Yucca whipplei</i>			N	chaparral yucca
Alismataceae	<i>Alisma plantago-aquatica</i>			N	water-plantain
Alliaceae	<i>Allium amplexans</i>			N	onion
Alliaceae	<i>Allium haematochiton</i>			N	onion
Alliaceae	<i>Allium peninsulare</i>	var.	<i>peninsulare</i>	N	allium
Alliaceae	<i>Allium unifolium</i>			N	allium
Cyperaceae	<i>Carex harfordii</i>			N	sedge

⁸ First non-coastal record of *T. pusilla* from San Luis Obispo County.

⁹ First record for San Luis Obispo County for this introduced species.

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Cyperaceae	<i>Carex praeegracilis</i>			N	sedge
Cyperaceae	<i>Carex tumulicola</i>			N	sedge
Cyperaceae	<i>Cyperus eragrostis</i>			N	umbrella sedge
Cyperaceae	<i>Cyperus sp.</i>			N	annual flat-sedge
Cyperaceae	<i>Eleocharis macrostachya</i>			N	common spikerush
Cyperaceae	<i>Eleocharis parishii</i>			N	Parish's spikerush
Cyperaceae	<i>Scirpus acutus</i>	var.	<i>occidentalis</i>	N	roundstem tule
Cyperaceae	<i>Scirpus americanus</i>			N	American bulrush
Cyperaceae	<i>Scirpus microcarpus</i>			N	small-fruited bulrush
Cyperaceae	<i>Scirpus pungens</i>			N	common threesquare
Hyacinthaceae	<i>Chlorogalum pomeridianum</i>	var.	<i>pomeridianum</i>	N	soap plant
Hydrocharitaceae	<i>Najas guadalupensis</i>			N	southern naiad
Iridaceae	<i>Iris douglasiana</i>			N	douglas iris
Iridaceae	<i>Sisyrinchium bellum</i>			N	blue-eyed grass
Juncaceae	<i>Juncus bufonius</i>	var.	<i>bufonius</i>	N	toadrush
Juncaceae	<i>Juncus bufonius</i>	var.	<i>congestus</i>	N	toadrush
Juncaceae	<i>Juncus bufonius</i>	var.	<i>occidentalis</i>	N	toadrush
Juncaceae	<i>Juncus effusus</i>	var.	<i>pacificus</i>	N	rush
Juncaceae	<i>Juncus mexicanus</i>			N	Mexican rush
Juncaceae	<i>Juncus occidentalis</i>			N	rush
Juncaceae	<i>Juncus patens</i>			N	spreading rush
Juncaceae	<i>Juncus phaeocephalus</i>	var.	<i>phaeocephalus</i>	N	brownheaded rush
Juncaceae	<i>Juncus xiphioides</i>	var.	<i>xiphioides</i>	N	Iris-leaved rush
Juncaginaceae	<i>Lilaea scilloides</i>			N	flowering quillwort
Lemnaceae	<i>Lemna gibba</i>			N	duckweed
Lemnaceae	<i>Lemna minor</i>			N	duckweed
Liliaceae	<i>Calochortus albus</i>			N	fairy lantern
Liliaceae	<i>Calochortus catalinae</i>			N	Catalina mariposa lily
Liliaceae	<i>Calochortus simulans</i>			N	La Panza mariposa lily
Liliaceae	<i>Calochortus splendens</i>			N	lilac mariposa lily
Liliaceae	<i>Fritillaria biflora</i>	var.	<i>biflora</i>	N	chocolate lily
Orchidaceae	<i>Piperia michaelii</i>			N	Michael's piperia
Poaceae	<i>Agrostis pallens</i>			N	bent grass
Poaceae	<i>Agrostis stolonifera</i>			I	creeping bent grass
Poaceae	<i>Aira caryophyllea</i>			I	silver European hairgrass
Poaceae	<i>Alopecurus pratensis</i>			I	meadow foxtail
Poaceae	<i>Avena barbata</i>			I	slender wild oat
Poaceae	<i>Avena fatua</i>			I	wild oat
Poaceae	<i>Avena sativa</i>			I	cultivated oat
Poaceae	<i>Brachypodium distachyon</i>			I	brachy podium
Poaceae	<i>Briza maxima</i>			I	large quaking grass
Poaceae	<i>Briza minor</i>			I	quaking grass
Poaceae	<i>Bromus arenarius</i>			I	Australian brome
Poaceae	<i>Bromus carinatus</i>	var.	<i>carinatus</i>	N	California brome
Poaceae	<i>Bromus diandrus</i>			I	ripgut brome

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Poaceae	<i>Bromus hordeaceus</i>			I	soft chess brome
Poaceae	<i>Bromus madritensis</i>	ssp.	<i>madritensis</i>	I	foxtail chess
Poaceae	<i>Bromus madritensis</i>	ssp.	<i>rubens</i>	I	foxtail chess
Poaceae	<i>Bromus sterilis</i>			I	poverty brome
Poaceae	<i>Bromus tectorum</i>			N	cheat grass
Poaceae	<i>Crypsis schoenoides</i>			I	matgrass, swamp grass
Poaceae	<i>Cynodon dactylon</i>			I	Bermuda grass
Poaceae	<i>Cynosurus echinatus</i>			I	hedgehog dogtail
Poaceae	<i>Danthonia californica</i>	var.	<i>americana</i>	N	California oatgrass
Poaceae	<i>Deschampsia elongata</i>			N	slender hairgrass
Poaceae	<i>Distichlis spicata</i>			N	saltgrass
Poaceae	<i>Elymus glaucus</i>	ssp.	<i>glaucus</i>	N	blue wildrye
Poaceae	<i>Festuca arundinacea</i>			I	tall fescue
Poaceae	<i>Festuca idahoensis</i>			P	fescue
Poaceae	<i>Gastridium ventricosum</i>			I	nit grass
Poaceae	<i>Hordeum brachyantherum</i>	ssp.	<i>brachyantherum</i>	N	native barley
Poaceae	<i>Hordeum brachyantherum</i>	ssp.	<i>californicum</i>	N	native barley
Poaceae	<i>Hordeum marinum</i>	var.	<i>gussonianum</i>	I	Mediterranean barley
Poaceae	<i>Hordeum murinum</i>	ssp.	<i>murinum</i>	I	foxtail barley
Poaceae	<i>Hordeum vulgare</i>			N	barley
Poaceae	<i>Lamarckia aurea</i>			I	goldentop
Poaceae	<i>Leymus condensatus</i>			N	wildrye
Poaceae	<i>Leymus triticoides</i>			N	creeping wildrye
Poaceae	<i>Lolium multiflorum</i>			I	Italian ryegrass
Poaceae	<i>Lolium perenne</i>			I	perennial ryegrass
Poaceae	<i>Melica californica</i>			N	melic, onion grass
Poaceae	<i>Melica imperfecta</i>			N	melic, onion grass
Poaceae	<i>Muhlenbergia rigens</i>			N	muhly
Poaceae	<i>Nassella cernua</i>			N	nodding needlegrass
Poaceae	<i>Nassella lepida</i>			N	slender needlegrass
Poaceae	<i>Nassella pulchra</i>			N	purple needlegrass
Poaceae	<i>Paspalum distichum</i>			N	paspalum
Poaceae	<i>Phalaris aquatica</i>			I	canary grass
Poaceae	<i>Phalaris lemmonii</i>			N	canary grass
Poaceae	<i>Phalaris paradoxa</i>			I	canary grass
Poaceae	<i>Poa annua</i>			I	annual bluegrass
Poaceae	<i>Poa bulbosa</i>			I	bulbous bluegrass
Poaceae	<i>Poa howellii</i>			N	Howell's bluegrass
Poaceae	<i>Poa pratensis</i>			I	Kentucky bluegrass
Poaceae	<i>Poa secunda</i>	ssp.	<i>secunda</i>	N	one-sided bluegrass
Poaceae	<i>Polypogon interruptus</i>			I	ditch beardgrass
Poaceae	<i>Polypogon monspeliensis</i>			I	annual beardgrass
Poaceae	<i>Secale cereale</i>			I	rye
Poaceae	<i>Triticum aestivum</i>			P	common wheat
Poaceae	<i>Vulpia bromoides</i>			I	annual fescue
Poaceae	<i>Vulpia microstachys</i>	var.	<i>ciliata</i>	N	annual fescue

