HABITAT MANAGEMENT PLAN FOR SPECIES ENRICHMENT OF LOWER BRIZZIOLARI CREEK, SAN LUIS OBISPO, CALIFORNIA



Prepared for:

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1.0 INTRODUCTION

This document represents the habitat management plan for the lower portion of Brizziolari Creek located in San Luis Obispo, CA (hereinafter referred to as the "Plan"). The purpose of the Plan is to provide a comprehensive overview of the procedures and management guidelines required to enhance lower Brizziolari Creek for overall species enrichment.

As part of this Plan a series of site visits were conducted through the study area in effort to obtain existing baseline conditions and identify areas of concern and/or limiting factors for species enrichment. Based on the results of these surveys, literature reviews, and consultation with area professionals, this Plan provides the following:

- A description of the site and environmental setting;
- A description of existing wildlife habitats/plant communities;
- A complete list of vertebrate species identified during surveys, and a list of potentially occurring species in the study area based on the presence of suitable habitat;
- A discussion of selected special-status species with the potential to occur in the study area and their characteristics/life history;
- An inventory of the available wildlife habitat;
- An analysis of the existing conditions; and,
- An overview of the recommended management guidelines which will serve to improve the existing habitat for overall species enrichment.

1.1 SITE LOCATION

The study area is situated along the lower segment of Brizziolari Creek located along the western perimeter of California Polytechnic State University of San Luis Obispo, CA (Cal Poly). The study area is bordered to the north by Highland Drive, which represents the primary access road to the western portion of Cal Poly and to the east by the Union Pacific railroad. To the south, the study area is bound by several student-housing complexes and to the west by Stenner Creek (refer to Figure 1 – Site Location Map).

1.2 SITE DESCRIPTION

Brizziolari Creek is an intermittent stream that descends from the Santa Lucia foothills through Poly Canyon traversing the northern perimeter of Cal Poly to the Union Pacific railroad crossing. At that point it flows subsurface through a triple, concrete box culvert located beneath Highland Drive. The creek re-emerges flowing south through the study area toward Stenner Creek. The center box culvert is equipped with a series of concrete water baffles and a set of water wier/fish ladders located at the culvert inlet. Brizziolari Creek serves as a primary tributary to Stenner Creek, which represents a substantial portion of the San Luis Obispo Creek watershed. Brizziolari Creek intersects Stenner Creek approximately 700 feet south of the study area.

1.3 SURROUNDING LAND USES

The primary land use existing along the perimeter of Brizziolari Creek and the study area is agriculture. Cal Poly's Crop Science Department takes advantage of the rich, alluvial soils existing within the relatively flat areas adjacent to Brizziolari and Stenner Creeks for teaching and research. As such, there are three different crops that are currently being grown directly adjacent to the study area. These three crops are citrus, avocados, and alfalfa. There are also several different pesticides that are being applied within these crop areas. Within the avocado orchards there are two pests that get sprayed twice a year by two different pesticides. The two insects are Persia mites and avocado thrips. For persia mites, a pesticide called "Success" is applied and for avocado thrips, a pesticide called "Veratran-D" is applied. Both of these pesticides are applied twice a year, once in early May and the other in early Fall, depending on the expected harvest date. The other pesticide that is commonly used within these crops is "Pyrethrin". This pesticide is used in all of the citrus trees to control green house thrips. There are also two applications of Pyrethrin sprayed on the citrus per year. Another spray that is applied is a fungicide called "Champ". Champ is utilized to prevent brown rot in citrus orchards. This fungicide is applied once a year during November or December (McNeil, personal communication, November 2001).

There are two herbicides that also are applied in all three of the crops. They are "Round Up" and ammonium sulfate. Both of these herbicides are sprayed as needed and the majority of the time they are only spot sprayed. Spot spraying is a practice that is used to be more effective with chemical application. It means that only the weeds that appear get sprayed, they do not spray the entire orchard rows. The only fertilizer that is currently being applied to the adjacent crop areas is ammonium nitrate, which enhances growth and vigor in the crops. The irrigation water and fertilizers are applied through a mini-sprinkler system. The crops are irrigated one to two times per week for an approximate 24-hour period (McNeil, personal communication, November 2001).

Approximately 3,000 feet upstream of the study area exist several other agriculturally based facilities referred to as the Cal Poly Bull Test Area and the Cal Poly Feed Mill. The Cal Poly Feed Mill is located approximately 100 feet south of Brizziolari Creek and is used to process and distribute cattle feed (i.e., hay bails). The Bull Test Area is located directly north of Brizziolari Creek and is used to house large numbers of cattle. The most substantial upstream impacts associated with these facilities are sedimentation/siltation of the nearby creek and the heavy concentration of cattle waste (i.e., feces). Nitrates and colliform bacteria are commonly associated with cattle feces and have the potential to percolate directly through the shallow soils into groundwater or can be transported in heavy concentrations within storm water runoff during the wet season.

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SOURCE: USGS, SAN LUIS OBISPO, CA QUADRANGLE, 1965, PHOTOREVISED 1994.

SITE LOCATION MAP FIGURE 1 In addition to the existing agricultural operations occurring upstream and directly adjacent to the study area, there are also urban facilities associated with Cal Poly's campus that exist within close vicinity to Brizziolari Creek. These include various university buildings, athletic fields, and parking areas. Additionally, the Union Pacific Railroad is located within close vicinity to the study area.

The impacts of the ongoing agricultural operations and urban facilities located directly adjacent to the study area and the potential nutrient and bacteria loading occurring upstream from cattle operations represent a hazard to wildlife species that inhabit the downstream portions of Brizziolari Creek and the study area.

2.0 BIOLOGICAL DATA

In preparation of this Plan, a thorough review of the California Department of Fish and Game's (CDFG) California Natural Diversity Data Base (CNDDB) was conducted to identify known and reported occurrences of special-status animal species within the vicinity of the study area (CNDDB, 2001). In addition, vegetation/habitat types were classified based on the California Native Plant Society's (CNPS) *Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995), and CDFG's List of California Terrestrial *Natural Communities Recognized by the Natural Diversity Data Base* (CDFG, 1999).

2.1 HABITAT COMMUNITIES

The study area contained the following two major plant communities/habitat types: California Sycamore-Coast Live Oak Riparian Woodland, and Coastal and Valley Freshwater Marsh. The occurrence and composition of each of the natural habitat types observed is discussed below.

