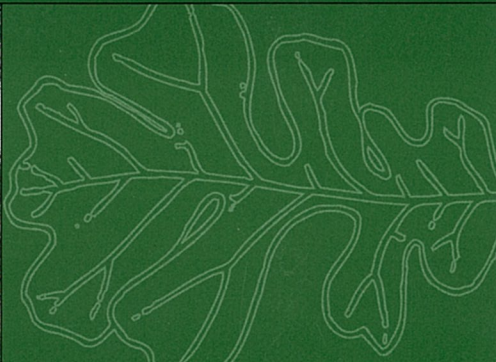




SYCAMORE
ASSOCIATES LLC

**BIOLOGICAL AND WETLANDS ASSESSMENT
FOR THE INDIAN VALLEY PROPERTY,
MORAGA, CONTRA COSTA COUNTY**

Prepared for:
Mr. David Bruzzone
P.O. Box 97
Moraga, California 94556
(925) 376-1921

Prepared by:
Sycamore Associates LLC
2099 Mt. Diablo Blvd., Suite 204
Walnut Creek, CA 94596
(925) 279-0580

January 10, 2003
(Revised December 31, 2003)

**BIOLOGICAL AND WETLANDS ASSESSMENT
FOR THE INDIAN VALLEY PROPERTY,
MORAGA, CONTRA COSTA COUNTY**

The information provided in this document is intended solely for the use and benefit of David Bruzzone.

No other person or entity shall be entitled to rely on the services, opinions, recommendations, plans or specifications provided herein, without the express written consent of Sycamore Associates LLC, 2099 Mt. Diablo Blvd., Suite 204, Walnut Creek, CA 94596.

TABLE OF CONTENTS

SUMMARY	ii
1.0 INTRODUCTION AND METHODS	1
2.0 EXISTING CONDITIONS	3
2.1 SETTING	3
2.2 PLANT COMMUNITIES AND WILDLIFE HABITATS	3
3.0 SPECIAL-STATUS BIOLOGICAL RESOURCES	10
3.1 SPECIAL-STATUS PLANTS	11
3.2 SPECIAL-STATUS WILDLIFE	13
3.3 WILDLIFE MOVEMENT CORRIDORS AND HABITAT FRAGMENTATION	23
3.4 SENSITIVE NATURAL COMMUNITIES	24
3.5 WETLANDS AND OTHER WATERS OF THE U.S.	25
4.0 PERMITTING IMPLICATIONS	26
5.0 CONCLUSIONS AND RECOMMENDATIONS	30
6.0 REFERENCES	33

LIST OF FIGURES

FIGURE 1. LOCATION OF THE INDIAN VALLEY STUDY AREA	2
FIGURE 2. VEGETATION COMMUNITIES AND AQUATIC FEATURES OF INDIAN VALLEY, MORAGA	Map Pocket

LIST OF TABLES

TABLE 1. PERCENT COVER OF VEGETATION COMMUNITY TYPES AT INDIAN VALLEY, MORAGA, CONTRA COSTA COUNTY, CALIFORNIA	4
TABLE 2. POTENTIALLY OCCURRING SPECIAL-STATUS PLANT SPECIES	12
TABLE 3. POTENTIALLY OCCURRING SPECIAL-STATUS WILDLIFE SPECIES	21

LIST OF APPENDICES

A	POTENTIALLY-OCCURRING SPECIAL-STATUS PLANT SPECIES
B	POTENTIALLY-OCCURRING SPECIAL-STATUS WILDLIFE SPECIES
C	EXPLANATION OF SENSITIVITY STATUS CODES

SUMMARY

Sycamore Associates LLC conducted a reconnaissance-level biological and wetlands assessment for the approximately 400-acre Indian Valley property. The survey was intended only as an initial evaluation of on-site habitat types and an assessment of the potential for occurrence of special-status plant and wildlife species. Focused wildlife and botanical surveys were not conducted as part of the initial reconnaissance-level site evaluation. However, based on the findings of that survey, additional surveys were recommended. These included focused, seasonal botanical surveys and U.S. Fish and Wildlife Service protocol-level focused surveys for California red-legged frog. During the initial site visit and subsequent surveys the entire study area was traversed on foot and by four-wheel drive vehicle, and all vegetation communities were visited and described.

A preliminary reconnaissance for potential jurisdictional wetlands and other waters was also performed.

The study area is located within Indian Valley in the southwest corner of the Town of Moraga. The property is located approximately one mile west of downtown Moraga and approximately three-quarters of a mile east of Redwood Regional Park. The site is accessible via Canyon Road on the southern property boundary. The study area is bordered by Flicker Ridge to the west, with sparse rural residential development in the community of Canyon along the northwestern boundary. Dense residential developments associated with Moraga Country Club are located to the east, beyond the crest of Gudde Ridge. Watershed lands, owned and managed by East Bay Municipal Utilities District (EBMUD) for Upper San Leandro Reservoir are present immediately to the south and west. Undeveloped open space within the City of Orinda is located to the north.

The site is located along Indian Creek, a headwater tributary to San Leandro Creek. The valley supports an abundance of aquatic features including perennial seeps and springs that feed into the main branch of the creek. Indian Creek flows more or less south into San Leandro Creek, just north of Upper San Leandro Reservoir. A single residence is located at the southwestern portion of the property, with associated out buildings and livestock corrals. Historically, the site has been used as a walnut orchard and as pastureland for cattle.

Vegetation within the study area is dominated by non-native annual grassland. Other plant communities identified on site include Central Coast riparian scrub, coast live oak woodland, freshwater marsh and seeps, northern coyote brush scrub, sage scrub, and an abandoned walnut orchard with associated ruderal vegetation. Also present are small, homogenous populations of bitter cherry (*Prunus emarginata*), observed within the coast live oak woodland on the eastern side of Gudde Ridge.

Based on a literature review and a familiarity with the flora within the region, a total of 22 special-status plant species were considered to have at least some potential to occur within the region or have been recorded historically in the vicinity of the study area. Of those, nineteen species were considered to have no potential to occur on site due either to a lack of suitable habitat, the fact that they would have been detectable during focused botanical surveys, or are considered to be out of range here. However, populations of three special-

status, CNPS-listed plant species were detected within the study area. These include bent-flowered fiddleneck, CNPS List 1B, robust monardella, CNPS List 1B, and Oakland star-tulip, CNPS List 4. No other special-status plant species were detected on site during the surveys, and none are expected. A detailed report on the botanical studies is presented in a separate report.

Based on the presence of on-site aquatic features and because California red-legged frog are known to occur less than three miles from the study area, California red-legged frog was considered to have a high potential to occur on site. As the presence of California red-legged frog in the region is well-documented and potentially suitable refugia, breeding, and dispersal habitat is present, a USFWS protocol-level Site Assessment was not deemed necessary. However, Sycamore recommended that focused surveys of the site be conducted by a qualified biologist. Focused surveys for foothill yellow-legged frog were also recommended, to be conducted concurrent with those for California red-legged frog. Following those recommendations, focused USFWS protocol-level surveys for California red-legged frog were conducted during the summer of 2003. During the course of those surveys, neither California red-legged frog or foothill yellow-legged frog was detected on site.

Given that the study area is within formerly designated Alameda whipsnake Critical Habitat, that Primary Constituent Elements are present on site (*i.e.* scrub, grassland, woodland and rock outcroppings), and that the study area is contiguous with suitable habitat to the north, west, and south, Alameda whipsnake is considered to have a moderate to high potential to occur within the study area. Because suitable habitat is identified in this biological assessment, an additional habitat assessment for Alameda whipsnake was not deemed necessary. However, Sycamore recommends that Alameda whipsnake should be considered to be presumed present within the study area.

Several special-status and common birds have the potential to nest in existing vegetation (trees and shrubs) on site. Any removal of trees or shrubs, or construction activities in the vicinity of active passerine or nonpasserine land bird nests, or active raptor nests, could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the Migratory Bird Treaty Act and California Department of Fish and Game Code. In addition, four special-status bat species have a moderate potential to occur on site.

1.0 INTRODUCTION AND METHODS

Sycamore Associates LLC (Sycamore) conducted a reconnaissance-level biological and wetlands assessment for the approximately 400-acre Indian Valley property located within the southwestern limits of the Town of Moraga, in southwestern Contra Costa County (Figure 1). For purposes of this report, the property is referred to as the "study area" hereafter. This report represents the results of our fieldwork and background research.

Sycamore biologists Christopher Thayer, Kim Briones, and Heath Bartosh conducted a reconnaissance-level site visit on October 28, 2002. During the site visit the entire study area was traversed on foot and by four-wheel drive vehicle, and all vegetation communities were visited and described. The surveys were intended only as an initial evaluation of on-site habitat types and an assessment of the potential for occurrence of special-status plant and wildlife species. Focused botanical and wildlife surveys were not conducted as part of this reconnaissance-level site evaluation. The methods employed would not be considered adequate to confirm presence or to report negative findings for some special-status species.

Following Sycamore recommendations, focused botanical and wildlife surveys were conducted subsequent to the reconnaissance-level site evaluation. More detailed discussions of the methods used and results of those surveys are presented in other reports (Sycamore Associates 2003, 2004). Based on the surveys conducted to date and an assessment of habitats within the study area, certain special-status plant and animal species are not expected to occur or can be entirely ruled out.

A preliminary reconnaissance for potential jurisdictional wetlands and waters was also performed concurrently with the site surveys. However, a formal wetland delineation and jurisdictional determination was not conducted as a part of this initial assessment, and the wetland assessment is not at the level of detail that would be necessary for submittal to the U.S. Army Corps of Engineers (USACE) for verification.

Nomenclature used throughout this report conforms to Hickman (1993) for plants except for recent changes in circumscriptions in the family Asteraceae (Baldwin 1999). Nomenclature for special-status plant species conforms to CDFG (2002a,b) and CNPS (2001); nomenclature for special-status animals conforms to CDFG (2002c,d).