Family	Species	Infra type	Infra specific epithet	N=Native I=Introduced P=Planted	Common Name
Poaceae	<i>Vulpia microstachys</i>	var.	<i>microstachys</i>	N	annual fescue
Poaceae	<i>Vulpia microstachys</i>	var.	<i>pauciflora</i>	N	annual fescue
Poaceae	<i>Vulpia myuros</i>	var.	<i>hirsuta</i>	I	rat-tail fescue
Poaceae	<i>Vulpia myuros</i>	var.	<i>myuros</i>	I	annual fescue
Poaceae	<i>Vulpia octoflora</i>	var.	<i>hirtella</i>	N	annual fescue
Poaceae	<i>Vulpia octoflora</i>	var.	<i>octoflora</i>	N	annual fescue
Potamogetonaceae	<i>Potamogeton diversifolius</i>			N	diverse-leaved pondweed
Potamogetonaceae	<i>Potamogeton foliosus</i>	var.	<i>foliosus</i>	N	leafy pondweed
Potamogetonaceae	<i>Potamogeton natans</i>			N	floating-leaved pondweed
Potamogetonaceae	<i>Potamogeton nodosus</i>			N	long-leaved pondweed
Potamogetonaceae	<i>Potamogeton pectinatus</i>			N	pondweed
Potamogetonaceae	<i>Potamogeton pusillus</i>	var.		N	small pondweed
Potamogetonaceae	<i>Ruppia cirrhosa</i>			I	ditch grass
Themidaceae	<i>Bloomeria crocea</i>			N	common goldenstar
Themidaceae	<i>Brodiaea terrestris</i>	ssp.	<i>kernensis</i>	N	brodiaea
Themidaceae	<i>Brodiaea terrestris</i>	ssp.	<i>terrestris</i>	N	brodiaea
Themidaceae	<i>Dichelostemma capitatum</i>	ssp.	<i>capitatum</i>	N	blue dicks
Themidaceae	<i>Muilla maritima</i>			N	common muilla
Themidaceae	<i>Triteleia hyacinthina</i> ¹⁰			N	white brodiaea
Typhaceae	<i>Sparganium eurycarpum</i>			N	sparganium
Typhaceae	<i>Typha domingensis</i>			N	cattail
Typhaceae	<i>Typha latifolia</i>			N	cattail
Zannichelliaceae	<i>Zannichellia palustris</i>			N	horned-pondweed

¹⁰ This is the second of three documented localities for this native perennial in San Luis Obispo County. The first is in the vicinity of Arroyo de la Cruz in the northwestern corner of the county, and the third record is in northern Cambria.

ANIMAL LIST

TABLE 4. Animals observed on the Santa Margarita Ranch six rancho parcels include 157 birds, 41 mammals, 16 reptiles, 9 amphibians, 12 fish, and 2 crustaceans. Within each group, animals are organized by class, order, family, and scientific name.

Common Name	Scientific Name	Family	Order	Class
Birds - 157 species				
Wood Duck	<i>Aix sponsa</i>	Anatidae	Anseriformes	Aves
American Wigeon	<i>Anas americana</i>	Anatidae	Anseriformes	Aves
Northern Shoveler	<i>Anas clypeata</i>	Anatidae	Anseriformes	Aves
Cinnamon Teal	<i>Anas cyanoptera</i>	Anatidae	Anseriformes	Aves
Mallard	<i>Anas platyrhynchos</i>	Anatidae	Anseriformes	Aves
Gadwall	<i>Anas strepera</i>	Anatidae	Anseriformes	Aves
Greater White-fronted Goose	<i>Anser albifrons</i>	Anatidae	Anseriformes	Aves
Lesser Scaup	<i>Aythya affinis</i>	Anatidae	Anseriformes	Aves
Ring-necked Duck	<i>Aythya collaris</i>	Anatidae	Anseriformes	Aves
Canvasback	<i>Aythya valisineria</i>	Anatidae	Anseriformes	Aves
Bufflehead	<i>Bucephala albeola</i>	Anatidae	Anseriformes	Aves
Hooded Merganser	<i>Lophodytes cucullatus</i>	Anatidae	Anseriformes	Aves
Common Merganser	<i>Mergus merganser</i>	Anatidae	Anseriformes	Aves
Ruddy Duck	<i>Oxyura jamaicensis</i>	Anatidae	Anseriformes	Aves
White-throated Swift	<i>Aeronautes saxatalis</i>	Apodidae	Apodiformes	Aves
Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae	Apodiformes	Aves
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Hirundinidae	Apodiformes	Aves
Purple Martin	<i>Progne subis</i>	Hirundinidae	Apodiformes	Aves
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Hirundinidae	Apodiformes	Aves
Tree Swallow	<i>Tachycineta bicolor</i>	Hirundinidae	Apodiformes	Aves
Violet-green Swallow	<i>Tachycineta thalassina</i>	Hirundinidae	Apodiformes	Aves
Anna's Hummingbird	<i>Calypte anna</i>	Trochilidae	Apodiformes	Aves
Costa's Hummingbird	<i>Calypte costae</i>	Trochilidae	Apodiformes	Aves
Rufous Hummingbird	<i>Selasphorus rufus</i>	Trochilidae	Apodiformes	Aves
Allen's Hummingbird	<i>Selasphorus sasin</i>	Trochilidae	Apodiformes	Aves
Killdeer	<i>Charadrius vociferous</i>	Charadriidae	Charadriiformes	Aves
Black-necked Stilt	<i>Himantopus mexicanus</i>	Recurvirostridae	Charadriiformes	Aves