California Sycamore-Coast Live Oak Riparian Woodland. California Sycamore-Coast Live Oak Riparian Woodland is defined as moderately closed broadleafed riparian forests dominated by California sycamore (Platanus racemosa) and coast live oak (Quercus agrifolia). This habitat type represents the dominant vegetative cover existing along lower Brizzziolari Creek and the study area (see Figure 2 - Plant Community Map). In addition, this community occurred within portions of Stenner Creek located directly west of the study area. California Sycamore-Coast Live Oak Riparian Woodland is dominated by California sycamore with lesser amounts of coast live oak present along the upper slopes and perimeter of the creek banks. Other commonly observed tree and shrub species included arroyo willow (Salix lasiolepis), red willow (Salix laevigata), California black walnut (Juglans californica), toyon (heteromeles arbutifolia), California bay (Umbellularia californica), and lesser amounts of scrub oak (Quercus berberidifolia). In addition, several non-native tree and shrub species were observed in relatively large numbers throughout the California Sycamore-Coast Live Oak These included English walnut (Juglans regia), pepper tree Riparian Woodland. (Schinus molle), tree tobacco (Nicotiana glauca), date palm (Phoenix dactylifera), yucca (*Yucca spp.*), pyracantha (*Pyracantha angustifolia*), olive (*Olea europaea*), and avocado (*Persea spp.*). These non-native species appeared to have been introduced by adjacent and upstream agricultural land uses.

Plant species composition within the understory of the California Sycamore-Coast Live Oak Riparian Woodland consisted primarily of California rose (*Rosa californica*), coffee berry (*Rhamnus californica*), blackberry (*Rubus vitifolia*), white nightshade (*Solanum douglassi*), poison oak, (*Toxicodendron diversilobum*), stinging nettle (*Urtica dioica*), mugwort (*Artemisia douglasiana*), California sagebrush (*Artemisia californica*), monkeyflower (*Mimulus aurantiacus*), coyote brush (*Baccharis pilularis var. consanguinea*), nutsedge (*Cyperus spp.*), common horsetail (*Equisetum spp.*), and water cress (*Rorippa nasturtium-aquaticum*). Both blackberry and poison oak represented the dominant native understory in portions of the corridor, occasionally forming dense mats along the stream banks. Nutsedge, common horsetail, and water cress were observed in association with the wetted perimeter of the stream channel. Whereas, coyote brush, California sagebrush and monkey flower were observed in association with mature coast live oaks located along the western terrace of the stream bank.

Other species occurring as understory along the stream corridor included an assortment of non-native species, including castor bean (*Ricinus communis*), German ivy (Senecio mikanioides), English ivy (*Hedera helix*), kikuyugrass (*Pennisetum clandestinum*), common sow thistle (*Sonchus oleraceus*), curly dock (*Rumex crispus*), yellow star thistle (*Centaurea solstitialis*), smilo grass (*Piptatherum milliaceum*), and annual beard grass (*Polypogon monspeliensis*). German ivy, English ivy, kikuyugrass and other non-natives grasses and perennials represent the dominant understory within the majority of the study area. In some instances, German ivy was observed completely smothering and/or choking out native shrubs and trees. In addition, kikuyugrass has formed a dense, homogenous mat over the southeastern bank of the study area.

Coastal and Valley Freshwater Marsh. Coastal and Valley Freshwater Marsh is characterized by perennial, emergent monocots, often forming closed canopies reaching heights of 4 to 5 meters. This plant community primarily occurred at the outlet of the concrete box culvert structure located at the northern portion of the study area (see Figure 2 – Plant Community Map), and was dominated by common cattail (*Typha latifolia*) with a frequent occurrence of arroyo willow. Other species observed in association with habitat type included white nightshade, coffee berry, mugwort, poison oak, nutsedge, common horsetail, plantain (*Plantago spp.*), and California everlasting (*Gnaphalium spp.*).

The primarily disturbed slopes and stream channel adjacent to the Coastal and Valley Freshwater Marsh habitat was inundated with a variety non-native species. Species observed within the disturbed portions of this habitat included, tree tobacco, prickly lettuce (*Lactuca serriola*), annual beard grass, fennel (*Foeniculum vulgare*) bindweed (*Convolvulus arvensis*), common vetch (*Vicia spp.*), smilo grass, curly dock,



Image Source: Crawford, Multari & Clark Associates, 2001.

PLANT COMMUNITY MAP FIGURE 2

cocklebur (*Xanthium spp.*), Bermuda grass (*Cynodon dactylon*), horseweed (*Conyza canadensis*), white sweetclover (*Melilotus alba*), black mustard (*Brassica nigra*), and several annual grass species including wild oats (*Avena fatua*), and ripgut brome (*Bromus diandrus*). In addition, there were several English walnut saplings observed growing along the banks near this habitat area.

Agriculturally Productive Areas. As discussed in the previous section, existing land uses adjacent to the study area consist of agriculture. Currently, there are several avocado and citrus orchards as well as active alfalfa fields located along the perimeter of the creek corridor. Refer to Figure 2 – Plant Community Map.

2.1.1 Habitat Inventory

During the field surveys of the study area several measurements were taken to obtain a general estimate of the extent of available habitat. Specifically, the width of the California Sycamore-Coast Live Oak Riparian Woodland was measured with a cloth tape at four different areas, designated as cross-sections A, B, C, and D (see Figure 2 - Plant Communities Map). In addition, measurements of the stream channel, water depth, and canopy closure were obtained at each location. The following Table 2-1 provides an overview of the data collected:

Stationa	Width of Corridor	Width of Channel	Water Depth	Canopy
Stations	(feet)	(feet)	(inches)	Closure
Α	81	8	3	100%
В	75	10	8	50%
C	97.5	9.5	12	100%
D	117	19	11	100%
Average	92.5	11.6	8.5	87.5%

Table 2-1 – Field Measurement Data

As indicated in Table 2-1, the width of the riparian corridor averages approximately 93 feet. In addition, the mature California sycamores and coast live oaks formed a primarily closed canopy throughout the study area. The density of the canopy cover is observable in Figure 2 – Plant Community Map. Unfortunately, the stream channel throughout the study area appeared relatively disturbed due to the dominance of non-native plant species, steeply incised and eroded stream banks, silt and sedimentation within the pools, and multiple occurrences of trash debris from upstream and adjacent land uses.

2.2 WILDLIFE OF STUDY AREA

2.2.1 Results of Terrestrial Vertebrate Surveys

Although the project site has been partially disturbed by agriculture and upstream land uses, the intermittent stream corridor of lower Brizziolari Creek does provide valuable habitat for a variety of wildlife. Observed wildlife species included those seen or detected by track, scat, burrows or voice during three subsequent field surveys conducted within the months of October and November 2001.

Fish. During the surveys, the stream channel contained flowing water, which appeared to be fed partially by subsurface flow (i.e., spring fed). The stream flow created multiple riffles and several large pools along exposed bedrock formations throughout the study area. As indicated in Table 2-1, the average water depth within the stream channel was 8.5 inches. In several of the pools, numerous south-central California coast steelhead (*Oncorhynchus mykiss*) were observed. Steelhead age classes ranged from juvenile (4 to 6 inches in length) to young of the year (2 to 4 inches in length).