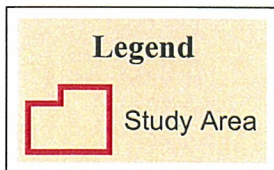
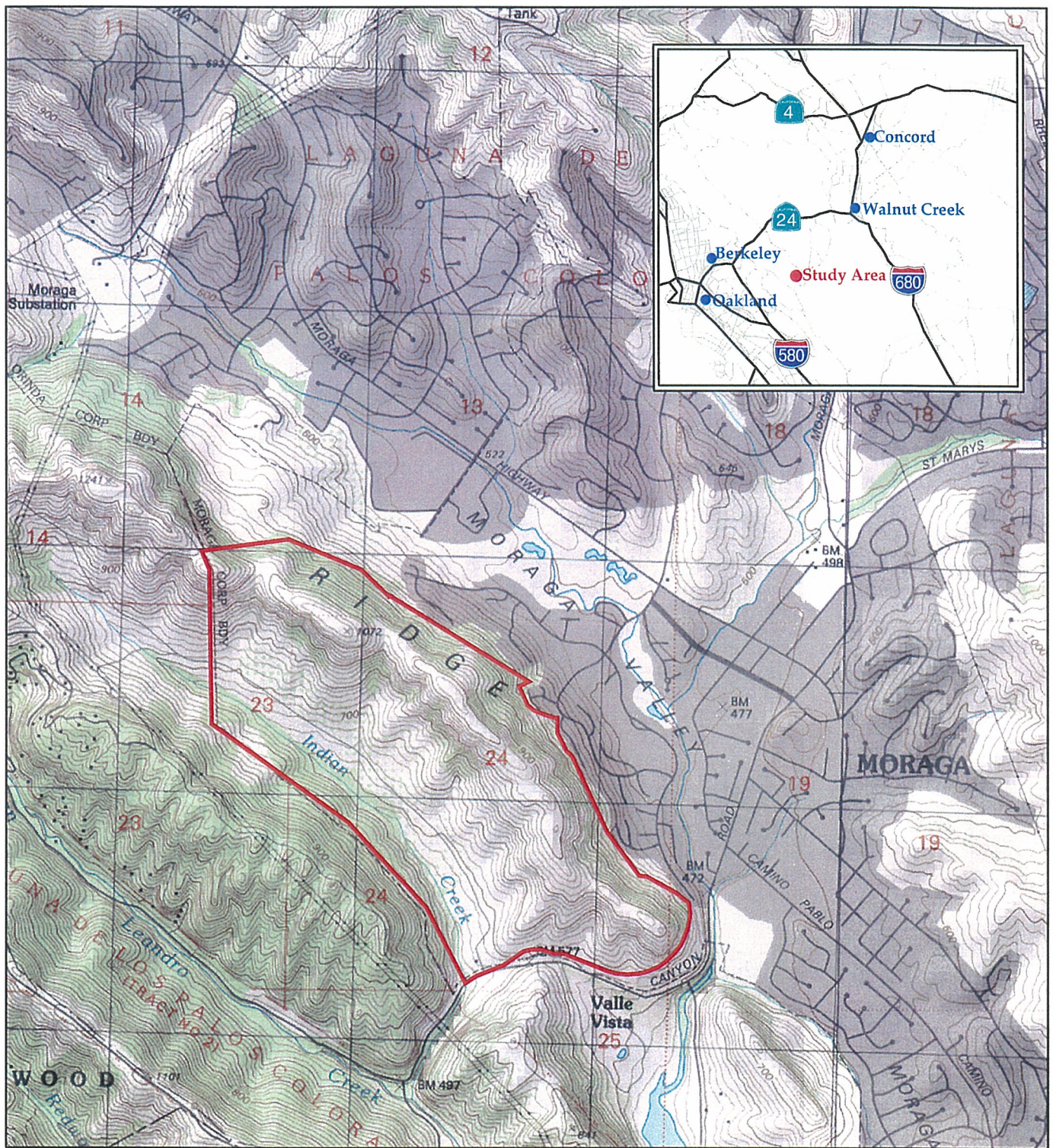
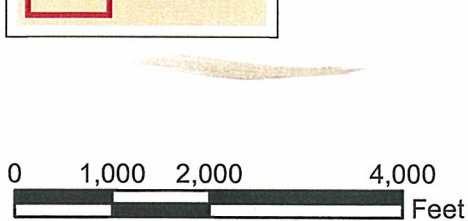


Figure 1
Location of the Indian Valley Study Area
 David Bruzzone
 Moraga, Contra Costa County,
 California



02/09/04 1:24,000
 1 inch equals 2,000 feet

This document provided for the sole use of David Bruzzone.
 USGS topographic quadrangles provided by MapTech (1988).



Sycamore Associates LLC
 2099 Mt. Diablo Blvd. Suite 204
 Walnut Creek, CA 94596
 925.279.0580
 www.sycllc.com

2.0 EXISTING CONDITIONS

2.1 Setting

The approximately 400-acre study area is located within Indian Valley in the southwest corner of the Town of Moraga. The property is located approximately one mile west of downtown Moraga and approximately three-quarters of a mile east of Redwood Regional Park. The site is accessible via Canyon Road on the southern property boundary. The study area is bordered by undeveloped open space known as Flicker Ridge to the west, owned and managed by East Bay Municipal Utilities District (EBMUD), as part of the Upper San Leandro Reservoir watershed. Sparse rural residential development in the community of Canyon is present along the northwestern boundary. Dense residential developments associated with Moraga Country Club are located to the east, beyond the crest of Gudde Ridge. Additional undeveloped EBMUD watershed lands are present immediately to the south beyond Canyon Road. Undeveloped open space within the City of Orinda is located to the north.

The site is located along Indian Creek, a headwater tributary to San Leandro Creek. The valley supports an abundance of aquatic features including perennial seeps and springs that feed into the main branch of the creek. A few seeps and small, ephemeral streams are also present on the eastern flanks of Gudde Ridge above the Moraga Valley. Within Indian Valley, Indian Creek is represented as a dashed "blue-line" on the USGS Oakland east 7.5 minute quadrangle indicating it is an intermittent stream. The creek flows more or less south and off site into San Leandro Creek, just north of Upper San Leandro Reservoir.

Topography on site consists of valley bottomlands to steeply sloping hills ranging in elevation between 550 feet to 1,070 feet above mean sea level. Geology of the study area is characterized by rocks of Tertiary age, including the durable, ridge-forming volcanics of the Moraga Formation along the tops of the hills on the east, underlain by older sedimentary rocks of the Orinda Formation forming the bedrock of the lower slopes and the valley bottom.

A single residence is located at the southwestern portion of the property, with associated out buildings and livestock corrals. Historically, the site has been used as a walnut orchard and as pastureland for cattle.

2.2 Plant Communities and Wildlife Habitats

Vegetation within the study area is dominated by non-native annual grassland. Other plant communities identified on site include Central Coast riparian scrub, coast live oak woodland, freshwater marsh and seeps, northern coyote brush scrub, sage scrub, and an abandoned walnut orchard with associated ruderal vegetation. Also present are small, homogenous populations of bitter cherry (*Prunus emarginata*), forming distinct thickets within the coast live oak woodland on the eastern side of Gudde Ridge. An estimate of the percentage of cover for each community type as it occurs on site is presented in Table 1. The locations of vegetation communities on site is presented in Figure 2 (map pocket).

Non-Native Annual Grassland

Non-native annual grassland is generally found in open areas in valleys and foothills throughout coastal and interior California (Holland 1986). It typically occurs on soils consisting of fine-textured loams or clays that are somewhat poorly drained. This vegetation type is dominated by non-native annual grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, that have replaced native perennial grasslands and scrub as a result of human disturbance. Scattered native wildflower species, representing remnants of the original vegetation may also be common.

**Table 1. Percent Cover of Vegetation Community Types
at Indian Valley, Moraga, Contra Costa County, California**

Community Type	Percent Cover On Site
Non-Native Annual Grassland	49%
Central Coast Riparian Scrub	2%
Coast Live Oak Woodland	24%
Freshwater Marsh and Seep	2%
Northern Coyote Brush Scrub	16%
Sage Scrub	1%
Abandoned Orchard with Associated Ruderal Vegetation	6%

Characteristic non-native plant species occurring in grasslands on site include rip-gut brome (*Bromus diandrus*), wild oat (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), yellow star thistle (*Centaurea solstitialis*), bellardia (*Bellardia trixago*), Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), bristly ox-tongue (*Picris echioides*), black mustard (*Brassica nigra*), and hedge-parsley (*Torilis arvensis*), among others. Native species such as hirsute grindelia (*Grindelia hirsutula* var. *hirsutula*), coyote thistle (*Eryngium aristulatum* var. *aristulatum*), summer lupine (*Lupinus formosus* var. *formosus*), fireweed (*Epilobium brachycarpum*), narrow-leaf milkweed (*Asclepias fascicularis*), showy milkweed (*Asclepias speciosa*), Kellogg's yampah (*Perideridia kelloggii*), and soap plant (*Chlorogalum pomeridianum* var. *pomeridianum*) were also found on site, among others.

On site, non-native annual grassland is the dominant vegetation community and intergrades freely with northern coyote brush scrub and sage scrub, as well as the ruderal vegetation in the understory of the abandoned orchard. Non-native annual grassland as found on site conforms to the California annual grassland series as described in Sawyer and Keeler-Wolf (1995), and would be classified as an upland following Cowardin, *et al.* (1979).

The grasslands on site serve as valuable habitat for many wildlife species. Grassland habitat, including native and non-native grasslands, attract reptiles and amphibians, such as southern alligator lizard (*Gerrhonotus multicarinatus*), western fence lizard (*Sceloporus occidentalis*), and Pacific slender salamander (*Batrachoseps attenuatus*), which feed on invertebrates found within and beneath fallen logs within this vegetation community. This

habitat also attracts seed-eating and insect-eating birds and mammals. California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), and western meadowlark (*Sturnella neglecta*) are a few seed-eaters that nest and forage in grasslands. Insect-eaters such as western scrub jay (*Aphelocoma californica*), barn swallow (*Hirundo rustica*), and northern mockingbird (*Mimus polyglottos*) use grassland habitat for foraging.

Grasslands are important foraging areas for aerial and ground foraging insect-eating bat species such as myotis (*Myotis* spp.) and pallid bat (*Antrozous pallidus*). A large number of other mammal species such as California vole (*Microtus californicus*), deer mouse (*Peromyscus maniculatus*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*) and black-tailed jackrabbit (*Lepus californicus*) also forage and nest within grasslands. Small rodents attract raptors (birds of prey) such as red-tailed hawk (*Buteo jamaicensis*) and red-shouldered hawk (*Buteo lineatus*), among others. Black-tailed deer (*Odocoileus hemionus californicus*) use grassland for grazing and, if the grass is tall enough, for resting at night.

Wildlife species observed in the grassland areas by sight or sign during the site reconnaissance include turkey vulture (*Cathartes aura*), red-tailed hawk, mourning dove, western bluebird (*Sialia mexicana*), botta's pocket gopher, black-tailed deer, and feral cat (*Felis catus*).

Central Coast Riparian Scrub

Central Coast riparian scrub typically consists of a scrubby streamside, open to impenetrable thickets composed of any of several species of willows. This plant community occurs close to river channels and near the coast on fine-grained sand and gravel bars with a high water table. It is distributed along and at the mouths of most perennial and many intermittent streams of the South Coast Ranges, from the Bay Area to near Point Conception (Holland 1986). Central Coast riparian scrub is generally regarded as early seral, meaning that it typically precedes the development of other riparian woodland or forest communities in the absence of severe flooding. However, outside of riparian situations, that is, near groundwater seeps, willow-dominated scrub represents a relatively stable plant community and is not considered seral.

Within the project area, Central Coast riparian scrub is supported by ephemeral drainages and freshwater seeps on site. Characteristic native species present include arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and occasionally white alder (*Alnus rhombifolia*), among others. Shade tolerant non-native species such as lemon balm (*Melissa officinalis*) are also present. Particularly where willows border oak woodland, common shrubs such as poison oak (*Toxicodendron diversilobum*) are also part of this community. Central Coast riparian scrub as found on site generally conforms to the arroyo or red willow series as described in Sawyer and Keeler-Wolf (1995) and would be classified as a palustrine shrub-scrub wetland following Cowardin, *et al.* (1979).

A variety of passerine species can be expected to occur and nest in this habitat such as black phoebe (*Sayornis nigricans*), white-crowned sparrow (*Zonotrichia leucophrys*), song

sparrow (*Melospiza melodia*), yellow-rumped warbler (*Dendroica coronata*), spotted towhee (*Pipilo maculatus*), and house finch (*Carpodacus mexicanus*), among others.

Wildlife species observed in this habitat by sight or sign during the site reconnaissance include black phoebe, California towhee (*Pipilo crissalis*), and Pacific treefrog (*Hyla regilla*).