Common Name	Scientific Name	Family	Order	Class
Spotted Sandpiper	<i>Actitis macularia</i>	Scolopacidae	Charadriiformes	Aves
Least Sandpiper	<i>Calidris minutilla</i>	Scolopacidae	Charadriiformes	Aves
Common Snipe	<i>Gallinago gallinago</i>	Scolopacidae	Charadriiformes	Aves
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	Scolopacidae	Charadriiformes	Aves
Greater Yellowlegs	<i>Tringa melanoleuca</i>	Scolopacidae	Charadriiformes	Aves
Great Egret	<i>Ardea alba</i>	Ardeidae	Ciconiiformes	Aves
Great Blue Heron	<i>Ardea herodias</i>	Ardeidae	Ciconiiformes	Aves
Green Heron	<i>Butorides virescens</i>	Ardeidae	Ciconiiformes	Aves
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	Ardeidae	Ciconiiformes	Aves
Band-tailed Pigeon	<i>Columba fasciata</i>	Columbidae	Columbiformes	Aves
Rock Dove	<i>Columba livia</i>	Columbidae	Columbiformes	Aves
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	Columbidae	Columbiformes	Aves
Mourning Dove	<i>Zenaida macroura</i>	Columbidae	Columbiformes	Aves
Belted Kingfisher	<i>Cerle alcyon</i>	Alcedinidae	Coraciiformes	Aves
Cooper's Hawk	<i>Accipiter cooperi</i>	Accipitridae	Falconiformes	Aves
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Accipitridae	Falconiformes	Aves
Golden Eagle	<i>Aquila chrysaetos</i>	Accipitridae	Falconiformes	Aves
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Accipitridae	Falconiformes	Aves
Red-shouldered Hawk	<i>Buteo lineatus</i>	Accipitridae	Falconiformes	Aves
Ferruginous Hawk	<i>Buteo regalis</i>	Accipitridae	Falconiformes	Aves
Northern Harrier	<i>Circus cyaneus</i>	Accipitridae	Falconiformes	Aves
White-tailed Kite	<i>Elanus leucurus</i>	Accipitridae	Falconiformes	Aves
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Accipitridae	Falconiformes	Aves
Osprey	<i>Pandion haliaetus</i>	Accipitridae	Falconiformes	Aves
Turkey Vulture	<i>Cathartes aura</i>	Cathartidae	Falconiformes	Aves
Praire Falcon	<i>Falco mexicanus</i>	Falconidae	Falconiformes	Aves
American Kestrel	<i>Falco sparverius</i>	Falconidae	Falconiformes	Aves
California Quail	<i>Callipepla californica</i>	Odontophoridae	Galliformes	Aves
Mountain Quail	<i>Oreortyx pictus</i>	Odontophoridae	Galliformes	Aves
Wild Turkey	<i>Meleagris gallopavo merriami</i>	Phasianidae	Galliformes	Aves
American Coot	<i>Fulica americana</i>	Rallidae	Gruiformes	Aves
Sora	<i>Porzana carolina</i>	Rallidae	Gruiformes	Aves
Bushtit	<i>Psaltriparus minimus</i>	Aegithalidae	Passeriformes	Aves
California Horned lark	<i>Eremophila alpestris</i>	Alaudidae	Passeriformes	Aves

Common Name	Scientific Name	Family	Order	Class
Cedar Waxwing	<i>Bombycella cedrorum</i>	Bombycillidae	Passeriformes	Aves
Lazuli Bunting	<i>Passerina amoena</i>	Cardinalidae	Passeriformes	Aves
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	Cardinalidae	Passeriformes	Aves
Brown Creeper	<i>Certhia americana</i>	Certhiidae	Passeriformes	Aves
Western Scrub Jay	<i>Aphelocoma coerulescens</i>	Corvidae	Passeriformes	Aves
American Crow	<i>Corvus brachyrhynchos</i>	Corvidae	Passeriformes	Aves
Common Raven	<i>Corvus corax</i>	Corvidae	Passeriformes	Aves
Stellar's Jay	<i>Cyanocitta stelleri</i>	Corvidae	Passeriformes	Aves
Yellow-billed Magpie	<i>Pica nuttallii</i>	Corvidae	Passeriformes	Aves
Greater Roadrunner	<i>Geococcyx californianus</i>	Cuculidae	Passeriformes	Aves
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Emberizidae	Passeriformes	Aves
Lark Sparrow	<i>Chondestes grammacus</i>	Emberizidae	Passeriformes	Aves
Dark-eyed Junco	<i>Junco hyemalis</i>	Emberizidae	Passeriformes	Aves
Song Sparrow	<i>Melospiza melodia</i>	Emberizidae	Passeriformes	Aves
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Emberizidae	Passeriformes	Aves
Fox Sparrow	<i>Passerella iliaca</i>	Emberizidae	Passeriformes	Aves
California Towhee	<i>Pipilo crissalis</i>	Emberizidae	Passeriformes	Aves
Spotted Towhee	<i>Pipilo erythrophthalmus</i>	Emberizidae	Passeriformes	Aves
Chipping Sparrow	<i>Spizella passerina</i>	Emberizidae	Passeriformes	Aves
Golden-crowned Sparrow	<i>Zonotrichia altricapilla</i>	Emberizidae	Passeriformes	Aves
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	Emberizidae	Passeriformes	Aves
Lawrence's Goldfinch	<i>Carduelis lawrencei</i>	Fringillidae	Passeriformes	Aves
Pine Siskin	<i>Carduelis pinus</i>	Fringillidae	Passeriformes	Aves
Lesser Goldfinch	<i>Carduelis psaltria</i>	Fringillidae	Passeriformes	Aves
American Goldfinch	<i>Carduelis tristis</i>	Fringillidae	Passeriformes	Aves
House Finch	<i>Carpodacus mexicanus</i>	Fringillidae	Passeriformes	Aves
Purple Finch	<i>Carpodacus purpureus</i>	Fringillidae	Passeriformes	Aves
Bicolored Blackbird	<i>Agelaius phoeniceus</i>	Icteridae	Passeriformes	Aves
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Icteridae	Passeriformes	Aves
Tricolored Blackbird	<i>Agelaius tricolor</i>	Icteridae	Passeriformes	Aves
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	Icteridae	Passeriformes	Aves
Bullock's Oriole	<i>Icterus bullockii</i>	Icteridae	Passeriformes	Aves