Amphibians and Reptiles. As discussed above, there was flowing water observed within the stream channel during the surveys. In addition, there were several deep pools present within the study area. However, amphibians identified during the survey were limited to Pacific chorus frog (*Pseudacris regilla*). Multiple adult Pacific chorus frogs were observed along the perimeter of stream channel during the surveys. Reptiles observed during the survey were limited to fence lizards (*Sceloporus occidentalis*) located along the stream banks of the study area.

Birds. The majority of the bird activity observed during the surveys was focused along the interface of the Brizziolari Creek riparian corridor and adjacent alfalfa fields. Birds observed consisted of turkey vulture (*Cathartes aura*), American crow (*Corvus brachyrhynchos*), Say's phoebe (*Sayornis saya*), black phoebe (*Sayorinis nigricans*), western bluebird (*Sialia mexicana*), yellow-rumped warbler (*Dendroica coronata*), (house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), Stellar's jay (*Cyanocitta stelleri*), western scrub jay (*Aphelocoma californica*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), European starling (*Acridotheres cristatellus*), common bushtit (*Psaltriparus minimus*), northern flicker (*Colaptes auratus*), nutmeg mannikin (*Lonchura punctulata*), Cooper's hawk (*Accipiter cooperii*), red-shouldered hawk (*Buteo jamaicensis*). The Cooper's hawk was found dead on a slope within the northernmost portion of the study area (i.e., adjacent to the box culvert).

Mammals. Mammals observed during the field survey were limited to California ground squirrel (*Spermophilus beecheyi*), western gray squirrel (*Sciurus griseus*), domestic cat (*Felis domestica*), and one dead mule deer (*Odocoileus hemionous*). In addition, multiple raccoon (*Procyon lotor*) tracks and scat were present within the study area during the survey. The majority of raccoon scat was concentrated along the stream banks on downed logs and boulders. The dead mule deer was identified along the southeastern portion of the stream channel.

2.2.2 Potential Terrestrial Vertebrates of Study Area

A comprehensive list of vertebrate species that have the potential to inhabit lower Brizziolari Creek has been developed as part of this Plan (refer to Appendix A – Vertebrate Species List). The list is based on research of the CNDDB, vertebrates observed during site surveys, and the presence of suitable habitat. It should be noted that the majority of the species listed have the potential to occur in the area only for short periods during seasonal migrations (i.e., migratory birds).

2.2.3 Special-Status Wildlife Species of Study Area

Special-status wildlife species are animals that are listed as endangered or threatened under the Federal or California Endangered Species Act, or considered rare (but not legally listed) by resource agencies, professional organizations, and the scientific community. For the purposes of this management Plan, several of the special-status species that have been identified during field surveys and/or have the potential to occur on-site are discussed below.

South-Central California Coast Steelhead (*Oncorhynchus mykiss***).** Steelhead is an anadromous form of rainbow trout, meaning it reproduces in freshwater, but spends much of its life cycle in the ocean, where greater prey density provides a greater growth rate and size. Steelhead have been divided into 15 evolutionary significant units (ESU) based on similarity in life history, location, and genetic markers. The south-central California coast ESU includes all populations from Monterey and Watsonville in the north to the Santa Maria River in the south. The south-central California coast ESU was listed as threatened by the National Marine Fisheries Service (NMFS) in August 1997. As stated above, multiple juvenile steelhead were observed in the stream channel during the survey.

California Red Legged Frog (*Rana aurora draytonii***).** The California redlegged frog is a federally listed threatened species that can be found within a variety of aquatic habitats consisting of streams, creeks, ponds, marshes, lagoons, and estuaries (USFWS, 2001). The typical breeding season for the California red-legged frog occurs from November through March, but earlier breeding has been recorded in southern localities (Stebbins 1985). Breeding adults are often associated with dense, shrubby riparian or emergent vegetation and areas with deep (>0.7 meter) still or slow-moving water (Jennings 1988). At any time of the year, juvenile and adult California red-legged frogs may move from breeding sites. They can be encountered occupying streams at distances exceeding three kilometers (1.8 miles) from the breeding site and have been found up to 30 meters (100 feet) from water in adjacent riparian vegetation for up to 77 days (USFWS, 2001). However, the importance of riparian vegetation for the California red-legged frog and the manner in which this species uses upland habitats is not well understood and is currently under study. Although, no California red-legged frogs were identified during the field surveys, suitable habitat for this species exist upstream of the study area within the more pristine reaches of Brizziolari Creek. Additionally, there were reportings in 1998 of California red-legged frogs occurring approximately 1.4 km east of Cal Poly in Miossi Creek (CNDDB, 2001).

Southwestern Pond Turtle (Clemmys marmorata pillida). The southwestern pond turtle is a CDFG State Protected Species and a State Species of Special Concern. Currently the southwestern pond turtle has no federal status (Goodman, 1997). A petition for federal endangered listing was submitted in January of 1992, but on August 4, 1993, the United States Fish and Wildlife Service (USFWS) found that the listing was not warranted because the species was not in danger of extinction at that time (Goodman 1997). The Southwestern pond turtle can be found throughout southern and central California. Their habitat preferences include areas containing either permanent or ephemeral aquatic habitats such as, unpolluted rivers, streams, reservoirs, ponds, marshes, canals, and backwaters of coastal streams. They also favor areas with extensive vegetation and easy access to deep slow moving water. Currently loss of habitat is the primary threat to these turtles. The loss of habitat is attributed to water diversion, dams, conversion of wetlands to farmlands, grazing, irrigation, and urbanization. Although this species was not observed during field surveys of lower Brizziolari Creek we concluded that the creek has the potential to support populations of this species. Implementation of our wildlife management proposal for this creek will enhance the existing habitat for the southwestern pond turtle.

Two-striped Garter Snake (Thamnophis hammondii). The two-striped garter snake is a CDFG Species of Special Concern (Brown 1997). *T. hammondii* is distributed form the southeastern slope of the Diablo Range and the Salinas Valley south in the South Coast and Transverse ranges to the Mexican border, and on Santa Catalina Island (Jennings and Hayes 1994). The two-striped garter snake is rarely found far from water. It is one of the most aquatic of the garter snakes and can be found in or near permanent fresh water. *T. hommondii* prefers streams that have rocky bottoms and that are bordered by willow thickets or dense vegetation. This species has also been known to inhabit aquatic areas that have been artificially put in such as stock ponds. These ponds must be bordered by vegetation in order for this species to make use of the habitat. Sightings of two-striped garter snake are common throughout San Luis Obispo County in and near many riparian areas. This species was not observed during field surveys of the study area, but has a high potential of occurring within Brizziolari Creek.