Coast Live Oak Woodland

Coast live oak woodland is typically found on north-facing slopes and shaded ravines in the southern and inland portions of the state and on more exposed, mesic sites in the north. This community is dominated by coast live oak (*Quercus agrifolia*), which frequently occurs in pure, dense stands with a closed canopy. Coast live oak woodland is restricted primarily to the coast side of the state and is distributed from Sonoma County to Baja California. It occurs throughout the outer South Coast ranges and coastal slopes of the Transverse and Peninsular ranges, usually below 4,000 feet in elevation. On site, this vegetation type conforms to the coast live oak series as described by Sawyer and Keeler-Wolf (1995) and would be considered as an upland as classified in Cowardin, *et al.* (1979).

The dominant tree species found on site is coast live oak. Other tree species found within the oak woodlands on site include California bay (*Umbellularia californica*), valley oak (*Q. lobata*), madrone (*Arbutus menziesii*), and California buckeye (*Aesculus californica*). Within this plant community, the shrub layer is typically poorly developed and the herbaceous layer is continuous. Shrub species detected on site include natives such as poison oak, snowberry (*Symphoricarpos rivularis*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus mexicana*), ninebark (*Physocarpus capitatus*), and coffee berry (*Rhamnus californica*), among others, as well as non-native species such as French broom (*Genista monspessulana*). Native herbaceous species are also present such as western sword fern (*Polystichum munitum*), goldback fern (*Pentagramma triangularis* ssp. *triangularis*), and wood rose (*Rosa gymnocarpa*), among others. Also noteworthy within this community are small but distinct and homogenous thickets of bitter cherry along the eastern slopes of Gudde Ridge.

As with other riparian habitats, coast live oak woodland provides water, foraging, nesting, cover, and migrating and dispersal corridors for a variety of wildlife species. Amphibians, such as Pacific slender salamander (*Batrachoseps attenuatus*), rough skinned newt (*Taricha granulosa*) and ensatina (*Ensatina eschscholtzi*), can be found underneath the cover of fallen leaf litter and bark. Avian insect eaters, such as chestnut-backed chickadee (*Parus rufescens*), bushtit (*Psaltiriparus minimus*), oak titmouse (*Baeolophus inornatus*) and dark-eyed junco (*Junco hyemalis*) feed on the foliage. Bark gleaner species, such as western scrub jay, Stellar's jay (*Cyanocitta stelleri*), and acorn woodpecker (*Melanerpes formicivorus*), feed on insects as well as acorns. California quail and canyon towhee (*Pipilo fuscus*) are ground foliage gleaners. Red-shouldered hawk may foraging on small mammals in the adjacent grassland from the protection of the coast live oak riparian forest. Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) are often associated with this habitat hunting small birds. Mammals such as western gray squirrel (*Sciurus griseus*) forage and nest in the canopy of the trees while long-tailed weasel (*Mustela frenata*) hunt for

shrew and meadow vole on the ground. Larger mammals, such as mule deer utilize the wet understory of this community (*i.e.*, poison oak, and black berry bushes) for shelter and food. Mature oaks and snags are important features within this habitat because they provide nesting and roosting areas for a variety of special-status species of bats that occur in this region, including pallid bat, long-legged myotis (*Myotis volans*), Yuma myotis (*Myotis yumanensis*) and long-eared myotis (*Myotis evotis*) (Whittaker 1997).

Wildlife species observed by sight or sign within the coast live oak woodland habitat on site include northern flicker (*Colaptes auratus*), western scrub jay, dark-eyed junco, orange-crowned warbler (*Vermivora celata*), yellow-rumped warbler, winter wren (*Troglodytes troglodytes*), red-breasted sapsucker (*Sphyrapicus ruber*), Audubon's cottontail (*Sylvilagus audubonii*), and woodrat (*Neotoma fuscipes*).

Freshwater Marshes and Seeps

Freshwater seeps consist of areas with permanently or seasonally saturated soils supporting few to several perennial and annual herbaceous hydrophytic plant species and lacking appreciable surface flows. Within the study area, most freshwater seeps closely resemble freshwater marshes in terms of species composition, supporting characteristic low, emergent species. On site these two plant community types intergrade. Where small thickets of arroyo willow, red willow, or white alder encroach on the margin of freshwater seeps, this community intergrades with Central Coast riparian scrub.

These aquatic vegetation communities are generally found in areas where soils remain permanently saturated, but typically lack flowing surface water. Such communities are usually found where the water table is at or near the surface, or where subsurface seepage collects near the surface, such as along the toe of stream banks, on the lower portions of steep slopes, along fault lines or geological contacts, or at the heads of small swales. On site, freshwater seeps and freshwater marshes are located principally along permanently or semi-permanently saturated portions of drainages, often fanning out once reaching the valley bottom. Many on-site seeps originate high on hillsides where the geologic contact between the Moraga and Orinda formations forces water to the surface.

Freshwater marshes or seeps on site support numerous native species such as iris-leaved rush (*Juncus xiphioides*), common rush (*Juncus effusus* var. *pacificus*), spreading rush (*Juncus patens*), umbrella sedge (*Cyperus eragrostis*), sneezeweed (*Helenium puberulum*), watercress (*Rorippa nasturtium-aquaticum*), spiny cocklebur (*Xanthium spinosum*), and common large monkey-flower (*Mimulus guttatus*), as well as many non-native species such as pennyroyal (*Mentha pulegium*), dallis grass (*Paspalum dilatatum*), lemon balm (*Melissa officinalis*), rabbits-foot grass (*Polypogon monspeliensis*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass, and fiddle dock (*Rumex pulcher*), among others.

Within the study area, most areas of freshwater seep and freshwater marsh do not correspond *per se* to any particular series described by Sawyer and Keeler-Wolf (1996), although some portions would conform to the cattail series. Following Cowardin *et al.* (1979) these plant communities would be classified as palustrine emergent wetlands.

Freshwater marsh and seeps are some of the most productive habitats for wildlife in that they offer water, food and cover for a variety of species. Typical wildlife that occur in this habitat include Pacific tree frog, and bullfrogs (*Rana catesbeiana*). Northern harrier (*Circus cyaneus*), red-winged blackbird (*Agelaius phoeniceus*), and killdeer (*Charadrius vociferus*) often use these areas for foraging and nesting. Snowy egret (*Egretta thula*), green heron (*Butorides virescens*), and great blue heron (*Ardea herodias*) also forage in this habitat, feeding on small fish, amphibians and reptiles. Mammals common in this habitat are meadow vole (*Microtus californicus*) along the edges of the marsh area and raccoon (*Procyon lotor*) that may forage on eggs and invertebrates. Striped skunk (*Mephitis mephitis*) and gray fox (*Urocyon cinereoargenteus*) may also forage in this habitat. This habitat provides important foraging and drinking areas for aerial and ground feeding insectivorous bats, such as *Myotis* species and pallid bat.

Wildlife species observed in the marsh and seep areas by sight or sign during the site reconnaissance include black phoebe, Pacific tree frog, and raccoon.

Northern Coyote Brush Scrub

Northern coyote brush scrub is considered a sub-type of northern (Franciscan) coastal scrub. It differs primarily by the dominance of coyote brush. These scrub types consist of low shrubs 1-6 feet tall with a well-developed herbaceous or low woody understory. Vegetative cover is mostly dense with scattered grassy openings. Northern coastal scrub is best developed on windy, exposed sites with shallow, rocky soils. An increase in soil depth and moisture availability seems to favor dominance by coyote brush (*Baccharis pilularis*). This vegetation community is distributed in patches from southern Oregon to Point Sur, Monterey County (Holland 1986).

Within the study area scattered well-developed stands of northern coyote brush scrub are present on both eastern and western slopes of Gudde Ridge on the eastern portion of the site, as well as on the western side of Indian Creek. Elsewhere on-site northern coyote brush scrub occurs in small dense patches and is also interspersed through other communities often forming an ecotone between non-native annual grassland and coast live oak woodland.

Other plant species occurring within this community on site include narrow leaf mule ears (*Wyethia angustifolia*), poison oak, mugwort (*Artemisia douglasiana*), common California aster (*Aster chilensis*), soap plant, brome grasses, and wild oats, among others.

Wildlife species observed by sight or sign within northern coyote brush scrub on site include bushtit, Anna's hummingbird (*Calypete anna*), California quail, and western fence lizard.

Sage Scrub

Sage scrub consists of a dense to sparse cover of low shrubs up to three feet high. It occurs in inland locations well beyond the coastal fog incursion zone. It is typically found on shallow, rocky soils on hot southern exposures. This vegetation community is distributed in patches along the Inner Coast Ranges from Mount Diablo in Contra Costa County south to the Cholame Hills in northern San Luis Obispo County (Holland 1986). The shrub canopy typically consists of fewer shrub species than other coastal scrub communities but may exhibit a greater diversity of perennial herbs. Characteristic species of sage scrub include California sagebrush (*Artemisia californica*), coastal buckwheat (*Eriogonum fasciculatum*), and bush monkey-flower (*Mimulus aurantiacus*), coyote brush, California fuchsia (*Epilobium canum*), silver bush lupine (*Lupinus albifrons* var. *albifrons*), bracken fern (*Pteridium aquilinum* var. *pubescens*), foothill needlegrass (*Nasella lepida*), purple needlegrass (*Nasella pulchra*), and coyote mint (*Monardella villosa* ssp. *villosa*), among others.

On the steep, southwest facing slopes of Gudde Ridge northern coyote brush scrub and sage scrub freely intergrade, making the separation of distinct communities difficult. Areas within the study area that support northern coyote brush scrub and sage scrub have been mapped as undifferentiated scrub (Figure 2).

Scrub communities, often interspersed with other habitats, provide foraging and nesting habitat for bird species that are attracted to edges of communities, including California quail, California thrasher (*Toxostoma redivivum*), and California towhee (*Pipilo crissalis*), among others. These species forage among the leaf litter for invertebrates. Avian species that use the canopy of scrub for catching insects include dusky flycatcher (*Empidonax oberholseri*), and wrentit (*Chamaea fasciata*). Besides creating habitat for insect prey, flowering scrub vegetation provides nectar for bird species such as Anna's hummingbird. Sharp-shinned hawk will sometimes use scrub habitats for nesting and foraging grounds.

Mammals, including striped skunk, use this habitat for protection and foraging grounds, feeding off new shoots of plants. Black-tailed deer often feed in scrubs but this habitat supports a lower density of deer than oak savannahs. Small mammals that are expected to occur within the scrub include brush rabbits (*Sylvilagus bachmani*), Botta's pocket gophers, and deer mice (*Peromyscus maniculatus*). Small mammals attract predators such as long-tailed weasel, gray fox, and bobcat.

Abandoned Orchard and Ruderal Habitat

Ruderal habitat is that from which the native vegetation has been completely removed by grading, cultivation, or other surface disturbances. Such areas, if left undeveloped, may become recolonized by invasive exotic species as well as native species. The native vegetation may ultimately become at least partially restored if the soils are left intact and there is no further disturbance.

Numerous areas on site have been severely disturbed by grading and cultivation activities. Remnant groups of black walnut trees are present in the valley bottom of the property, once

a large orchard that has since been abandoned. The native vegetation on these lands has been completely removed and in some instances replaced by ruderal (weedy) non-native and native plant species. Weedy, non-native plant species commonly encountered in such situations include bull thistle (*Cirsium vulgare*), black mustard, brome grasses, Italian thistle, bristly ox-tongue, rose clover (*Trifolium hirtum*), and wild oats, among others.