Common Name	Scientific Name	Family	Order	Class
Brown-headed Cowbird	<i>Molothrus ater</i>	Icteridae	Passeriformes	Aves
Western Meadowlark	<i>Sturnella neglecta</i>	Icteridae	Passeriformes	Aves
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	Icteridae	Passeriformes	Aves
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Laniidae	Passeriformes	Aves
Northern Mockingbird	<i>Mimus polyglottos</i>	Mimidae	Passeriformes	Aves
California Thrasher	<i>Toxostoma redivivum</i>	Mimidae	Passeriformes	Aves
American Pipit	<i>Anthus rubescens</i>	Motacillidae	Passeriformes	Aves
Oak Titmouse	<i>Parus inornatus</i>	Paridae	Passeriformes	Aves
Chestnut-backed Chickadee	<i>Poecile rufescens</i>	Paridae	Passeriformes	Aves
Yellow-rumped Warbler	<i>Dendroica coronata</i>	Parulidae	Passeriformes	Aves
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	Parulidae	Passeriformes	Aves
Hermit Warbler	<i>Dendroica occidentalis</i>	Parulidae	Passeriformes	Aves
Yellow Warbler	<i>Dendroica petechia brewsteri</i>	Parulidae	Passeriformes	Aves
Townsend's Warbler	<i>Dendroica townsendi</i>	Parulidae	Passeriformes	Aves
Common Yellowthroat	<i>Geothlypis trichas</i>	Parulidae	Passeriformes	Aves
Yellow-breasted Chat	<i>Icteria virens</i>	Parulidae	Passeriformes	Aves
MacGillivray's Warbler	<i>Oporornis tolmiei</i>	Parulidae	Passeriformes	Aves
Orange-crowned Warbler	<i>Vermivora celata</i>	Parulidae	Passeriformes	Aves
Nashville Warbler	<i>Vermivora ruficapilla</i>	Parulidae	Passeriformes	Aves
Wilson's Warbler	<i>Wilsonia pusilla</i>	Parulidae	Passeriformes	Aves
House Sparrow	<i>Passer domesticus</i>	Passeridae	Passeriformes	Aves
Budgerigar	<i>Melopsittacus undulatus</i>	Psittacidae	Passeriformes	Aves
Phainopepla	<i>Phainopepla nitens</i>	Ptilonotidae	Passeriformes	Aves
Ruby-crowned Kinglet	<i>Regulus calendula</i>	Regulidae	Passeriformes	Aves
White-breasted Nuthatch	<i>Sitta carolinensis</i>	Sittidae	Passeriformes	Aves
European Starling	<i>Sturnus vulgaris</i>	Sturnidae	Passeriformes	Aves
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	Sylviidae	Passeriformes	Aves
Western Tanager	<i>Piranga ludoviciana</i>	Thraupidae	Passeriformes	Aves
Wrentit	<i>Chamaea fasciata</i>	Timaliidae	Passeriformes	Aves
Rock Wren	<i>Salpinctes obsoletus</i>	Troglodytidae	Passeriformes	Aves
Bewick's Wren	<i>Thryomanes bewickii</i>	Troglodytidae	Passeriformes	Aves
House Wren	<i>Troglodytes aedon</i>	Troglodytidae	Passeriformes	Aves
Hermit Thrush	<i>Catharus guttatus</i>	Turdidae	Passeriformes	Aves

Common Name	Scientific Name	Family	Order	Class
Swainson's Thrush	<i>Catharus ustulatus</i>	Turdidae	Passeriformes	Aves
Varied Thrush	<i>Ixoreus naevius</i>	Turdidae	Passeriformes	Aves
Townsend's Solitaire	<i>Myadestes townsendi</i>	Turdidae	Passeriformes	Aves
Western Bluebird	<i>Sialia mexicana</i>	Turdidae	Passeriformes	Aves
American Robin	<i>Turdus migratorius</i>	Turdidae	Passeriformes	Aves
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Tyrannidae	Passeriformes	Aves
Western Wood-pewee	<i>Contopus sordidulus</i>	Tyrannidae	Passeriformes	Aves
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	Tyrannidae	Passeriformes	Aves
Hammond's Flycatcher	<i>Empidonax hammondii</i>	Tyrannidae	Passeriformes	Aves
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	Tyrannidae	Passeriformes	Aves
Black Phoebe	<i>Sayornis nigricans</i>	Tyrannidae	Passeriformes	Aves
Say's Phoebe	<i>Sayornis saya</i>	Tyrannidae	Passeriformes	Aves
Western Kingbird	<i>Tyrannus verticalis</i>	Tyrannidae	Passeriformes	Aves
Cassin's Vireo	<i>Vireo cassinii</i>	Vireonidae	Passeriformes	Aves
Warbling Vireo	<i>Vireo gilvus swainsoni</i>	Vireonidae	Passeriformes	Aves
Hutton's Vireo	<i>Vireo huttonii</i>	Vireonidae	Passeriformes	Aves
American White Pelican	<i>Pelicanus erythrorhynchos</i>	Pelecanidae	Pelicaniformes	Aves
Northern Flicker	<i>Colaptes cafer</i>	Picidae	Piciformes	Aves
Acorn Woodpecker	<i>Melanerpes formicivorus</i>	Picidae	Piciformes	Aves
Lewis' Woodpecker	<i>Melanerpes lewis</i>	Picidae	Piciformes	Aves
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	Picidae	Piciformes	Aves
Downy Woodpecker	<i>Picoides pubescens</i>	Picidae	Piciformes	Aves
Hairy Woodpecker	<i>Picoides villosus</i>	Picidae	Piciformes	Aves
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>	Picidae	Piciformes	Aves
Western Grebe	<i>Aechmophorus occidentalis</i>	Podicipedidae	Podicipediformes	Aves
Eared Grebe	<i>Podiceps nigricollis</i>	Podicipedidae	Podicipediformes	Aves
Pie-billed Grebe	<i>Podilymbus podiceps</i>	Podicipedidae	Podicipediformes	Aves
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	Strigidae	Strigiformes	Aves
Great Horned Owl	<i>Bubo virginianus</i>	Strigidae	Strigiformes	Aves
Western Screech Owl	<i>Otus kennicotti</i>	Strigidae	Strigiformes	Aves
Barn Owl	<i>Tyto alba</i>	Tytonidae	Strigiformes	Aves
Mammals - 41 species				
Mule Deer	<i>Odocoileus hemionus</i>	Cervidae	Artiodactyla	Mammalia
Wild Boar	<i>Sus scrofa</i>	Suidae	Artiodactyla	Mammalia