Cooper's Hawk (*Accipiter cooperii***).** The Cooper's hawk is recognized as a species of special concern by CDFG (April 2000). The Cooper's hawk inhabits Southern Canada and the majority of the United States as far south as Florida, Texas and northwestern Mexico. Cooper's hawks stay close to cover, only going out in search of

food. They seek out conifers in which to roost, but rarely nests in them. In the west they are often more or less limited to the thin fringe of trees along streams. Cooper's Hawks are partially migratory (Goedegebuur, 2000). They often travel in company with other members of the genus or other hawks.

Since the Cooper's hawk gained legal protection, only a small percentage of reported Cooper's hawk deaths are due to shooting. Their numbers have improved because DDT has been banned no longer possessing a threat to them. Most of the problems are caused by the invasion of their natural environment by humans. In 1993, due to conservation efforts, the Cooper's hawk was removed from Endangered Species list and populations are continuing to grow (Goedegebuur, 2000). One dead Cooper's hawk was found near the coastal and valley fresh water marsh.

Willow Flycatcher (*Empidonax traillii*). The willow flycatcher is a fully protected species. It prefers swampy thickets, upland pastures and old abandoned orchards (Kulba, B.K., and W.B. McGillivray. 2000). Their breeding range covers most of the western United States into British Columbia and across the northern part of the United States and in the east across the great lakes region to Maine. Their diet consists mainly of insects, but they sometimes eat berries and seeds. Their numbers have declined over the past because of loss of habitat and parasitism of the brown-headed cowbird (*www.aves.net*). We did not encounter this species during our field surveys, however this species may frequent the area based on existing habitat.

Southwestern Willow Flycatcher (Empidonax traillii extimus). The southwestern willow flycatcher is a federally-listed endangered species. The wintering range of E. t. extimus is uncertain, but the species is known to winter from the west coast of central Mexico to northern South America (www.aves.net). The breeding range of *E. t. extimus* includes Arizona and adjacent states. Five or fewer pairs occupy many of the breeding sites. This flycatcher breeds principally in dense willow, cottonwood, and tamarisk thickets and woodland along streams and rivers, and pure, streamside stands of Geyer willow. Migrants may occur more widely. Predation and the brown-headed cowbird egg-parasites may heavily affect breeding success (Kulba, B.K., and W.B. McGillivray 2000). Extensive population reductions since the 1800s have been inferred from comparison of historical to current occurrences. These population declines appear to have been caused by habitat loss due to conversion or destruction of native riparian habitats, with nest predation and brown-headed cowbird parasitism as additional threats. This species was not observed during the surveys, however has the potential to frequent the study during seasonal migrations.

Yellow-breasted Chat (*Icteria virens***).** The yellow-breasted chat is a CDFG species of special of concern. This species resides in edges of woods, dense thickets and in low wet places near streams, pond edges, or swamps as well as in old overgrown clearings and fields. They nests in small trees such as trembling aspen, saplings or bushy tangles, favoring wild rose, hawthorn and snowberry thickets. Other shrub

species commonly used, include elderberry and saskatoon bushes (Habitat Conservation Fund, August 1992). It is protected under the federal Migratory Birds Convention Act of 1994. What appears to be important for good chat habitat are areas of essentially impenetrable thickets with few small trees; it is not a bird of older forests or woodlands. In fact, it often is typically associated with the early successional stages of forest regeneration. (Habitat Conservation Fund, August 1992). Chat territories next to farmlands, particularly orchards, may be affected by pesticide applications either indirectly (through loss of insect food) or directly (through direct contact with pesticides). No data exists on either of these possible problems. Due to the fact that chats are secretive and shy, nest sites are often difficult to approach; thus direct human disturbance is apparently not a threat. However, indirect disturbance, primarily in the form of habitat destruction, may be a serious threat to the species. This species was not observed during the surveys, however has the potential to frequent the site based on suitable habitat.

California Newt (Taricha torosa). The adult California Newt is a CDFG species of special concern. California Newts vary in color from a yellowish brown to a dark brown warty textured skin dorsally and a pale yellow to orange color on its ventral side. They have large eyes that protrude beyond the edge of their head and light colored lower eyelids. The diet of an adult California Newt consists of earthworms, snails, slugs, and sowbugs. Adult newts have been known to cannibalize their own eggs and larvae (Stebbins, 1998). There is little known about the diets of the California Newt during the larval stage. The California newt is one of 5 members of the newt family (Salamandridae), which inhabit California. The California Newt is primarily located on the Coastal Range of California from Humboldt County to the Mexican border. Other isolated populations are also located in California, along the western slope of the Sierra Nevada mountain range (Stebbins, 1998). This species was not observed during the surveys, but its area of inhabitance overlaps with the study area.

California Tiger Salamander (Ambystoma californiense). The California tiger salamander is a federally-listed endangered species (USFWS). This species is found in the California's central valley and adjacent foothills and coastal grasslands (Loredo, lvette, 1996). It inhabits primarily annual grasslands and open woodlands of the foothills and valleys. California tiger salamanders are rarely seen except during their nocturnal breeding migrations, which begin with the first seasonal rains, usually in November or December (Loredo, lvette, 1996). Breeding sites are usually vernal ponds that fill during winter and may dry by summer. This species was not observed during field surveys, but according to its habitat requirements it has the potential to occur on site.

2.3 ANALYSIS OF EXISTING CONDITIONS

The existing land uses surrounding Brizziolari Creek have a major impact on the creek as well as along the buffer zone. The land surrounding Brizziolari Creek has been put to use primarily for agricultural purposes. The ongoing agricultural operations that

are adjacent to, and upstream from the study area have had a negative impact on the riparian corridor as well as the wildlife that rely on it for habitat.

One of the potential problems that agricultural practices can cause is the introduction of non-native vegetation. Weed control in the nearby fields is a cause for concern. In one of the adjacent fields cover crops of non-native vegetation are being grown in between rows of citrus orchards. These non-native plants are likely to be introduced into the creek banks. Cultivation for weed control is also taking place in all three of the crops adjacent to the creek. These cultivation practices could turn up dormant seeds, which then could be introduced into the banks of the creek. As it stands now the banks and surrounding buffer along the creek are inundated with non-native vegetation, which can cause negative impacts within the creek, and on the wildlife. Fungicides, herbicides and pesticides that are used on these crops may also create problems with regard to water quality. All of these pesticides and herbicides are certified and should not create any negative effects unless the sprays being applied soak into the ground water or drift during spray, coming into direct contact with nearby vegetation and or water.