A single patch of the invasive, non-native weed dittrichia (*Dittrichia graveolens*), numbering approximately 60 individuals, was also noted. This species, first discovered in California since the publication of the Jepson Manual (Hickman 1993), had not been previously noted from the Moraga area (Bob Case, pers. comm.).

Ruderal habitat is not specifically described by Sawyer and Keeler-Wolf (1995) and would be classified as upland following Cowardin, *et al.* (1979).

Fallow orchards that are not actively disturbed by people may provide nesting habitat for passerines (perching birds) and raptors (birds of prey). Species inured to human habitation, such as scrub jay and acorn woodpecker, may use these trees for nesting. Other species that may utilize orchard trees include black-capped chickadee (*Poecile atricapillus*), bushtit, and oak titmouse, among others.

Wildlife species generally associated with ruderal or disturbed areas include raccoon, opossum (*Didelphus virginianus*), European starling (*Sturnus vulgaris*), and mourning dove, among others. Many wildlife species that feed on seeds or other parts of the vegetation, including finches, goldfinches, sparrows, and a variety of rodents are also present. Insects present provide food for species such as western meadowlark, blackbirds, and western fence lizard. This community can support a wide array of predators, including snakes, various raptors, and red fox (*Vulpes vulpes*). Raptors likely to forage over ruderal habitat include red-tailed hawk and American kestrel. Killdeer could also be associated with open ruderal substrates.

Wildlife species observed in these habitats by sight or sign during the site reconnaissance include goldfinch (*Carduelis* sp.) and mourning dove.

3.0 SPECIAL-STATUS BIOLOGICAL RESOURCES

Prior to conducting fieldwork, the California Natural Diversity Data Base (CNDDB) (CDFG 2002e) was reviewed for the most recent distribution information for special-status plant and animal species within the Briones Valley, Walnut Creek, Las Trampas Ridge, and Oakland East quadrangles.

Information on special-status plant species was compiled through a review of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2001), the California Department of Fish and Game's (CDFG) *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (CDFG 2002a) and *Special Vascular Plants, Bryophytes, and Lichens List* (CDFG 2002b), and the U.S. Fish and Wildlife Service's (USFWS) *Endangered and Threatened Plant and Animal Taxa; Proposed Rule* (USFWS 1996a, 1999). Also reviewed were *Status of Rare, Threatened and*

Endangered Vascular Plants in Alameda and Contra Costa Counties (Olson 1994) and *Unusual and Significant Plants of Alameda and Contra Costa Counties* (Lake 2001).

Information on special-status animal species was compiled through a review of the CNDDDB (CDFG 2002e), CDFG's *State and Federally Listed Endangered and Threatened Animals of California* (CDFG 2002c) and *Special Animals List* (CDFG 2002d), and USFWS's *Endangered and Threatened Wildlife and Plants* (USFWS 1996a, 1999).

3.1 Special-Status Plants

Special-status plant species include those listed as Endangered, Threatened, Rare or those species proposed for listing by the USFWS (1996a, 1999), the CDFG (2002a,b) and the CNPS (2001). The CNPS listing is sanctioned by the CDFG and serves essentially as their list of "candidate" plant species. CNPS List 1B and List 2 species are considered eligible for state listing as endangered or threatened under the CDFG Code. Such species should be fully considered during preparation of environmental documents subject to the California Environmental Quality Act (CEQA). CNPS List 3 and List 4 species are considered to be either plants about which more information is needed or are uncommon enough that their status should be regularly monitored. Such plants may be eligible or may become eligible for state listing, and CNPS strongly recommends that these species be evaluated for consideration during the preparation of CEQA documents.

Based on a literature review and a familiarity with the flora within the region, a total of 22 special-status plant species were considered to have at least some potential to occur within the region or have been recorded historically in the vicinity of the study area (Appendix A). Of those, eight species are considered to have no potential to occur on site due either to a lack of suitable habitat, the fact that they would have been detectable during the reconnaissance-level survey, or are considered to be out of their range here. Based on the presence of potentially suitable habitat for the remainder of these species, focused botanical surveys were conducted on the site during seasons appropriate for the detection of any potentially occurring species (Table 2). Surveys were commenced in March and completed in August of 2003. During the course of those surveys, no federally- or state-listed Endangered or Threatened plant species were detected within the study area, and none are expected. However, populations of three special-status, CNPS-listed plant species were detected within the study area. These include bent-flowered fiddleneck (*Amsinckia lunaris*), CNPS List 1B, robust monardella (*Monardella villosa* ssp. *globosa*), CNPS List 1B, and Oakland star-tulip (*Calochortus umbellatus*), CNPS List 4. No other special-status plant species were detected on site, and none are expected. The locations of special-status plant species within the study area are presented in Figure 2 (map pocket). A detailed report on the botanical studies is presented in a separate report (Sycamore 2004).

Table 2. Potentially Occurring Special-Status Plant Species

COMMON NAME	SCIENTIFIC NAME	STATUS*	BLOOMING PERIOD	POTENTIAL FOR OCCURENCE
Bent-flowered fiddleneck	<i>Amsinckia lunaris</i>	CNPS 1B	Mar-June	Present: detected during focused surveys
Congdon's tarplant	<i>Centromadia parryi</i> ssp. <i>congdonii</i>	CNPS 1B	June-Nov.	Not detected during focused plant surveys
Contra Costa goldfields	<i>Lasthenia conjugens</i>	FE, CNPS 1B	Mar-June	Not detected during focused plant surveys
Diablo helianthella	<i>Helianthella castanea</i>	CNPS 1B	April-June	Not detected during focused plant surveys
Fragrant fritillary	<i>Fritillaria liliacea</i>	CNPS 1B	Feb-April	Not detected during focused plant surveys
Most beautiful jewel-flower	<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	CNPS 1B	April-June	Not detected during focused plant surveys
Mt. Diablo fairy lantern	<i>Calochortus pulchellus</i>	CNPS 1B	Feb-April	Not detected during focused plant surveys
Oakland star-tulip	<i>Calochortus umbellatus</i>	CNPS 4	March-May	Present: detected during focused surveys
Robust monardella	<i>Monardella villosa</i> ssp. <i>globosa</i>	CNPS 1B	June-July	Present: detected during focused surveys
Round-leaved filaree	<i>Erodium macrophyllum</i>	CNPS 1B	March-May	Not detected during focused plant surveys
San Antonio Hills monardella	<i>Monardella antonina</i> ssp. <i>antonina</i>	CNPS 3	June-August	Not detected during focused plant surveys
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	FT, CE, CNPS 1B	June-Oct	Not detected during focused plant surveys
Western leatherwood	<i>Dirca occidentalis</i>	CNPS 1B	Jan-April	Not detected during focused plant surveys
Western viburnum	<i>Viburnum ellipticum</i>	CNPS 2	May-June	Not detected during focused plant surveys

*Status Codes

- FE = Listed as Endangered by the Federal Government
- FT = Listed as Threatened by the Federal Government
- CE = Listed as Endangered by the State of California
- CT = Listed as Threatened by the State of California
- CNPS 1B = Eligible for State listing, CEQA review
- CNPS 2 = Eligible for State listing, CEQA review; not rare outside California
- CNPS 3 = Review list, more information needed, strongly recommended for CEQA review
- CNPS 4 = Watch list, strongly recommended for CEQA review

3.2 Special-Status Wildlife

Special-status animal species include those listed by the USFWS (1996a, 1999) and the CDFG (2002c,d). The USFWS officially lists species as either Threatened, Endangered, or as Candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act (e.g., bald eagle, golden eagle), the Migratory Bird Treaty Act (MBTA) and state protection under CEQA §15380(d). All birds, except European starlings, English house sparrows, and rock doves (pigeons), are protected under the MBTA. In addition, many other species are considered by the CDFG to be Special Concern Species; these are listed in Remsen (1978), Williams (1986), and CDFG (2002d). Although such species are afforded no official legal status, they may receive special consideration during the CEQA review process. The CDFG further classifies some species under the following categories: "Fully Protected", "Protected birds" (CDFG Code §3511), "Protected mammals" (CDFG Code §4700), "Protected amphibian" (CDFG Code §5050 and Chapter 5, §41), "Protected reptile" (CDFG Code §5050 and Chapter 5, §42), and "Protected fish" (CDFG Code §5515). The designation "Protected" indicates that a species may not be taken or possessed except under special permit from CDFG; "Fully Protected" indicates that a species can be taken for scientific purposes by permit only (CDFG 2002d). The Fish and Game Code §§3503 and 3505 prohibits the take, destruction or possession of any bird, nest or egg of any bird unless express authorization is obtained from CDFG.

Based on a literature review and a familiarity with the fauna within the project region, a total of 21 special-status animal species were considered to have at least some potential to occur within the region or have been recorded historically in the project vicinity (Table 3). Those species considered to have a moderate to high potential to occur within the study area include California red-legged frog (*Rana aurora draytonii*), a federally-listed Threatened and California Special Concern Species, Bridges' Coast Range shoulderband snail (*Helminthoglypta nickliniana bridgesi*), a Federal Species of Concern, Cooper's hawk (*Accipiter cooperii*), a California Special Concern Species, golden eagle (*Aquila chrysaetos*), a California Special Concern Species and a California Fully Protected Species), and white-tailed kite (*Elanus leucurus*), a federal Species of Concern and a California Fully Protected Species). Additionally, four species of bats are considered to have a moderate potential to be present within oak woodland on site.

Those special-status wildlife species that have at least some potential to occur on site and/or are prominent in today's regulatory environment are discussed in more detail below.

Bay Checkerspot Butterfly

The bay checkerspot butterfly (*Euphydryas editha bayensis*), federally-listed Threatened, occurs in native grasslands of the greater Bay Area. Its life cycle is closely tied to that of its larval host plant, dwarf plantain (*Plantago erecta*), which prefers shallow, usually serpentine-derived or similar infertile soils. The butterfly larvae will sometimes make use of two species of secondary host plants (purple owl's clover (*Castilleja densiflora*), and exserted paintbrush (*Castilleja exserta*)) if the dwarf plantain senesces before butterfly development is complete. Thus the presence of one or both of the secondary larval host plants in combination with substantial densities of dwarf plantain contribute to optimal bay

checkerspot butterfly habitat. Nectar plants are also an important habitat component for adult butterflies, and may include a number of species often found in association with serpentine grasslands, such as California goldfields (*Lasthenia californica*), tidy tips (*Layia platyglossa*), and desert parsley (*Lomatium* spp.) (USFWS 1998).

Historically the Bay checkerspot butterfly was found in native grasslands around San Francisco Bay from Twin Peaks and San Bruno Mountain, west of the bay, and Contra Costa County, east of the bay, south through Santa Clara County. The Bay checkerspot butterfly exists as a metapopulation, thus the exact distribution of the butterfly varies through time. Therefore, any site with appropriate habitat in the vicinity of the historic range of the Bay checkerspot butterfly should be considered potential habitat. Today, the only lands in the San Francisco Bay Area that support suitable habitat for Bay checkerspot butterfly, including dwarf plantain in sufficient density, are areas of serpentine soils (USFWS 1998).