Common Name	Scientific Name	Family	Order	Class
Coyote	<i>Canis latrans</i>	Canidae	Carnivora	Mammalia
Gray Fox	<i>Urocyon cinereoargenteus</i>	Canidae	Carnivora	Mammalia
Red Fox	<i>Vulpes vulpes</i>	Canidae	Carnivora	Mammalia
Opossum	<i>Didelphis marsupialis</i>	Didelphiidae	Carnivora	Mammalia
Mountain Lion	<i>Felis concolor</i>	Felidae	Carnivora	Mammalia
Bobcat	<i>Lynx rufus</i>	Felidae	Carnivora	Mammalia
Striped Skunk	<i>Mephitis mephitis</i>	Mustelidae	Carnivora	Mammalia
Long-tailed Weasel	<i>Mustela frenata</i>	Mustelidae	Carnivora	Mammalia
American Badger	<i>Taxidea taxus</i>	Mustelidae	Carnivora	Mammalia
Raccoon	<i>Procyon lotor</i>	Procyonidae	Carnivora	Mammalia
Black Bear	<i>Ursinus americanus</i>	Ursidae	Carnivora	Mammalia
Mexican Free-tailed Bat	<i>Tadarida brasiliensis</i>	Molossidae	Chiroptera	Mammalia
Pallid Bat	<i>Antrozous pallidus</i>	Vespertilionidae	Chiroptera	Mammalia
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Vespertilionidae	Chiroptera	Mammalia
Big Brown Bat	<i>Eptesicus fuscus</i>	Vespertilionidae	Chiroptera	Mammalia
Western Red Bat	<i>Lasiurus blossevillii</i>	Vespertilionidae	Chiroptera	Mammalia
Hoary Bat	<i>Lasiurus cinereus</i>	Vespertilionidae	Chiroptera	Mammalia
California Myotis	<i>Myotis californicus</i>	Vespertilionidae	Chiroptera	Mammalia
Small-footed Myotis	<i>Myotis ciliolabrum</i>	Vespertilionidae	Chiroptera	Mammalia
Myotis	<i>Myotis volans</i>	Vespertilionidae	Chiroptera	Mammalia
Yuma Myotis	<i>Myotis yumanensis</i>	Vespertilionidae	Chiroptera	Mammalia
Western Pipistrel	<i>Pipistrellus hesperus</i>	Vespertilionidae	Chiroptera	Mammalia
California Mole	<i>Scapanus latimanus</i>	Talpidae	Marsupialia	Mammalia
Beaver	<i>Castor canadensis</i>	Castoridae	Rodentia	Mammalia
California Vole	<i>Microtus californicus</i>	Cricetidae	Rodentia	Mammalia
Dusky-footed Woodrat	<i>Neotoma fuscipes</i>	Cricetidae	Rodentia	Mammalia
Brush mouse	<i>Peromyscus boylei</i>	Cricetidae	Rodentia	Mammalia
California mouse	<i>Peromyscus californicus</i>	Cricetidae	Rodentia	Mammalia
Deer mouse	<i>Peromyscus maniculatus</i>	Cricetidae	Rodentia	Mammalia
Pinon Mouse	<i>Peromyscus truei</i>	Cricetidae	Rodentia	Mammalia
Western Harvest Mouse	<i>Reithrodontomys megalotis</i>	Cricetidae	Rodentia	Mammalia
Valley Pocket Gopher	<i>Thomomys bottae</i>	Geomyidae	Rodentia	Mammalia

Common Name	Scientific Name	Family	Order	Class
California Pocket Mouse	<i>Chaetodipus californicus</i>	Heteromyidae	Rodentia	Mammalia
Blacktail Jackrabbit	<i>Lepus californicus</i>	Leporidae	Rodentia	Mammalia
Desert Cottontail	<i>Sylvilagus auduboni</i>	Leporidae	Rodentia	Mammalia
Brush Rabbit	<i>Sylvilagus bachmani</i>	Leporidae	Rodentia	Mammalia
California Ground Squirrel	<i>Spermophila beecheyi</i>	Sciuridae	Rodentia	Mammalia
Merriam's Chipmunk	<i>Eutamias merriami</i>	Sciuridae	Rodentia	Mammalia
Western Gray Squirrel	<i>Sciurus griseus</i>	Sciuridae	Rodentia	Mammalia
Reptiles - 16 species				
Southern Alligator Lizard	<i>Elgaria multicarinatus</i>	Anguidae	Squamata	Reptilia
Silvery Legless Lizard	<i>Aniella pulchra pulchra</i>	Anniellidae	Squamata	Reptilia
Western Yellow-bellied Racer	<i>Coluber constrictor latrunculus</i>	Colubridae	Squamata	Reptilia
Ringneck Snake	<i>Diadophis punctatus</i>	Colubridae	Squamata	Reptilia
Night Snake	<i>Hypsiglena torquata</i>	Colubridae	Squamata	Reptilia
California Kingsnake	<i>Lampropeltis getulus californiae</i>	Colubridae	Squamata	Reptilia
California Whipsnake	<i>Masticophis lateralis lateralis</i>	Colubridae	Squamata	Reptilia
Gopher Snake	<i>Pituophis melanoleucus</i>	Colubridae	Squamata	Reptilia
California Red-sided Garter Snake	<i>Thamnophis sirtalis infernalis</i>	Colubridae	Squamata	Reptilia
Coast Horned Lizard	<i>Phrynosoma coronatum frontale</i>	Iguanidae	Squamata	Reptilia
Western Fence Lizard	<i>Sceloporus occidentalis</i>	Iguanidae	Squamata	Reptilia
Side-blotched Lizard	<i>Uta stansburiana elegans</i>	Iguanidae	Squamata	Reptilia
Western Skink	<i>Eumeces skiltonianus</i>	Scincidae	Squamata	Reptilia
Western Whiptail	<i>Cnemidophorus tigris mundis</i>	Teiidae	Squamata	Reptilia
Southern Pacific Rattlesnake	<i>Crotalus viridis helleri</i>	Viperidae	Squamata	Reptilia
Southwestern Pond Turtle	<i>Clemmys marmorata pallida</i>	Emydidae	Testudines	Reptilia
Amphibians - 9 species				