There are several improvements that could be made when it comes to surrounding agricultural operations. One precaution that needs to be taken into consideration is the irrigation and fertilization practices. As of right now these practices are not a significant threat, but if other fertilizers were to be used it could have harmful effects on the creek. The three biggest potential problems that need to be taken care of are the up stream uses, the nearby cover crops, and the drift of chemicals being sprayed. We believe that the best way to solve these problems is to alter upstream uses so that they are more environmentally sound, and to create a buffer zone between the crops and the creek banks. With a gap between these two areas, drift of chemicals, and the threat of non-native plants being introduced is less of a concern.

Brizziolari Creek is not only bordered by agricultural lands but is also bordered by urban development. During our surveys of the creek we came across numerous piles of debris. Some of the debris littered the banks of the creek and some was found within the creek itself. The removal of this debris is essential for optimizing creek health and will be addressed in our management plan. Continuous monitoring of the creek and trash removal will need to be conducted to ensure future health of the riparian corridor. One possible solution to help decrease the amount of the debris going into the creek is to move the trash dumpster at Stenner Glen away from the creek bank and to the other side of the parking lot. The combination of the all the above tasks will help maximize the quality of Brizziolari Creek for wildlife.

3.0 MANAGEMENT GUIDELINES FOR STUDY AREA

Based upon the degraded conditions of lower Brizziolari Creek and the existing agricultural and urban land uses, the wildlife diversity of the area has been substantially reduced. However, there are several management strategies that can be implemented to enhance the stream corridor for species enrichment. The following section provides an overview of these proposed management strategies, objectives, and procedures for implementation. In addition, the following section provides an estimate of required personnel, equipment, and monitoring required to accomplish each task.

3.1 STREAM CORRIDOR RESTORATION

Due to the fact that Brizziolari Creek is located within the immediate vicinity of the instructional core of Cal Poly's campus, Cal Poly's academic programs should take advantage of this natural habitat area for teaching and research. Specifically, restoration of Brizziolari Creek should be coordinated on campus as a "Restoration Workshop". Similar programs are currently being utilized at UC Santa Barbara for the purposes of enhancing natural areas surrounding the university and for educational opportunities. The Restoration Workshop can be established as a cooperative effort between the Biological Sciences, Forestry and Natural Resources Management, and the Environmental Horticulture Departments, utilizing on-site student labor and University resources to accomplish the majority of the work (i.e., greenhouses, irrigation, and equipment provided by Cal Poly).

In order to effectively restore Lower Brizziolari Creek, a formal Site Restoration Plan (SRP) would need to be prepared. A graduate student or equivalent could prepare the SRP with input from university professors. The SRP would outline non-native species eradication, replacement planting, buffer zone enhancement, survival performance criteria, and required monitoring procedures. For the purposes of this management Plan, a conceptual overview of these procedures is provided in following sections. Please note that all estimates take into consideration Cal Poly's on-site resources (e.g., greenhouses, equipment, etc.) and student labor as part of a Restoration Workshop implementing the "learn by doing" philosophy.

3.1.1 Non-Native Species Eradication / Replacement Planting

One of the most difficult tasks with stream channel restoration will be the eradication of the two major non-native species; German ivy and kikuyugrass. In order to accomplish this task, a combination of manual removal and application of herbicides will be utilized for these highly prolific species. In addition, removal of trash and debris would also be conducted as part of this phase. The following tasks would be implemented during this phase:

- 5-10 students working 8-10 hours per week performing manual removal of the these species from the stream banks;
- All removed materials would be placed into bags and disposed off-site;
- At the discretion of the Workshop coordinator, Rodeo (Glyphosate herbicide), approved for aquatic use would be utilized in areas where no harm would occur to native species;
- Removal of trash and miscellaneous debris would also be conducted during this phase (i.e., shopping carts, etc.);
- Replacement planting will be conducted during this phase to prevent erosion and introduce native species to the stream channel. Some of the natives may include, willow, blackberry, poison oak, coffee berry, and California rose. Specifically, a series of willow-waddles will be placed on the stream banks surrounding the freshwater marsh habitat (adjacent to the culvert). All plant material will be collected on-site and propagated on Cal Poly premises (Environmental Horticulture Dept. greenhouses). All replacement planting should be performed in late Fall to Winter to utilize rainfall for the new plantings;
- It is anticipated that this phase would take approximately 3-months (one quarter) to complete using the student labor identified above. This phase would be followed by periodic monitoring for a minimum of 3 years to ensure successful restoration of the stream channel. Replacement planting would be conducted as necessary during this period; and,
- Relocation of the trash dumpster at Stenner Glen away from the creek bank and to the other side of the parking lot. This task would be coordinated with the private property owner.

3.1.2 Buffer Enhancement

The enhancement of the buffer zone surrounding the creek is another management technique being proposed to improve the health of the stream corridor and minimize the effects of adjacent agricultural land uses (e.g., pesticides, sedimentation and erosion, and weed introduction). Specifically, a buffer enhancement of fifty feet on both sides of the stream is being proposed to enhance the existing California Sycamore-Coast Live Oak Riparian Woodland habitat. This would result in the addition of 100 feet of habitat throughout the stream corridor of lower Brizziolari Creek. The orchards and row crops will be removed up to fifty feet away from both sides of the corridor and replanted with natives. The following tasks would be required for this phase:

- 5-10 students working 8-10 hours per week assisting in the removal of adjacent orchards and row crops;
- Heavy equipment consisting of several tracked dozers would be utilized to remove large avocado and citrus trees within 50 feet of the existing corridor and to recontour the sites. All required equipment would be supplied by Cal Poly;
- Subsequent to recontouring the buffer areas, a temporary irrigation system would be installed. All water would be supplied via existing irrigation supplies at site;
- Replacement planting will be conducted during this phase to create additional habitat for wildlife. Some of the natives to be planted may include, California Sycamore, coast live oak, toyon, coffee berry, and California sagebrush (upland species as well as riparian). It is anticipated that a combination of plantings and a coastal sage scrub seed mix would be implemented along the buffer areas. All plant and seed material will be collected on-site and propagated on Cal Poly premises (Environmental Horticulture Dept. greenhouses). All replacement planting should be performed in late Fall to Winter to utilize rainfall for the new plantings; and,
- It is anticipated that this phase would also take approximately 3-months (one quarter) to complete using the student labor identified above. This phase would be followed by periodic monitoring for a minimum of 3 years to ensure successful restoration of the buffer areas. Replacement planting would be conducted as necessary during this period.

However, it is important to note that future preparation of the site-specific SRP may result in refinement of the tasks outlined above, including modifications of restoration concepts and species lists to improve success.