Based on the reconnaissance survey, the study area does not support serpentine soils or habitat suitable for Bay checkerspot butterfly. Although a bay checkerspot butterfly colony was historically known to occur in Joaquin Miller Park, approximately 2 miles west of the study area, this colony disappeared during the 1970's due to habitat modification (CNDDDB 2002). Given that suitable habitat is not present on site and there are no known occurrences within the vicinity, the Bay checkerspot butterfly is not expected to occur within the study area.

Callippe Silverspot Butterfly

The Callippe silverspot butterfly (*Speyeria callippe callippe*), federally-listed Endangered, is a medium-sized butterfly endemic to the San Francisco Bay area. Although it is believed to have been formerly widespread throughout the grass-covered hills of the Bay Area, its habitat has been dramatically reduced and altered by development. Currently, callippe silverspot butterfly is restricted to populations on San Bruno Mountain, Joaquin Miller Park and Redwood Regional Park in Oakland, and the Sky Valley-Lake Herman area of southern Solano County.

The callippe silverspot butterfly occurs in grasslands that support colonies of its sole larval food plant, California yellow violet (*Viola pedunculata*). Adults tend to congregate on prominent hilltops or ridges where they mate. Females then return to the violet colonies where they lay their eggs. The flight season generally extends from mid-May through early July. The preferred nectar plants include native species such as coyote mint (*Monardella* spp.) and California buckeye (*Aesculus californica*), as well as non-native thistles such as milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), and bull thistle (*Cirsium vulgare*).

A callippe silverspot butterfly colony is known to occur on the border of Joaquin Miller Park and Redwood Regional Park, approximately two miles southwest of the study area (CNDDDB 2002), where they are associated with their larval food plant, California yellow violet (*Viola pedunculata*). However, extensive work conducted on the distribution and natural history of the callippe silverspot butterfly in the San Francisco Bay Area revealed no records of

callippe silverspot butterfly in Contra Costa County (Steiner 1990). While a number of the preferred nectar plants were detected within the study area during botanical surveys, including coyote mint, California buckeye, milk thistle, Italian thistle, and bull thistle, no California yellow violet is present (Sycamore 2004). Furthermore, there is no known record of the violet from the extensive grasslands on any of the EBMUD land holdings in the East Bay, including nearby watershed (Stebbins 1996). Therefore, based on the known distribution of the callippe silverspot butterfly and California yellow violet in the region, the callippe silverspot is not expected to occur within the study area.

Steelhead/Rainbow Trout

Steelhead/rainbow trout (*Oncorhynchus mykiss*) range from the Oregon border to Malibu Creek, in southern California. Both anadromous and freshwater resident forms occur and both forms may be present in a single stream. Resident forms in freshwater are usually referred to as rainbow trout, whereas anadromous forms are called steelhead. Spawning generally occurs between December and May, with the primary spawning occurring in January and February. Spawning occurs in gravel beds occurring at the top of a natural hydraulic break (riffle), allowing oxygen in the water to flow past the eggs while maturing.

A resident, landlocked population of steelhead are known to occur in the San Leandro Creek watershed upstream of the San Leandro Reservoir, including Indian Creek upstream of the confluence with San Leandro Creek, less than one mile southwest of the study area (Leidy 1984). Within the study area, Indian Creek supports gravel beds and root-wad structures and is considered to provide potentially suitable spawning and foraging habitat for steelhead. Areas potentially supporting backwater pools were also present. Given the close proximity of known occurrences within the San Leandro watershed and the presence of potentially suitable habitat, steelhead are considered to have a moderate potential to occur within the study area.

Steelhead/rainbow trout populations are broken up into Evolutionarily Significant Units (ESU's). To be considered an ESU, a population or group of populations must 1) be substantially reproductively isolated from other populations, and 2) contribute substantially to the ecological or genetic diversity of the biological species (Busby *et al.* 1996). Steelhead that exist in the San Francisco Bay are part of the California Central Coast ESU. However, the National Marine Fisheries Service (NMFS) considers the Lake Chabot Dam, downstream of the San Leandro Reservoir, to be the uppermost extent of Critical Habitat for the Central California Coast Steelhead ESU (NOAA 2000), as the dam represents a permanent barrier to movement. As such, the study area is not within Critical Habitat for the Central California Coast ESU, and the landlocked resident population of steelhead is not afforded any formal protection under state or federal law and does not require review under CEQA. Nonetheless, the occurrence of this landlocked population of steelhead is considered to be unique to the region, therefore its potential presence is noted herein. No further surveys are warranted.

California Red-legged Frog

California red-legged frogs (*Rana aurora draytonii*), federally-listed Threatened and California Special Concern Species, breed primarily in ponds, but have also been known to breed in slow moving streams, or deep pools in intermittent streams (USFWS 1997). Inhabited ponds are typically characterized by permanent, deep water (at least three feet in depth), and contain emergent vegetation. Sufficient pond depth and shoreline cover, such as emergent vegetation, are both critical, because they provide escape cover, increase habitat complexity and provide the necessary structure for the deposition of eggs (USFWS 1997). The breeding period begins following the onset of heavy rains, from early to late winter, typically from November through early May. The larvae mature in 3.5 to 7 months depending on food availability, competition and temperature and metamorphose between July and September (Storer 1925). Non-breeding California red-legged frogs have been found in both aquatic and upland habitats further than 100 m (328 feet) from a water source (USFWS 2001). The majority of individuals prefer dense, shrubby or emergent vegetation, closely associated with deep (>0.7 meters) still, or slow moving water. However, some individuals use habitats that are removed from aquatic habitats, seeking cover under shrubs and rocks, and within organic debris and downed trees or logs (USFWS 2001). According to the federal listing of California red-legged frog, aestivation habitat may include areas up to 300 feet from a stream corridor or other aquatic sources depending on habitat availability, e.g. burrows, tree hollows, crevices, etc., and local environmental conditions (USFWS 1996b). In general, densely vegetated terrestrial areas within the riparian corridor provide important escape cover during in-stream seasonal flood events.

The study area is not within formerly designated California red-legged frog Critical Habitat, but is approximately six miles west of formerly designated Critical Habitat Unit 15. The study area supports an abundance of aquatic features including seeps, freshwater marsh, and ephemeral drainages. No ponds are present within the study area. However, several areas of potential pooling are present within Indian Creek, which may provide suitable breeding habitat for California red-legged frog. The existing seeps and freshwater marsh habitat provide potentially suitable refugia habitat for California red-legged frog. California red-legged frogs have been reported less than three miles northwest of the study area within the Gateway Valley in Orinda (CNDDDB 2002). Given that California red-legged frogs have been reported in the regional vicinity and suitable habitat is present, California red-legged frog was considered to have a moderate to high potential to occur within the study area. However, USFWS protocol-level focused surveys for California red-legged frog conducted in the summer of 2003 failed to detect California red-legged frog within the study area (Sycamore 2003).

It should be noted that the final designation of Critical Habitat for California red-legged frog has been suspended for at least two years but possibly longer, due to a Consent Decree¹ that was enacted on November 6, 2002 between the USFWS and the Homebuilder's Association of Northern California. The Consent Decree directed the USFWS to conduct a full economic impact analysis, the former having been ruled inadequate, and re-designate Critical Habitat

¹ A Consent Decree is an Order signed by a judge to which the parties have agreed.

for California red-legged frog. The timeline for completion of the re-designation is November 2004.

Alameda Whipsnake

Alameda whipsnake (*Masticophis lateralis euryxanthus*), federally- and state-listed Threatened is restricted to the hills of Alameda, Contra Costa, and northern Santa Clara counties within the San Francisco Bay region (Stebbins 1985). There are five remaining populations with little or no genetic flow between them: Sobrante Ridge, Oakland Hills, Hayward Hills, Mount Diablo vicinity and the Black Hills, and Wauhab Ridge. Primary habitats for Alameda whipsnake typically include east, southeast, south, and southwest facing slopes containing coastal scrub and chaparral, with rock outcrops within approximately 0.5 miles (Swaim 1994). Recent telemetry data indicate that, although home ranges of Alameda whipsnakes are centered on shrub communities, whipsnakes frequently venture into adjacent habitats, including grassland, oak savanna, and occasionally oak-bay woodland.

The study area is located within formerly designated Alameda whipsnake (AWS) Critical Habitat Unit 2, the Oakland – Las Trampas Unit (USFWS 2000). The study area supports an abundance of the Primary Constituent Elements (*i.e.* scrub, grassland, woodland) required by Alameda whipsnake. Specifically, the study area supports non-native annual grassland, northern coyote brush and sage scrub, and oak woodland habitats. Additionally, several areas along the northeastern ridgeline support moderate amounts of rock outcroppings, which are associated with the scrub habitats. Scrub habitats within the study area occupy mostly southwest-facing slopes. With the exception of dense residential development to the north and east, similar habitats are contiguous with the study area on open space areas to the north, west, and south. A review of the CNDDDB (2002) revealed numerous reported occurrences in the Las Trampas Ridge USGS Quadrangle, within four miles east of the study area. Because of the mosaic of habitats present, including an abundance of scrub, its adjacency to open space lands supporting suitable habitat, the fact that the site is within formerly designated Critical Habitat and is within the range of numerous known occurrences, the potential for Alameda whipsnake to occur within the study area is considered to be moderate to high.

Bridges' Coast Range Shoulderband Snail

The Bridges' Coast Range shoulderband snail (*Helminthoglypta nickliniana bridgesi*), a federal Species of Concern, occurs in tall grassland, thistles, weeds, and rock pile habitat. They have also been found underneath woody debris under streamside oak woodland (Roth 1999). The Bridges' Coast Range shoulderband snail is limited in its range to Contra Costa and northern Alameda counties. It has been recorded on the west slope of the Berkeley Hills, including Tilden Park, along San Pablo Creek, on San Pablo Ridge above Wildcat Creek, Point Isabel, near the Caldecott Tunnel, Moraga Canyon, Coyote Gulch in Moraga, Marsh Creek Canyon, and near Marsh Creek Springs (Roth 1999).

Because this species is a former candidate for listing by the USFWS, distributional information on this snail is maintained by the CNDDDB. Former Category 2 candidate

species are now referred to as federal Species of Concern. However, at present, Bridges' Coast Range shoulderband snail is afforded no protection under state or federal law, and does not require review under CEQA. Because suitable habitat is present, this species is considered to have a moderate potential to occur within the study area. However, based on its current lack of legal status, no further surveys are warranted at this time.

Foothill Yellow-legged Frog

Foothill yellow-legged frog (*Rana boylei*), a federal Species of Concern and a California Special Concern Species, occurs in rocky stream habitats, usually in woodland, chaparral or forest, with little to no pooling or bank vegetation cover (Stebbins 1985). Egg masses are attached to rocks in backwater pools in small- to medium-sized streams with cobble-sized substrate (Hayes and Jennings 1988). The range of this species occurs from the northern counties of California, west of the Cascade Ranges, in the Coast Ranges, and west of the Sierras along the foothills, but not in the Central Valley, as far south as Kern County. Breeding occurs from mid-March to May, depending on rainfall, with tadpoles metamorphosing in summer, thus they require perennial streams or at least watercourses that flow late in the season (Stebbins 1985). Foothill yellow-legged frogs will also utilize ephemeral creeks where perennial pools are present through the end of summer (Seldenrich 2002).