Common Name	Scientific Name	Family	Order	Class
Arboreal Salamander	<i>Aneides lugubris</i>	Plethodontidae	Caudata	Amphibia
Black-bellied Slender Salamander	<i>Batrachoseps nigriventris</i>	Plethodontidae	Caudata	Amphibia
Monterey Ensatina	<i>Ensatina eschscholtzi eschscholtzi</i>	Plethodontidae	Caudata	Amphibia
Coast Range Newt	<i>Taricha torosa torosa</i>	Salamandridae	Caudata	Amphibia
California (Western) Toad	<i>Bufo boreas halophilus</i>	Bufoidea	Salientia	Amphibia
Pacific Chorus Frog	<i>Pseudacris regilla</i>	Hylidae	Salientia	Amphibia
Western Spadefoot Toad	<i>Scaphiopus hammondi</i>	Pelobatidae	Salientia	Amphibia
California Red-legged Frog	<i>Rana aurora draytonii</i>	Ranidae	Salientia	Amphibia
Bullfrog	<i>Rana catesbeiana</i>	Ranidae	Salientia	Amphibia
Fish - 12 species				
Mosquito Fish	<i>Gambusia affinis</i>	Poeciliidae	Atheriniformes	Osteichthyes
Sacramento Sucker	<i>Catostomus occidentalis</i>	Catostomidae	Cypriniformes	Osteichthyes
Common Carp	<i>Cyprinus carpio</i>	Cyprinidae	Cypriniformes	Osteichthyes
Monterey Roach	<i>Hesperoleucus symmetricus</i> ssp. <i>subditus</i>	Cyprinidae	Cypriniformes	Osteichthyes
Sacramento Squawfish	<i>Ptychocheilus grandis</i>	Cyprinidae	Cypriniformes	Osteichthyes
Speckled Dace	<i>Rhinichthys osculus</i>	Cyprinidae	Cypriniformes	Osteichthyes
Three-spine Stickleback	<i>Gasterosteus aculeatus</i>	Gasterosteidae	Gasterostieformes	Osteichthyes
Green Sunfish	<i>Lepomis cyanellus</i>	Centrarchidae	Perciformes	Osteichthyes
Bluegill	<i>Lepomis macrochirus</i>	Centrarchidae	Perciformes	Osteichthyes
Large Mouth Bass	<i>Micropterus salmoides</i>	Centrarchidae	Perciformes	Osteichthyes
Steelhead	<i>Oncorhynchus mykiss</i>	Salmonidae	Salmoniformes	Osteichthyes
Black Bullhead	<i>Ictalurus melas</i>	Ictaluridae	Siluriformes	Osteichthyes
Crustaceans - 2 species				
California Linderiella	<i>Linderiella occidentalis</i>	Linderiellidae	Anostraca	Crustacea
Crayfish	<i>Pacifastacus</i> sp.	Astacidae	Decapoda	Crustacea

APPENDIX A. Definitions of Special Status Species

Federal And State Definitions Of Special Status Species¹¹

Federal

Endangered: Any species which is in danger of extinction throughout all or a significant portion of its range.

Threatened: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Candidate: Taxa for which the Service currently has sufficient information on biological vulnerability and threats on hand to support the issuance of a proposed rule to list, but issuance of the proposed rule is precluded.

Species of Concern(C1): Former Category 1 Candidate, now considered a "Species of Concern". Taxa which should be given consideration during planning for projects.

Species of Concern(C2): Former Category 2 Candidate, now considered a "Species of Concern". Taxa which should be given consideration during planning for projects.

Proposed: Taxa for which a general notice has been published in a local newspaper and a proposed rule for listing has been published in the Federal Register.

Federal Sensitive Species: Taxa designated by the BLM or the US Forest Service as sensitive species.

FS = full species

State

Endangered: A native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.

Threatened: A native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an

¹¹ Definitions from California Resources Agency. 1996.
http://ceres.ca.gov/wetlands/geo_info/so_cal/terms_definitions.html#TERMS
accessed June 13, 2003, last modified January 15, 1998.

endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. (Chapter 1.5 of the California Fish and Game Code.)

Rare: A species, subspecies, or variety is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens.

Candidate: A native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.

Species of Special Concern: Native species or subspecies that have become vulnerable to extinction because of declining population levels, limited ranges, or rarity. The goal is to prevent these animals from becoming endangered by addressing the issues of concern early enough to secure long term viability for these species.

Element Ranking

California NDDB Codes

Each plant is given a number based on its taxonomy and accession into the natural diversity database (NDDB).

Question marks following the code indicate a question regarding the status of the threat of endangerment.

Global Ranking

G1 = less than 6 viable element occurrences (EO's), OR less than 1,000 individuals, OR less than 2,000 acres

G2 = 6-20 EO's OR 1,000-3,000 individuals OR 2,000-10,000 acres

G3 = 21-100 EO's OR 3,000-10,000 individuals OR 10,000-50,000 acres

G4 = apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat

G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

State Ranking

(Same as Global ranking, plus threat designation attached to the S-rank)

S1 = less than 6 viable element occurrences (EO's), OR less than 1,000 individuals, OR less than 2,000 acres

S1.1 = very threatened

S1.2 = threatened

S1.3 = no current threats known

S2 = 6-20 EO's OR 1,000-3,000 individuals OR 2,000-10,000 acres

S2.1 = very threatened

- S2.2 = threatened
- S2.3 = no current threats known
- S3 = 21-100 EO's OR 3,000-10,000 individuals OR 10,000-50,000 acres
 - S3.1 = very threatened
 - S3.2 = threatened
 - S3.3 = no current threats known
- S4 = apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat. NO THREAT RANK.
- S5 = Population or stand demonstrably secure to ineradicable in California. NO THREAT RANK.

California Native Plant Society's (CNPS) Lists and R-E-D Code (Rarity - Endangerment - Distribution)

- 1A = Presumed extinct in California
- 1B = Rare or Endangered in California and elsewhere
- 2 = Rare or Endangered in California, more common elsewhere
- 3 = Plants for which we need more information – review list
- 4 = Plants of limited distribution = Watch list

R (Rarity)

- 1 Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time
- 2 Distributed in a limited number of occurrences, occasionally more if each occurrence is small
- 3 Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported.