4.0 DISCUSSION

This proposed wildlife management Plan will have many positive effects on all wildlife species that occur or have the potential to occur in lower Brizziolari Creek. The implementation of the management and enhancement strategies in the site area will improve the overall quality of the riparian corridor. There will be short-term negative effects on some wildlife species due to disturbance during the physical removal of nonnative vegetation and the replanting efforts. However, these negative effects would be interim during the actual manipulation of the riparian area, for a period of approximately two to three months. After this time, all invasive management applications will have ceased and the riparian area will be less impacted by human disturbance. Species that are currently occurring in the area and that have the potential to occur in the area will then have a healthy, well-established riparian corridor, ultimately resulting in species recruitment, and overall species enrichment of the area.

Implementation of this management Plan can also result in a valuable learning experience for many students in the Biological Sciences, Forestry and Natural Resources Management, and the Environmental Horticulture Departments at Cal Poly. The proposed Restoration Workshop can be initiated with the intent of enhancing lower Briozziolari Creek, and also to enhance other degraded habitat areas surrounding the campus for species enrichment and educational opportunities.

In addition, recent communication with Brian Stark of the San Luis Obispo Land Trust indicated that Cal Poly would be conducting several upstream improvements within Brizziolari Creek as part of the draft Cal Poly Master Plan (Stark, personal communication, November 2001). This includes relocation of the Bull Test Area from the perimeter of the stream channel and removal of several dilapidated culverts that currently represent barriers to migrating steelhead. These long-term management objectives proposed by Cal Poly coupled with the management guidelines proposed in this Plan would greatly enhance Brizziolari Creek for overall species enrichment.

5.0 REFERENCES, LITERATURE CITED, AND PERSONAL COMMUNICATIONS

5.1 REFERENCES AND LITERATURE CITED

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- McNeil, Robert. Dr. of Crop Science, Cal Poly, San Luis Obispo. Personal communication November 2001 concerning agricultural operations adjacent to Brizziolari Creek.
- Stark, Brian. Project Coordinator, San Luis Obispo Land Trust. Personal communication November 2001 concerning potential future upstream improvements to Brizziolari Creek.

Common Name (Scientific Name)	Status	Habitat Association
House Sparrow Passer domesticus	N	Urban areas, parks and open farmlands.
Evening Grosbeak Coccothraustes vespertinus	N	Mixed coniferous woods, open areas with trees and
American Goldfinch Carduelis tristis	N	Open areas with shrubs and trees, farms suburban yards
Lawrences's Goldfinch Carduelis lawrencei	Ν	Arid grassy slopes, chaparral
Lesser Goldfinch Carduelis nsaltria	N	Woods edges, roadsides, gardens, and parks.
* House Finch Carpodacus mexicanus	N	Urban, suburban, parks, canyons and brush.
Purple Finch Carpodacus purpureus	N	Mixed woods, coniferous forests, lower mountain slopes and suburban vards.
Bullock's Oriole Icterus bullockii	Ν	Deciduous trees near openings.
Hooded Oriole Icterus cucullatus	N	Urban or rural areas often with palms.
Brown-headed Cowbird Molothrus ater	Ν	Pastures, woods edges, urban lawns and forest clearings.
Brewer's Blackbird Euphagus cyanocephalus	N	Wet meadows, rivers, stream margins parks urban areas and roadsides.
Great-tailed Grackle Quiscalus mexicanus	Ν	Open flatlands with scattered trees, marshes, and wetlands.
Western Meadowlark Sturnella neglecta	Ν	Meadows and grasslands.
Tricolored Blackbird Agelaius tricolor	SSC	Freshwater marshes with cattails and dense shrubs, and grain fields.
Red-winged Blackbird Agelaius phoeniceus	Ν	Marshes and meadows.
Black-headed Grosbeak Pheucticus melanocephalus	Ν	Open woodlands and forest edges.
Dark-eyed Junco Junco hyemalis	Ν	Woods, brush, and thickets. Wide variety of habitats.
Golden-crowned Sparrow Zonotrichia atricapilla	Ν	Willows, dense woodlands, tangles and brush.
* White-crowned Sparrow Zonotrichia albicollis	Ν	Woodland undergrowth, brush and gardens.
* Song Sparrow Melospiza melodia	Ν	Dense shrubs at edge of fields, lawns and streams.
Fox Sparrow Passerella iliaca	Ν	Undergrowht in coniferous or mixed woodlands.
Savannah Sparrow Passervulus sandwichensis	Ν	River edges, beaches, lakes and moist tall grassy areas.
Sage Sparrow Amphispiza belli	N	Coast; Chaparral. Inaland; dry flatlands with sparse vegetation.
Lark Sparrow Chondestes grammacus	N	Open woods, farmland, roadsides, open residential areas.
Chipping Sparrow Spizella passerina	N	Grassy areas, open woods, parks, and lawns.
Rufous-crowned Sparrow Aimophila ruficeps	N	Rocky hillsides and steep brushy or grassy slopes.
Spotted Towhee Pipilo maculatus	Ν	Open woods with shrub understory.

Common Name	Status	Habitat Association
(Scientific Name)	Status	
California Towhee	N	Scrub and suburban yards
Pipilo crissalis	1	
Lazuli Bunting	Ν	Shrubs and low trees in open
Passerina amoena		areas, near water.
Black-headed Grosbeak	N	Deciduous forests, thickets,
Pheucticus melanocephalus	IN	woodlands
Western Tanager		Coniferous or mixed forests
Piranga ludoviciana	N	
Yellow-breasted Chat	88C	Dense thickets and brush.
Icteria virens	330	
Common Yellowthroat	Ν	Dense brush, near wet areas
Geothlyp1s trichas		with dense understory.
Wilson's Warbler	N	berse moist woodlands,
Wilsonia pusilla	IN	streamside tangles
MacGillivray's Warbler		Dense undergrowth or
Oporonis tolmiei	Ν	scrubby hillsides.
HormitWarblor		Mature coniferous forests,
Dendroica occidentalis	Ν	especially Douglass Fir and
		spruce.
Townsend's Warbler	N	Mature coniferous woods
Dendroica townsendi	IN	forests
		Dry oak or pinyon-iuniper
Black-throated Gray warbler	Ν	woodland, manzanita
Dendroica nigrescens		thickets and chaparral.
* Vollow-rumped Warbler		Coniferous or mixed
Dendroica coronata	Ν	woodlands; winter on west
		coast.
Yellow Warbler	88C	Shrubby areas, especially
Dendroica petechia	33C	alders
Orange-crowned Warbler		Dense thickets, forest edges,
Vermivora celata	N	and brushy fields.
Phainopepla	N	Desert washes and oak
Phainopepla nitens	1	woods.
Cedar Waxwing	Ν	Open rural or suburban
Bombucilla cearorum		areas.
Toxostoma redivizum	Ν	woodlands
* Northern Mockingbird		Open areas with shrubs.
Mimus polyglottos	Ν	gardens and parks.
American Robin	N	Woods to open lawns and
Turdus migratorius	IN	plains to timberline.
Hermit Trush	Ν	Coniferous and mixed
Catharus guttatus		woods, and shrub thickets.
Swainson's Thrush	N	woods shrub thickets along
Catharus ustulatus	1	streams.
		Summers-mountain
Mountain Bluebird		meadows, open rangeland,
Sialia currucoides	Ν	open coniferous woods.
		Winters- in lowlands
* Mostorn Physical		Including desert.
vvestern Bluebird	Ν	Forest edges, open woods
Blue-gray Gnatcatcher	1	Woodlands thickets and
Polioptila caerulea	Ν	chaparral.
Ruby-crowned Kinglet	NT	Woodlands and thickets.
Regulus calendula	N	
Golden-crowned Kinglet	N	Coniferous, mixed and
Regulus satrapa	×1	deciduous forests.