Indian Creek, within the study area, supports a combination of partially exposed bedrock, cobble, and gravel channel bottom, with areas of potential backwater pools. A majority of the creek is associated with a dense canopy cover, with some areas supporting little to moderate amounts of bank-side vegetation. Indian Creek is considered to be at least moderately suitable habitat for foothill yellow-legged frog. Although foothill yellow-legged frogs have not been recently reported from Indian Creek, the species has been recorded from less than one and one-half mile northwest of the study area (CDFG 2002e). Given that foothill yellow-legged frog is known to occur within the region and moderately suitable habitat is present in the immediately adjacent creek, foothill yellow-legged frogs were considered to have at least a low potential to occur within the study area. However, focused surveys for foothill yellow-legged frog conducted concurrently with USFWS protocol-level focused surveys for California red-legged frog in the summer of 2003 failed to detect foothill yellow-legged frog within the study area (Sycamore 2003).

California Tiger Salamander

The California tiger salamander (*Ambystoma californiense*), federally Proposed Threatened and a California Special Concern Species, is a relatively large, terrestrial salamander that inhabits grasslands and oak savanna habitats in the valleys and low hills of Central and Northern California. CTS have been recorded from all of the nine Bay Area Counties at elevations ranging from approximately 10 to 3,500 feet above mean sea level (Shaffer and Fisher 1991). California tiger salamanders require vernal pools, ponds (natural or man-made), or semi-permanent calm waters (where ponded water is present for a minimum of three to four months) for breeding and larval maturation, and adjacent upland areas that contain small mammal burrows or other suitable refugia for aestivation. No ponds and only sparse gopher activity (gopher burrows, mounds) were detected during the reconnaissance

survey. Furthermore, California tiger salamander are not expected to occur within the study area, as they are presumed to be absent in the region. Since the late 1930's there have not been any reported occurrences of California tiger salamander in the vicinity and Dr. Mark Jennings considers them to be extirpated from the area (Jennings and Hayes 1994, CNDDDB 2002). No further surveys are warranted.

Western Pond Turtle

The western pond turtle (*Clemmys marmorata*), California Species of Special Concern and formerly a federal Species of Concern, originally inhabited many of the Pacific drainage basins in California (Stebbins 1985). Primary habitats include permanent water sources such as ponds, streams, and rivers. Aerial and aquatic basking sites are an important habitat component and turtles are often seen basking on logs, mud banks, or mats of vegetation for thermoregulation. Generally, the western pond turtle leaves the water for reproduction, aestivation, and over-wintering (Jennings and Hayes 1994). Indian Creek may provide marginally suitable backwater pools for western pond turtle, however the densely shaded stream provides very few basking opportunities. Therefore, the potential for western pond turtle to occur on site is considered to be low.

Special-Status Birds

Rolling hills supporting grassland and mature coast live oak woodland within the study area provide suitable nesting and foraging habitat for three raptors that have a high potential to occur on site: These include Cooper's hawk (*Accipiter cooperi*), a California Special Concern Species, and golden eagle (*Aquila chrysaetos*), a California Special Concern Species and a California Fully Protected Species, and white-tailed kite (*Elanus leucurus*), a federal Species of Concern and a California Special Concern Species. The study area also supports suitable overwintering and foraging habitat for sharp-shinned hawk (*Accipiter striatus*, a California Special Concern Species), and this species was detected on site during the reconnaissance-level survey. However, sharp-shinned hawk is not expected to nest within the study area, as this species is not known to breed in the San Francisco Bay Area. Two special-status passerines, California yellow warbler (*Dendroica petechia brewsteri*), and yellow-breasted chat (*Icteria virens*), both California Special Concern Species, have at least a low potential to occur in the project area as they nest in dense riparian habitats similar to those found on site. Burrowing owl (*Athene cunicularia*), a California Species of Special Concern is not expected to occur within the study area. No ground squirrel activity was detected during the site reconnaissance. Although suitable grassland habitat was present, the absence of ground squirrel activity and ground squirrel burrows (typically utilized by burrowing owl year round) render the study area unsuitable for burrowing owl. However, if ground squirrels were to colonize the site in the future, potentially suitable burrowing owl habitat could become available.

Special-Status Bats

Four special-status bat species are known to occur in the region. These bat species include pallid bat (*Antrozous pallidus*), a California Special Concern Species, and long-eared bat (*Myotis evotis*), Yuma myotis bat (*Myotis yumanensis*), and fringed myotis bat (*Myotis*

thysanodes), all federal Species of Concern. These are tree roosting bats, which will roost in tree cavities, foliage, exfoliating bark, and rotting wood in snags. Given the presence of mature stands of woodland including all of these structural components, the study area provides suitable roosting habitat for special-status tree roosting bats.

Table 3. Potentially Occurring Special-Status Wildlife Species

COMMON NAME	SCIENTIFIC NAME	STATUS*	POTENTIAL FOR OCCURRENCE
<u>State or Federally Endangered or Threatened Species</u>			
Invertebrates			
Bay checkerspot butterfly	<i>Euphydryas editha bayensis</i>	FT	Not Expected: no suitable serpentine habitat present on site. Considered extinct in the local region.
Callippe silverspot butterfly	<i>Speyeria callippe callippe</i>	FE	Not Expected: larval host plant does not occur on site. Callippe silverspot is not known to occur in Contra Costa County.
Fishes			
Steelhead Central California Coast ESU	<i>Oncorhynchus mykiss</i>	FT	Moderate: suitable spawning and foraging habitat present. Known occurrence within Indian Creek downstream of the study area.
Amphibians			
California red-legged frog	<i>Rana aurora draytonii</i>	FT; CSC	Moderate to High: suitable dispersal habitat on site. Species not known to occur within the vicinity of the study area. However, not detected on site during focused amphibian surveys.
Reptiles			
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	FT, ST	Moderate to High: suitable habitat present on site.
Western pond turtle	<i>Clemmys marmorata</i>	CSC	Low: no suitable basking areas.
<u>California Species of Special Concern, State Protected, or Federal Candidate Species</u>			
Invertebrates			
Bridges' coast range shoulderband (snail)	<i>Helminthoglypta nickliniana bridgesi</i>	FSC	Moderate: suitable habitat present. Known to occur on the regional vicinity
Amphibians			
California tiger salamander	<i>Ambystoma californiense</i>	FPT; CSC	Not expected: no suitable breeding or aestivation habitat present; species not known to occur within project vicinity.
Foothill yellow-legged frog	<i>Rana boylei</i>	FSC; CSC	Low: suitable habitat present; species known to occur within project vicinity. However, not detected within the study area during focused amphibian surveys.

COMMON NAME	SCIENTIFIC NAME	STATUS*	POTENTIAL FOR OCCURRENCE
Birds			
Cooper's hawk (nesting only)	<i>Accipiter cooperi</i>	CSC	High: suitable nesting habitat present.
Birds (cont'd)			
Sharp-shinned hawk (nesting only)	<i>Accipiter striatus</i>	CSC	Detected: Suitable over-wintering habitat present. Does not breed in the San Francisco Bay Area.
Golden eagle (nesting/wintering)	<i>Aquila chrysaetos</i>	CSC; CFP	High: suitable nesting habitat present; known to occur in the vicinity.
California Yellow warbler (nesting only)	<i>Dendroica petechia brewsteri</i>	CSC	Low: suitable nesting habitat available
Yellow-breasted chat	<i>Icteria virens</i>	MB; CSC	Low: suitable breeding habitat present.
White-tailed kite (nesting only)	<i>Elanus leucurus</i>	FSC, CFP	High: suitable nesting habitat available.
Mammals			
Pallid bat	<i>Antrozous pallidus</i>	CSC	Moderate: suitable roosting habitat present.
Long-eared bat	<i>Myotis evotis</i>	FSC	Moderate: suitable roosting habitat present.
Fringed myotis bat	<i>Myotis thysanodes</i>	FSC	Moderate: suitable roosting habitat present.
Yuma myotis bat	<i>Myotis yumanensis</i>	FSC	Moderate: suitable roosting habitat present.

***Status Codes**

FE	=	Listed as Endangered by the Federal Government
FT	=	Listed as Threatened by the Federal Government
FPT	=	Proposed as Threatened by the Federal Government
FSC	=	Federal Special Concern Species
FC	=	Federal Candidate Species
SE	=	Listed as Endangered by the State of California
ST	=	Listed as Threatened by the State of California
CSC	=	California Special Concern Species
CFP	=	Fully protected under the California Fish and Game Code

3.3 Wildlife Movement Corridors and Habitat Fragmentation

Wildlife movement includes migration (usually one direction per season), inter-population movement (long-term genetic exchange) and small travel pathways (daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow between populations.

These linkages between habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement between populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations comprising a large single population, often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, *i.e.* migration corridors and movement corridors.

Depending on the condition of the corridor, gene flow between populations may be high in frequency, thus allowing for high genetic diversity within the population, or may be low in frequency. Potentially low frequency gene flow may lead to complete isolation and, if pressures are strong, potential local extinction (McCullough 1996, Whittaker 1998).

Habitat fragmentation, by definition, is an event that creates a greater number of habitat patches that are smaller in size than the original contiguous tract(s) of habitat. Fragmentation of primary habitat types can hinder regional wildlife movements. The resulting reduced interaction between individuals changes the long-term dynamics of populations distributed among fragments and an inability to genetically adapt or respond to environmental pressures. This increases the probability of extinction for these populations compared to those associated with non-fragmented landscapes (Kupfer *et al.* 1997, Zuidema *et al.* 1996). Effects of fragmentation on the movement or dispersal of organisms is crucial to composition and diversity (Opdam 1990, Tiebout III & Anderson 1997). Considering the impacts resulting in potential fragmentation of primary habitat types and loss of valuable dispersal corridors is imperative when assessing the biological impacts of a project.

With exception of densely developed lands north and east, the study area is contiguous with undeveloped lands to the northwest, west and south. Although bordered by Canyon Road, just south of the study area, this road does not present a significant movement barrier for many wildlife species, as it is not a heavily traveled road. Similarly, Indian Creek flows below Canyon Road via a 60-inch culvert. This aquatic and riparian corridor is likely utilized by a variety of aquatic and terrestrial wildlife species. As such, Indian Valley is considered to support a potential wildlife movement corridor that is contiguous with the open space lands to the northwest and EBMUD and East Bay Regional District parklands to the south and west, respectively.

3.4 Sensitive Natural Communities

Sensitive natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive regulatory protection (*i.e.*, §404 of the Clean Water Act and/or the CDFG §§1600 *et seq.* of the California Fish and Game Code). In addition, the CNDDDB has designated a number of communities as rare; these communities are given the highest inventory priority (Holland 1986, CDFG 2003).

The study area supports three such sensitive vegetation communities that are regulated by municipal, county, state, or federal legislation or policies. These include freshwater marsh and seeps, Central Coast riparian scrub, and coast live oak woodland. No other sensitive plant communities are present within the study area. Although none of these communities are considered rare, coast live oak woodland in association with black oak or valley oak is given a high inventory priority by the CNDDDB (CDFG 2003).

Freshwater marsh and seep, and Central Coast riparian scrub are regulated by the USACE and/or the RWQCB as aquatic habitats protected by the Clean Water Act, and are generally regarded as sensitive as wetland communities that make significant contributions toward maintaining water quality. CDFG regards aquatic communities as offering habitat opportunities for certain special-status wildlife species, such as California red-legged frog .