E (Endangerment)

- 1 Not endangered
- 2 Endangered in a portion of its range
- 3 Endangered throughout its range

D (Distribution)

- 1 More or less widespread outside California
- 2 Rare outside California
- 3 Endemic to California

APPENDIX B – Report to USFWS for Fairy Shrimp

Prepared by Julie Thomas, fairy shrimp expert.

Julie Thomas
551 Norwich Avenue, Morro Bay CA 93442 805-772-8290
jthomas56@charter.net

June 5, 2003

Ms. Diane K. Noda
U.S. Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003

Re: 90-day report for reconnaissance fairy shrimp survey at Santa Margarita Ranch, San Luis Obispo County, CA. (Permit Number TE-834492-2)

Dear Ms. Noda:

This letter and the attached documents constitute the 90-day report for the reconnaissance-level fairy shrimp surveys conducted at Santa Margarita Ranch (SMR) in San Luis Obispo County (Figure 1) during the period January 30 through April 9, 2003. This survey was authorized on January 29, 2003, by the USFWS Ventura Field Office.

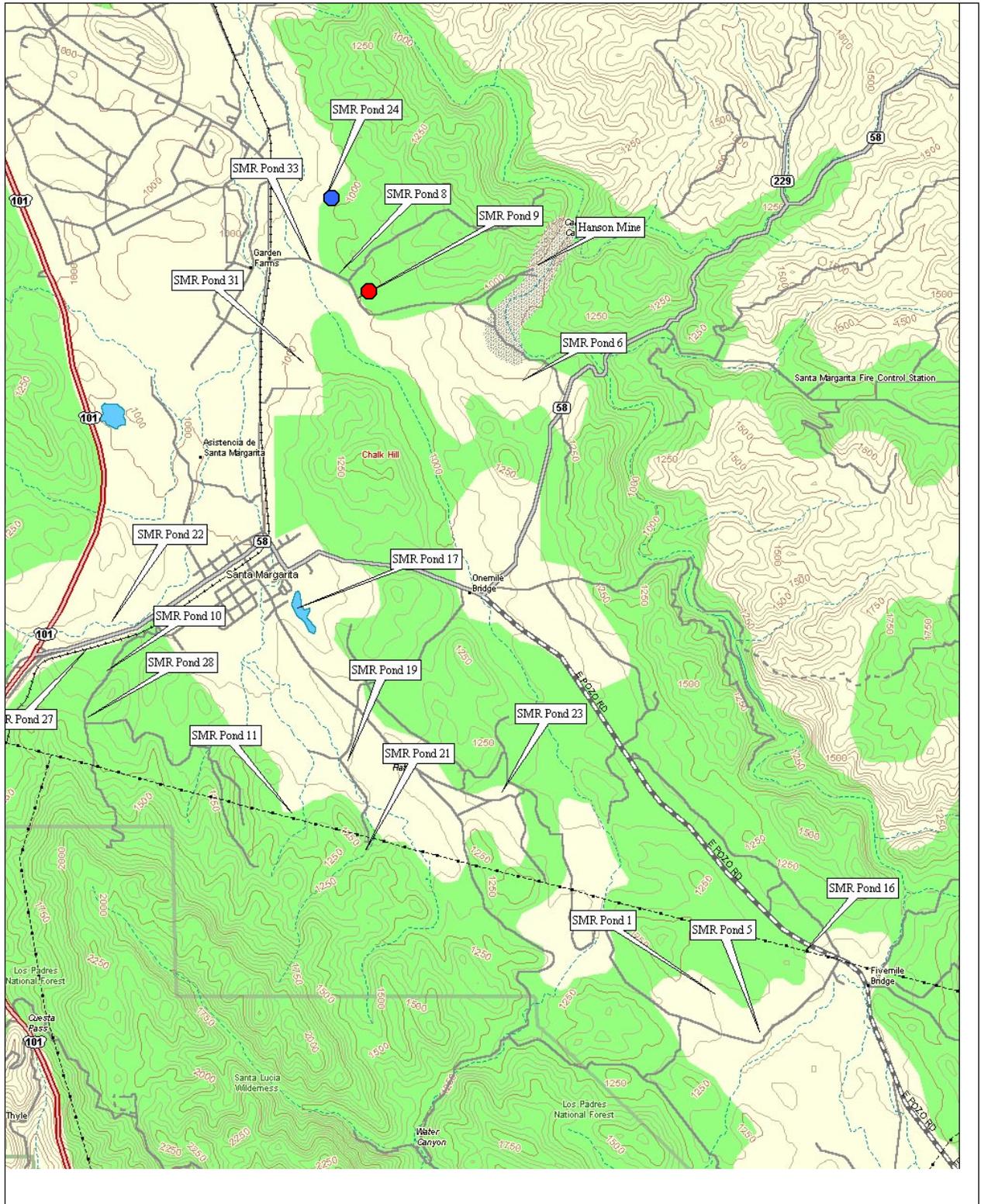
Between January 30 and April 9, 2003, I sampled 19 SMR seasonal pools and cattle ponds for listed species of fairy shrimp (Figure 2). Pools sampled on April 9 were primarily pools which had been newly re-filled by late season rains. The attached field data sheets provide the detailed sampling results for each pool. No listed species of fairy shrimp were observed in any of the pools. However, *Linderiella occidentalis* were found in SMR pond #9 (Figure 3), and immature fairy shrimp tentatively identified as *L. occidentalis* were observed on April 9 in SMR pond #24 (Figures 4 and 5).

Voucher specimens of *L. occidentalis* were collected at SMR pond #9. Because of the pool's small size and low fairy shrimp population at the time of sampling, I collected the minimum number of individuals required for voucher specimens (section IV.c.5, Interim Guidelines): 3 males and 3 females. These voucher specimens will be submitted to the California Academy of Sciences Department of Invertebrate Zoology and Geology, Golden Gate Park, San Francisco, CA. An NDDB report of this occurrence of *L. occidentalis* was prepared by Jason Dart of Althouse and Meade, and sent to the California Department of Fish and Game.

Because the fairy shrimp observed at SMR pond #24 were immature, with very few gravid females, no voucher specimens were collected. Based on characteristics visible in the field with a hand lens, these fairy shrimp were tentatively identified as *L. occidentalis*. This pond was subsequently visited on April 16 in hopes that the fairy shrimp would have matured to the point that they could be conclusively identified. However, despite rainfall during the intervening days, this pool was completely dry when visited on April 16.