Common Name	Status	Habitat Association
(Scientific Name)	otatab	
American Dipper Cinclus mexicanus	Ν	Mountain streams, to lower elevations in winter.
Winter Wren Troglodytes troglodytes	Ν	Rocky woodland streams, woodpiles, and tangles.
House Wren Troglodytes aedon	Ν	Woods, edges in rural or suburban areas.
Bewick's Wren Thryomanes bewickii	N	Thickets, brush and open woodlands in rural or suburban areas.
* Bushtit Psaltriparus minimus	Ν	Woodlands, chaparral, parks, and gardens.
Chestnut-backed chickadee Poecile rufescens	Ν	Coniferous forests or mixed woods.
Plain Titmouse Parus inornatus	Ν	Pinyon-juniper and oak woodlands.
Oak Titmouse Baeolophus inornatus	Ν	Warm, dry oak woodlands.
Wrentit Chamaea fasciata	Ν	Chaparral, tangled brush or dense shrubs.
Barn Swallow Hirundo rustica	N	Open country near barns or open outbuildings, bridges and culverts.
Northern Rough-winged Swallow Stelgidopteryx sorripennis	Ν	Open areas, especially near water and cutaway banks.
Cliff Swallow Petrochelidon pyrrhonota	Ν	Open country near cliffs, bridges and outbuildings.
Purple Martin Progue subis	SSC	Open areas, often near water.
Violet-green Swallow Tachycineta thalassina	Ν	Woodlands, suburbs, and Open mountains.
Tree Swallow Tachycineta bicolor	Ν	Wooded near water.
*American Crow Corvus brachyrhynchos	Ν	Varied range throughout U.S.
* Western scrub-Jay Aphelocoma californica	Ν	Brushy, open country, desert scrub, orchards and canyons.
* Steller's Jay Cyanocitta stelleri	Ν	Coniferous forests and pine- oak woodlands.
Warbling Vireo Vireo gilvus	Ν	Deciduous woods and streamside shrubs.
Hutton's Vireo Vireo huttoni	Ν	Moist woodlands, especially live oaks.
Northern Shrike Lanius exubitor	Ν	Open country with some shrubs and trees.
Loggerhead Shrike Lanius ludovicianus	SSC	Open country with some shrubs and trees.
Western Kingbird Tyrannus verticalis	Ν	Open areas with some trees or shrubs.
Ash-throated Flycatcher Myiarchus cinerascens	N	Wide variety of habitats; open woods, wooded streams and arid brush.
* Say's Phoebe Sayornis saya	Ν	Arid open areas with sparse vegetation.
* Black Phoebe Sayornis nigricans	N	Wooded streams and canyons, farms and suburbs near water.
Pacific Slope Flycatcher Empidonax difficilis	Ν	Moist woodlands, coniferous forests, and shady canyons.
Western Wood-Pewee Contopus sordidulus	N	Open woodlands, and streamsides in trees.
Pileated Woodpecker Dryocopus pileatus	N	Mature forests and suburbs.

Common Name	<u></u>	Habitat Association
(Scientific Name)	Status	
* Northern flicker	N	Parks, suburbs, farmlands,
Colaptes auratus	N	and woodlands.
Hairy Woodpecker	N	Open and dense forests.
Picoides villosus	11	
Downy Woodpecker	Ν	Suburbs, parklands, forests,
Picoides pubescens		and orchards.
Nuttall's Woodpecker	Ν	Shrublands, streamsides and
Picoides nuttallii		oak woods.
Ked-breasted Sapsucker	Ν	Moist woodlands.
Sphyrupicus ruber		Oak and nine woods, narks
Melanernes formiciziorus	Ν	Suburbs
Lewis's Woodnecker		Dry open woods orchards
Melanerpes lewis	Ν	farmlands, and foothills.
Allen's Hummingbird		Woods, thickets, gardens,
Selasphorus sasin	N	and parks.
		Coastal lowlands, mountains
Anna's Hummingpird	Ν	and deserts in open woods,
		shrubs, gardens and parks.
Willow Flycatcher	SSC	Shrubby swamps.
Empidonax traillii	550	
Southwestern Willow Flycatcher	FE, SSC	Willow riparian habitats.
Empidonax traillii extimus	,	
Clausidium guoma	Ν	Open woods and forest edges
Graat Hornod Owl		Extremely varied: woods
Buho virginianus	Ν	deserts and suburbs
		Open woodlands or shrubby
California Quail	Ν	areas, parks, and suburbs;
Callipepta californica		usually near water.
Wild Turkey	N	Open forests, forest edges,
Meleagris gallopavo	11	wooded swamps.
Ring-necked pheasent		Farmlands with wooded
Phasianus colchicus	N	edges, and hedgerows.
		Forest edges formlands
Merlin		urban areas, coastal
Falco columbarius	SSC	lowlands, prairies and
		marshes.
American Kestrel	N	Open habitats, urban areas.
Falco sparverius	IN	-
Golden Eagle	SSC. SP	Mountains, foothills, and
Aquila chrysaetos		adjacent grasslands.
*Red-tailed Hawk	Ν	Variety of open habitats.
* Red-shouldered Hawk		Woodlands and swamps
Buteo lineatu	Ν	woodiands and swamps.
* Coopers Hawk		Mixed forests and open
Accipiter cooperii	SSC	woodlands.
Sharn-shinned Hawk		Mixed deciduous and
Acciniter striatus	SSC	coniferous woods, near bird
		feeders.
Northern Harrier	SSC	Open fields, grasslands,
Circus cyaneus		prairies and marshes.
White-tailed Kite	CD	Grasslands with scattered
Elanus leucurus	SP	trees, near marshes and along
* Turkey Vulture		Open country, roadsides and
Cathartes aura	N	urban areas
European Starling		Urban and suburban areas
Sturnus vulgaris	Introduced	croan and subarbar areas.
* Nutmeg Mannikin	Taskan Jawa J	Urban and suburban areas.
Lonchura punctulata	introduced	