Central Coast Riparian Scrub and Freshwater Marsh and Seep

Although neither freshwater marsh nor Central Coast riparian scrub are designated as special-status or sensitive natural communities by the CNDDDB, these aquatic communities are expected to fall under state and federal jurisdictions as wetlands or other waters. Freshwater marsh and seep fall under U.S. Army Corps of Engineers (USACE) jurisdiction when they are contiguous with “navigable waters,” whereas “isolated” wetlands garner protection from the Regional Water Quality Control Board (RWQCB). USACE also takes jurisdiction over portions of Central Coast riparian scrub where aquatic plant species are rooted in the channel of a watercourse. CDFG jurisdiction is typically bounded by top-of-bank or the outermost edges of riparian vegetation, including the outer extent of willow or other riparian canopy. CDFG considers Central Coast riparian scrub as potential habitat for special-status as well as common wildlife species. Aquatic vegetation is also widely regarded as providing important ecological functions such as groundwater recharge and filtration, temperature regulation of streams, as well as providing watering, foraging, and cover opportunities to a wide variety of wildlife species.

Coast Live Oak Woodland

Although coast live oak woodland has no formal protection under state law, the Town of Moraga has adopted language in their General Plan (June 4, 2002) indicating an interest in preserving “the Town’s natural setting and environmental resources,” including measures to “preserve and protect trees wherever they are located in the community,” in particular “trees with historical significance” and “certain tree-covered areas, especially with respect to their value as wildlife habitats.”

Although this vegetation community is not granted special-status by CDFG, it does fall into their jurisdiction when present within top-of-bank along riparian corridors. It also provides important ecological functions such as wildlife movement corridors, temperature regulation of streams, and habitat for special-status species as well as common wildlife.

3.5 Wetlands and Other Waters of the U.S.

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies.

The USACE exerts jurisdiction over “waters of the U.S.,” including, but not limited to all waters which are subject to the ebb and flow of tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds, and tributaries of the above features. The extent of waters of the U.S. is generally defined as that portion which falls within the limits of “ordinary high water.” Field indicators of ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Typically, the width of waters corresponds to the two-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes and similar areas, are defined by the USACE as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3 [b]; 40 CFR 230.3 [t]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, wetlands hydrology as determined by field investigation) must be present for a site to be classified as a wetland by the USACE (Environmental Laboratory 1987).

The study area is located on Indian Creek, a headwater tributary to the San Leandro Creek watershed. Indian Creek flows in a southerly direction within the western portion of the study area, eventually emptying into San Leandro Creek off site, just upstream of an arm of Upper San Leandro Reservoir. Within the study area, numerous tributaries to Indian Creek originate below the crest of Gudde Ridge as seeps or springs and flow southwest into Indian Creek. Other, smaller tributaries begin in the valley bottom as intermittent, scoured channels, here characterized as “unvegetated waters.” On the east side of Gudde Ridge, seeps and drainages flow eastward into the Moraga Valley, eventually also joining San Leandro Creek and the Upper San Leandro Reservoir. Portions of the main channel of Indian Creek and many on-site tributaries are associated with scattered willows or large, well-developed patches of Central Coast riparian scrub. Within the study area, Indian Creek appears as a “blue-line” stream on the Oakland East USGS 7.5” topographic quadrangle.

Based on this initial wetland assessment, approximately 18,656 linear feet of potential USACE jurisdictional wetlands and other waters occur within the study area.

The CDFG exercises jurisdiction over wetland and riparian resources associated with rivers, streams, and lakes under California Fish and Game Code Sections 1600 to 1607. The CDFG has the authority to regulate work that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. The CDFG's jurisdiction along a river, stream, creek, or other water body is usually bounded by the top-of-bank or the outermost edges of riparian vegetation, including freshwater marsh and the outer extent of willow or other riparian canopies such as that mapped as Central Coast riparian scrub on site.

In addition to unvegetated waters, numerous seeps with associated freshwater marsh vegetation are located on site. Geology of the Indian Valley study area is dominated by the Moraga formation, a fractured and relatively porous unit of volcanic rock, overlying relatively impervious sedimentary deposits of the Orinda Formation. Water percolating from above or under hydrostatic pressure from beneath is forced to the surface at the contact between these formations. The majority of these seeps originate midslope on the both sides of Gudde Ridge, at the location of the geologic contact. At the time of our survey many seeps issued running water. Most of these seeps, some quite extensive, flow directly into Indian Creek, contributing to its nearly year-round flow.

4.0 PERMITTING IMPLICATIONS

Riparian areas, wetlands, waters of the United States, waters of the State, and special-status species and natural communities are considered sensitive biological resources and fall under the jurisdiction of several state and federal regulatory agencies. Impacts to these areas or resources often require federal, state, and/or local permits, depending on the type and extent of project impacts. However, at the discretion of the lead agency in the CEQA review process, prior to the issuance of any permit for actions that would result in impacts to wetlands, waters, special-status species, or sensitive natural communities, notification to all or some of the following agencies is likely to be required:

Federal Jurisdiction – United States Army Corps of Engineers (USACE)

Section 404 of the Clean Water Act (CWA) of 1972 regulates activities that result in the discharge of dredged or fill material into waters of the United States, including wetlands. The primary intent of the CWA is to authorize the United States Environmental Protection Agency (EPA) to regulate water quality through the restriction of pollution discharges, which includes sediments. The USACE has the principal authority to regulate discharges of dredged or fill material into waters of the United States. However, EPA has oversight authority over the United States Army Corps of Engineers (USACE) and retains veto power over the USACE's decision to issue permits.

Waters of the United States include: 1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide; 2) all interstate waters including interstate wetlands; 3) all other waters such as interstate lakes, rivers, streams (including intermittent

streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; 4) tributaries of the above; and 5) territorial seas.

Federal jurisdictional wetlands are defined as those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, bogs, vernal pools, seeps, marshes and similar areas.

Because of the recent Supreme Court *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) decision, the USACE no longer takes jurisdiction over "isolated wetlands." The USACE does take jurisdiction over "adjacent wetlands," which are hydrologically connected wetlands that may in some cases appear "isolated." In response to the federal agency not taking authority over isolated wetlands, the Regional Water Quality Board (RWQCB) now typically takes jurisdiction over these and other features as "waters of the State." The result is that all wetlands and waters in California, whether isolated or not, may be regulated by either the USACE or the RWQCB, or both. Furthermore, in creek or river systems, RWQCB takes jurisdiction similar to California Department of Fish and Game (CDFG), from top of bank to top of bank. In addition to those drainages such as creeks and rivers that have a well defined bed and bank, the RWQCB, subsequent to the SWANCC decision, has begun taking into their jurisdiction sometimes poorly defined swales, typically where directional flow may take place only intermittently, but contributes water to larger drainages. Many applicants have misunderstood the implications of the SWANCC decision, especially in the context of the State's broadened regulatory interpretation and the ability of the USACE to take jurisdiction over "adjacent wetlands."

Any discharge of dredged or fill material into waters of the United States must be approved by the USACE pursuant to Section 404 of the CWA. Two permit types are possible: 1) discretionary Individual Permits; or 2) Nationwide Permits (NWP) which are already in place, non-discretionary, and generally less time-consuming than the Individual Permit. NWPs may be grouped together or "stacked with certain limitations."

A standard Individual Permit is required if there are: 1) Discharges that will result in the fill of any tidal waters or wetlands; or 2) Impacts to more than one-half acre of non-tidal waters or wetlands, and/or impacts to greater than 300 linear feet of non-tidal waters or wetlands, including creeks (either perennial intermittent or ephemeral), arroyos or vegetated and unvegetated tributaries. In contrast, projects that result in impacts of less than one-half acre and/or less than 300 linear feet may be authorized under one of the existing USACE Nationwide Permits (NWPs) if they meet all of the NWP General Conditions.

Regardless of the permits required, careful project design and efforts to avoid and minimize impacts to special-status species and wetland resources will streamline the permitting process and significantly improve the likelihood of rapid project approval.

State Jurisdiction - California Department of Fish and Game

The CDFG exercises jurisdiction over wetland and riparian resources associated with rivers, streams, and lakes under California Fish and Game Code Sections 1600 to 1607. The CDFG has the authority to regulate work that will: 1) Divert, obstruct, or change the natural flow of a river, stream, or lake; 2) Change the bed, channel, or bank of a river, stream, or lake; or 3) Use material from a streambed. CDFG's jurisdictional area along a river, stream or creek is usually bounded by the top-of-bank or the outermost edges of riparian vegetation. Typical activities regulated by CDFG under Sections 1600-1607 authority include installing outfalls, stabilizing banks, creek restoration, implementing flood control projects, constructing river and stream crossings, diverting water, damming streams, gravel mining, logging operations and jack-and-boring.

Careful project design, including the minimization of impacts and reduction of hard structure surface area (*i.e.*, minimal amounts of cement or rip-rap), is critical for CDFG approval. The CDFG emphasizes the use of biotechnical or bioengineered creek-related components (emphasis on natural materials, sometimes in conjunction with hard materials that minimize the need for hard structures in creeks).

State Jurisdiction - Regional Water Quality Control Board

Pursuant to Section 401 of the Clean Water Act and EPA 404(b)(1) guidelines, in order for a USACE federal permit applicant to conduct any activity which may result in discharge into navigable waters, they must provide a certification from the RWQCB that such discharge will comply with the state water quality standards. The RWQCB has a policy of no-net-loss of wetlands in effect and typically requires mitigation for all impacts to wetlands before it will issue a water quality certification thereof.

Under the Porter-Cologne Water Quality Control Act (Cal. Water Code §§13000-14920), the RWQCB is authorized to regulate the discharge of waste that could affect the quality of the State's waters. Therefore, even if a project does not require a federal permit (*i.e.*, a NWP from the USACE), it may still require review and approval of the RWQCB. In light of the approval of the new NWPs by the USACE on March 9, 2000 and the SWANCC decision, the RWQCB is currently revising its requirements concerning RWQCB 401 Certification.

The standards for certification have been raised and the jurisdiction over which RWQCB reviews has broadened considerably. Although new regulations have yet to be issued, the California Code of Regulations has been changed and affords the RWQCB greater discretion over water quality certification requirements.

When reviewing applications, the RWQCB focuses on ensuring that projects do not adversely affect the "beneficial uses" associated with waters of the State. Generally, the RWQCB defines beneficial uses to include all of the resources, services and qualities of aquatic ecosystems and underground aquifers that benefit the State. In most cases, the RWQCB seeks to protect these beneficial uses by requiring the integration of water quality control measures into projects that will result in discharge into waters of the State. For most construction projects, RWQCB requires the use of construction and post-construction Best

Management Practices (BMPs). In many cases, proper use of BMPs, including bioengineering detention ponds, grassy swales, sand filters, modified roof techniques, drains, and other features, will speed project approval from RWQCB. Development setbacks from creeks are also required by RWQCB as they often lead to less creek-related impacts in the future.

To meet the RWQCB standards for water quality protection as well as the broader jurisdiction generally asserted by them, it has become necessary to prepare a report addressing all hydrologic issues related to a project application. The report involves an analysis of pre-project watershed and water quality conditions (*e.g.*, before and after percent impervious surface analysis, before and after runoff analysis, design alternatives to address post-project changes in the watershed, and minimization of these changes (BMPs)). Additionally, the report should include a discussion of impacts to waters of the State and biological resources and how the project avoided those impacts to the maximum extent feasible, stressed minimization of impacts, and proposed mitigation for unavoidable impacts.