Additional photographs of sampled seasonal pools are provided in Figures 6-8. Copies of field data sheets are included as Attachment 1.

Figure 2. Locations of all sampled SMR ponds. Red dot indicates location where *Linderiella occidentalis* were observed February 10, 2003. Blue dot indicates pond where immature fairy shrimp were observed on April 9, 2003.



SMR Pond #9. *Linderiella occidentalis* were observed here on February 10, 2003. This pool is located on rolling hills within oak savannah. It was created by a road berm built across a natural swale. The gravel road is located to the right of the pond as pictured in the photograph.



SMR Pond #24 as it appeared on April 9 (top picture), when immature fairy shrimp were observed in the small portion of the pool with ponded water of a depth greater than 3 cm (bottom picture). This pond is located at the base of a swale in low rolling hills in an oak savannah community.



SMR Pond #1. A former cattle pond, now in the midst of vineyards.



SMR Pond #11, a heavily used cattle pond.



Pond #	A.K.A. Names	Survey Date	Surveyors
Pond 1	Cattle Pond in Phase I Vineyard	1/30/2003	Julie Thomas & Jason Dart
Pond 5	Frogpond Wetland	1/30/2003	Julie Thomas & Jason Dart
Pond 8	1st pond on quarry access road	2/10/2003	Julie Thomas & Jason Dart
Pond 6	Quarry cattle Pond	2/10/2003	Julie Thomas & Jason Dart
Pond 9	<i>Linderiella occidentalis</i> Pond	2/10/2003	Julie Thomas & Jason Dart
Pond 11	Foothills Pond	2/10/2003	Julie Thomas & Jason Dart
Pond 16	Stagecoach Pond	1/30/2003	Julie Thomas & Jason Dart
Pond 17	Pond behind town (Town Pond)	1/30/2003	Julie Thomas & Jason Dart
Pond 19	Vernal Pond	1/30/2003	Julie Thomas & Jason Dart
Pond 21	Tree Pond	1/30/2003	Julie Thomas & Jason Dart
Pond 22	S.Margarita Creek Vernal pond (NW of town)	2/10/2003	Julie Thomas & Jason Dart
Pond 23	Phase II Wetland	1/30/2003	Julie Thomas & Jason Dart
Pond 24	Parcel D, natural ephemeral wetland – juvenile fairy shrimp	4/9/2003	Julie Thomas & Jason Dart
Pond 27	Railroad Pond	4/9/2003	Julie Thomas & Jason Dart
Pond 28	Kiln Area Pond	4/9/2003	Julie Thomas & Jason Dart
Pond 31	Oil Tank Wetland Pond	4/9/2003	Julie Thomas & Jason Dart
Pond 33	1st pond on Hanson Mine Access Rd	4/9/2003	Julie Thomas & Jason Dart

APPENDIX C – NDDDB Reports

Reports Submitted to the California Natural Diversity Database by Althouse and Meade, Inc.

(The digital version of the report does not include copies of the NDDDB record forms)

Common Name	Scientific Name	CNDDDB Rank	Status	Number of Records Submitted
Crustacean				
California Linderiella	<i>Linderiella occidentalis</i>	G2G3S2S3	none	3
Reptiles and Amphibians				
Coast Range Newt	<i>Taricha torosa torosa</i>	G5T4S3	DFG: CSC	3
California Red-legged Frog	<i>Rana aurora draytonii</i>	G4T2T3S2S3	Federally Threatened DFG: CSC	5
Western Spadefoot Toad	<i>Scaphiopus hammondii</i>	G3?S3?	DFG: CSC BLM: Sensitive	1
Southwestern Pond Turtle	<i>Clemmys marmorata pallida</i>	G3G4T2T3QS2	DFG: CSC FS: Sensitive BLM: Sensitive	19
Silvery Legless Lizard	<i>Aniella pulchra pulchra</i>	G3G4T3T4QS3	DFG" CSC	1
Birds				
Ferruginous Hawk	<i>Buteo regalis</i>	G4S3S4	DFG: CSC Audubon: Watch List FWS: BCC BLM: Sensitive	2
White-tailed Kite	<i>Elanus leucurus</i>	G5S3	DFG: Fully Protected FWS: MNBMC	2
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	G5S2	PRBO: 2nd Priority List	1
Lark Sparrow	<i>Chondestes grammacus</i>	G5S?	none	3
Lawrence's Goldfinch	<i>Carduelis lawrencei</i>	G3G4S3	USBC: Watch List FWS: BCC Audubon: Watch List	1
Purple Martin	<i>Progne subis</i>	G3S3	DFG: CSC PRBO: 1st Priority List	1
Loggerhead Shrike	<i>Lanias ludovicianus</i>	G4S4	DFG: CSC FWS: BCC PRBO: 2nd Priority List	1
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	none	No longer listed	1

Common Name	Scientific Name	CNDDB Rank	Status	Number of Records Submitted
Mammals				
Pallid Bat	<i>Antrozous pallidus</i>	G5S3	CSC. FS: Sensitive BLM: Sensitive, WBWG: high priority	1
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	G4T3T4S2S3	CSC. FS: Sensitive BLM: Sensitive, WBWG: high priority	1
American Badger	<i>Taxidea taxus</i>	G5S4	DFG: CSC	1
Plants				
Santa Lucia Manzanita	<i>Arctostaphylos luciana</i>	G2S2.2	List 1B RED code 2-2-3	1
La Panza Mariposa Lily	<i>Calochortus simulans</i>	G3S2.3	List 1B RED code 2-1-3	1
San Luis Obispo Morning Glory	<i>Calystegia subacaulis</i> <i>ssp. episcopalis</i>	G3T1S1.2	List 1B RED code 3-2-3	1
Obispo Indian Paintbrush	<i>Castilleja densiflora</i> <i>ssp. obispoensis</i>	G5T2S2.2	List 1B RED code 2-2-3	1
Straight-awned Spineflower	<i>Chorizanthe rectispina</i>	G1S1.2	List 1B RED code 3-1-3	1
San Luis Obispo County Lupine	<i>Lupinus ludovicianus</i>	G2S2.2	List 1B RED code 3-2-3	1
Paso Robles Navarretia	<i>Navarretia jaredii</i>	G3S3.3	List 4 RED code 1-1-3	7
Michael's Rein Orchid	<i>Piperia michaelii</i>	G3?S3.3	List 4 RED code 1-2-3	1
Caper-fruited Tropicocarpum	<i>Tropicocarpum capparideum</i>	G1 S1.1	List 1B RED code 3-3-3	1