Common Name (Scientific Name)	Status	Habitat Association
		Especto succedire de
^a Black-talled Deer	Ν	Forests, woodlands,
* Domestic cat		Urban and suburban areas
Falis catus	Ν	Orban and suburban areas.
Domostic dog		Urban and suburban areas
Canis familiaris	Ν	Orbait and Suburbait areas.
Mountain Lion		Semiarid canyons mountains
Felis concolor	Ν	and forests
Bobcat		All terrestrial habitats
Lynx rufus	N	
Striped Skunk	N	Woodlands, fields and towns.
Mephitis mephitis	N	
Western Spotted Skunk	N	Woodlands, scrub and farms.
Spilogale gracilis	IN	
Long-Tailed Weasel	N	Woodlands, brush and fields
Mustela frenata	1	
* Common Raccoon	N	Forest scrub near water,
Procyon lotor		towns and cities
Common Gray Fox	N	Wooded and brushy areas
Urocyon cinereoargenteus		
Red Fox	Ν	Brushy open areas in forested
Vulpes vulpes		and wooded areas.
Coyote	Ν	Open plains, farms, deserts,
Canis latrans		forests and urban outskirts.
California Vole	Ν	Grassy meadows, and farms.
Microtus californicus		
Dusky-Footed Woodrat	Ν	woodiands, and chaparrai
Deer Mouse		Forests woodlands and
Peromuscus maniculatus	Ν	grasslands
		Oak juniper and pinyon
Brush Mouse	N	woodlands, manzanita scrub.
Peromyscus boylii		rocky areas.
Western Harvest Mouse		Cultivated and weedy fields,
Reithrodontomys megalotis	N	grasslands.
Botta's Pocket Gopher	N	Farms, lawns, and fields
Thomomys bottae	N	
California Pocket Mouse	N	Chaparral, sagebrush and
Chaetodipus californicus	IN	scrub oak.
Eastern Fox Squirrel	N	Urban parks and woodlands.
Sciurus niger	1	
* Western Gray Squirrel	N	Oak and walnut woodlands
Sciurus griseus		
* California Ground Squirrel	Ν	Primarily open oak woods
Spermophilus beecheyi	-	
Bush rabbit	Ν	Chaparral, thick brush and
Sylvilagus bachmani		lawns.
		morshos ponds and lakes
Two-striped Garter Snake	SP, SCC	clear swift streams and
Thamnophis atratus		rivers
		110(13.
		Moist areas, brackish coastal
Western Aquatic Garter Snake	Ν	marshes, ponds, and lakes;
I hamnophis couchi		clear swift streams and
		rivers.
Western Terrestrial Garter Snake	NT	Moist, near fresh water,
Thamnophis elegans	IN IN	and lakes
1	1	anu lakes.

Common Name (Scientific Name)	Status	Habitat Association
Coast Garter Snake Thamnophis elegans terrestris	N	Moist, near fresh water, margin of streams, ponds and lakes. Southwest Oregon to Santa Barbara
California red-sided Garter Snake Thamnophis sirtalis infernalis	SSC	Near fresh water, coastal California, Humboldt County to San Diegeo County.
Common Kingsnake Lampropeltis getulus	N	Dry, rocky wooded hillsides, river swamps and coastal marshes and cahparral; sea level to 6,900 ft.
Pacific Gopher Snake Pituophis melanoleucus	N	Dry, sandy pine-oak woodlands and pine flat woodlands, cultivated fields, prairies, open brushland, rocky desert, and chaparral.
Ringneck Snake Diadophis punctatus	N	Moist areas in varied habitat; forests, grassland, rocky wooded hillsides, chaparral and along streams.
Racer Coluber constrictor	Ν	Grassy bordered streams, abandoned fields, grassland and open woodlands; sea level to 7,000ft.
Southern Rubber Boa Charina bottae umbratica	ST	Damp woodland and coniferous forest, large grassy areas, meadows and moist sandy areas along rocky streams
California Tiger Salamander Ambystoma californiense	FE, SSC	Subterranean retreats near ponds in grasslands and open woodlands.
California newt Taricha torosa	SSC	Streams, ponds and lakes and surrounding evergreen and oak forests along coast.
Ensatina Ensatina eschscholtzi	N	Redwood forests, chaparral and coast live oak-black
California Slender Salamander Batrachoseps attenuatus	N	Coastal mountains and interior foothills, grasslands with scattered trees.
Arboreal Salamander Aneides lugubris	Ν	Live oak woodlands along coast to yellow pine and black oak forests in foothills.
Western Spadefoot Scaphiopus hammondi	SSC	Tolerates wide range of conditions from semiarid to arid. Found in alkali flats, washes, and river floodplains.
Western Toad Bufo boreus	Ν	Near springs, streams, meadows, and woodlands.
* Pacific Treefrog Hyla regilla	N	On ground among shrubs and grass, close to water.
California Treefrog Hyla cadaverina	N	Near slow streams and rocky washes with permanent pools.

California red-legged frog Rana aurora draytonii Common Name	FT, SSC,SP	Lowlands & foothills in or near permanent sources of deep water w/ dense emergent riparian vegetation (wetlands, willow scrub, and riparian woodland). Habitat Association
(Scientific Name)	Status	
Foothill Yellow-legged Frog Rana boylii	SP,SSC	Aquatic; prefers gravelly or sandy streams with sunny banks and open woodlands nearby.
Bullfrog Rana catesbeiana	introduced	Aquatic; prefers ponds, lakes and slow moving streams with vegetation cover.
Southwestern Pond Turtle Clemmys marrmorata pallida	SP, SSC	Ponds and small lakes with abundant vegetation.
Desert Spiny Lizard Sceloporus magister	N	Arid to semiarid areas at low elevation where vegetation and rocks provide adequate cover.
Southern Alligator Lizard Gerrhonotus multicarinatus	N	Grasslands, open woods, moist areas, oak woodlands of foothills.
California Legless Lizard Anniella pulchra	N	Areas of loose soil; sandy loam, sand dunes, gravelly banks of streams, prefers some vegetation, can be found in leaf litter.
* Western Fence Lizard Sceloporus occidentalis	N	Rocky and mixed forests from sea level to 9,000 ft.
*South Central California Coast Steelhead Oncorhynchus mykiss	FT	Coastal streams
Opposum Didelphis marsupialis	N	Urban, rural, and woodland areas
* Observed during surveys		

Observed during surveys

Status Codes: FT = Federally Threatened FE =Federally Endangered ST = State Threatened SP = State Protected SSC = Species of Special Concern (State) N = No listing Introduced