Federal Jurisdiction - United States Fish and Wildlife Service (USFWS)

The Federal Endangered Species Act (FESA) prohibits “take” of federally-listed Threatened or Endangered species. The FESA defines “take” to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct” 16 U.S.C. §1532(19). The FESA requires that actions authorized, funded or carried out by federal agencies do not jeopardize the continued existence of a federally-listed species or adversely modify designated Critical Habitat for such species. If a federal agency determines that a proposed federal action (*i.e.*, issuance of a Clean Water Act Section 404 permit for wetland fill) “may affect” a listed species and/or designated Critical Habitat, the agency must consult with the USFWS and/or National Marine Fisheries Service (NMFS) for protected marine and anadromous fish species in accordance with Section 7 of the FESA. If take of a federally-listed species may occur, the applicant may be required to obtain an Incidental Take Permit (ITP) from the USFWS. The ITP allows “incidental” taking of federally-listed species if the take is “incidental to and not the purpose of, the carrying out of an otherwise lawful activity” 16 U.S.C. §1539(a)(1)(B). An ITP is issued by USFWS only if the applicant, to the maximum extent possible, has minimized and mitigated for the impacts of the taking, provided adequate funding for the mitigation plan, and if the taking would not appreciably reduce the likelihood of the survival and recovery of the species in the wild 16 U.S.C. §1539(a)(2)(B).

If there is not federal funding or a federal action required for the project (*i.e.*, no permit required from the USACE for fill of wetlands), and the project is likely to affect a listed species, an applicant may receive authorization for incidental take under Section 10 of the FESA by preparing a USFWS-approved Habitat Conservation Plan (HCP). However, if incidental take protection is needed for federally-listed species in both wetland and upland areas, the USACE may elect to regulate only the wetland species, therefore requiring that the project be processed under an HCP.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of our initial site reconnaissance and an assessment of regional botanical distributions and on-site habitats, a total of 22 special-status plant species were considered to have some potential to occur within the region of the study area.

Following Sycamore's recommendations, focused botanical surveys were conducted on the site during seasons appropriate for the detection of any potentially occurring species. Surveys were commenced in March and completed in August of 2003. During the course of those surveys, no federally- or state-listed Endangered or Threatened plant species were detected within the study area, and none are expected. However, populations of three special-status, CNPS-listed plant species were detected within the study area. These include bent-flowered fiddleneck, CNPS List 1B, robust monardella, also CNPS List 1B, and Oakland star-tulip, CNPS List 4. No other special-status plant species were detected on site, and none are expected. No other special-status plant species are considered to have any potential to occur within the study area due to a lack of suitable habitat or the fact that they would have been detectable during the surveys conducted. No further botanical studies for special-status plant species are warranted. A detailed account of the survey methods and results are presented in a separate report (Sycamore 2004).

Also based on the findings of our initial reconnaissance survey, several special-status wildlife species were considered to have the potential to occur within the study area. Due to the presence of California red-legged frog within close proximity to the study area and the presence of suitable on-site aquatic features (seeps, springs, and drainages), California red-legged frog were considered to have a moderate to high potential to occur within the study area. Since the presence of California red-legged frog in the region is well documented and potentially suitable refugia, breeding, and dispersal habitat is present on site, a USFWS protocol-level Site Assessment was not deemed necessary. However, Sycamore recommended that a qualified biologist conduct focused surveys for California red-legged frog on site. Furthermore, focused surveys for foothill yellow-legged frog were also recommended, to be conducted concurrent with those for California red-legged frog.

Following Sycamore's recommendations, focused, USFWS protocol-level surveys for California red-legged frog were conducted during the summer of 2003. Surveys for foothill yellow-legged frog were conducted concurrently. During the course of those surveys, neither California red-legged frog or foothill yellow-legged frog were detected within the study area. A detailed account of the survey methods and results are presented in a separate report (Sycamore 2003).

Given that the study area is within formerly designated Alameda whipsnake Critical Habitat, Primary Constituent Elements are present on site (*i.e.* scrub, grassland, woodland and rock outcroppings), and the study area is contiguous with suitable habitat to the north, west, and south, Alameda whipsnake is considered to have a moderate to high potential to occur within the study area. Based on these findings, in the absence of intensive focused trapping surveys for Alameda whipsnake, Sycamore recommends that Alameda whipsnake should be presumed to be present within the study area.

Several special-status and common birds have the potential to nest in existing vegetation (trees and shrubs) on site. Any removal of trees or shrubs, or construction activities in the vicinity of active passerine or nonpasserine land bird nests, or active raptor nests, could result in nest abandonment, nest failure, or premature fledging. Destruction or disturbance of active nests would be in violation of the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Game (CDFG) Code. Therefore, the measures outlined below are recommended in order to avoid project related impacts to potentially nesting birds:

- The removal of any trees or shrubs should occur from September 1 through December 1, outside of the breeding season. If removal of trees or shrubs occurs, or construction begins between February 1 and August 31 (nesting season for passerine or nonpasserine land birds) or December 1 and August 31 (nesting season for raptors), a nesting bird survey should be performed by a qualified biologist within 30 days prior to the removal or disturbance of potential nesting trees or shrubs. Surveys for roosting bats should also be performed by a qualified biologist prior to the removal of any trees.
- All trees with active nests should be flagged and a non-disturbance buffer zone should be established around the nesting tree in coordination with CDFG. Buffer zones typically range between 50 feet to 90 feet for passerines and nonpasserine land birds, and between 200 feet to 500 feet for raptors, as determined by CDFG, depending on the species involved, site conditions, and type of work proposed.
- Active nests should be monitored by a qualified biologist to determine when the young have fledged and are feeding on their own. CDFG should be consulted for clearance before construction activities resume in these areas. Pre-construction surveys for roosting bats should be conducted concurrent with those for nesting birds.
- In addition to surveying trees and shrubs for nesting birds, Sycamore recommends surveying for ground-nesting birds. Surveys should be conducted by walking narrow transects through the grassland by a qualified ornithologist within 30 days prior to the commencement of project-related activities.

In addition to special-status birds, four special-status bat species known to occur in the region utilize trees for roosting. These bat species include pallid bat, long-eared bat, Yuma myotis bat and fringed myotis bat. Due to the presence of mature stands of woodland including suitable structural components, the study area provides suitable roosting habitat for special-status tree-roosting bats. Measures for the protection of roosting bats should be implemented concurrently with those designed for the protection of nesting birds.

Several sensitive natural communities are present within the study area, including freshwater marsh and seep, Central Coast riparian scrub, and coast live oak woodland. Aquatic vegetation communities are expected to fall under state and federal jurisdictions. Impacts to jurisdictional wetlands, waters of the U.S., and waters of the State would require permits from several state and federal agencies, e.g. USACE, CDFG, and RWQCB. In addition to the aquatic communities, coast live oak woodland as it occurs on site would be protected by the Town of Moraga, which has set forth the goal, within its General Plan, to preserve “the

Town's natural setting and environmental resources...especially with respect to their value as wildlife habitats."

A formal wetland delineation and jurisdiction determination should be prepared to a level of detail sufficient to be verified by the USACE, in order to determine the extent of jurisdictional wetlands within the study area.

6.0 REFERENCES

- Baldwin, B.G. 1999. New Combinations and New Genera in the North American Tarweeds (Compositae-Madiinae). *Novon* 9: 462-471.
- California Department of Fish and Game (CDFG). 2002a. *State and Federally Listed Endangered, Threatened, and Rare Plants of California*. Natural Diversity Data Base. October.
- California Department of Fish and Game (CDFG). 2002b. *Special Plants*. Natural Diversity Data Base. July.
- California Department of Fish and Game (CDFG). 2002c. *State and Federally Listed Endangered and Threatened Animals of California*. Natural Heritage Division, Natural Diversity Data Base. October.
- California Department of Fish and Game (CDFG). 2002d. *Special Animals*. Natural Diversity Data Base. July.
- California Department of Fish and Game (CDFG). 2002e. *California Natural Diversity Data Base (CNDDDB)*. Database Query for the Oakland East, Briones Valley, Walnut Creek and Las Trampas Ridge 7-½ minute Quads. October 1.
- California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Plants of California* (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. Sacramento, California. 388 pp.
- Environmental Laboratory. 1987. *U.S. Army Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. January. 100 pp.
- Hayes, M., and M. Jennings. 1988. Habitat Correlates of Distribution of the California Red-legged Frog and the Foothill Yellow-legged Frog: Implications for Management. In R. Sarzo, K. Severson, and d. Patton (technical coordinators). *Proceedings of the Symposium on the Management of Amphibians, Reptiles and Small Mammals in California*. U.S.D.A. Forest Service, Rocky Mountain Range and Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166): 1-458.
- Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California. 1400 pp.
- Holland, R. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game, The Resources Agency. 156 pp.
- Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. California Department of Fish and Game Contract # 8023. Inland Fisheries Division, Rancho Cordova, California.
- Kupfer, J.A., G.P. Malanson, and J.R. Runkle. 1997. Factors influencing species composition in canopy gaps: the importance of end proximity in Hueston Woods, Ohio. *Professional Geographer* 49:165-178.

- Lake, D. 2001. *Unusual and Significant Plants of Alameda and Contra Costa Counties*. Sixth Edition. California Native Plant Society, East Bay Chapter. March 1.
- Leidy, R.A. 1984. Distribution and Ecology of Stream Fishes in the San Francisco Bay Drainage. *Hilgardia*. Vol. 52. No. 8. October.
- McCullough, D. 1996. *Metapopulations and Wildlife Conservation*. Island Press. 429pp.
- National Oceanic and Atmospheric Administration. 2000.
- Olson, B.L. 1994. *Status of Rare, Threatened and Endangered Vascular Plants in Alameda and Contra Costa Counties (and Some Adjacent Areas)*. Third Edition. California Native Plant Society, East Bay Chapter, Rare Plant Committee. March 1.
- Opdam, P. 1990. Dispersal in fragmented populations: the key to survival. Species dispersal in agricultural habitats (ed. by R.G.H. Bunce and D.C. Howard), pp. 3-17. Bellhaven Press, London.
- Remsen, H.V. 1978. Bird Species of Special Concern in California: an Annotated List of *Declining or Vulnerable Bird Species*. California Department of Fish and Game, The Resources Agency.
- Roth, B. 1989. *Survey and Status Report on the Terrestrial Snail Helminthoglypta nickliniana bridgesii on Preston Ranch, Contra Costa County, California*. San Francisco, CA. Unpublished technical report prepared for Brady and Associates, Inc., Berkeley, CA. December.
- Roth, B. 1999. Memorandum: Elworthy Ranch Snail Survey Results/*Helminthoglypta nickliniana bridgesii*. June. Unpublished technical report prepared for Richard A. Arnold, Entomological Consulting Services, Ltd., Pleasant Hill, CA.
- Seltenrich, C.P. and A.C. Pool. 2002. *A standardized approach for habitat assessments and visual encounter surveys for the foothill yellow-legged frog (Rana boylei)*. Pacific Gas and Electric Company. May.
- Shaffer, H. B., and R. Fisher 1991. Final report to the California Department of Fish and Game; California tiger salamander surveys, 1990—Contract (FG 9422). California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California.
- Stebbins, R. C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin Company.
- Stebbins, Robert C. 1996. *Biological Survey Studies for the East Bay Municipal Utility District. Guidelines II. Species Lists and Maps*. East Bay Municipal Utilities District. January.
- Steiner, J. 1990. *Bay Area Butterflies: The Distribution and Natural History of San Francisco Region Rhopalocera*. Hayward, Calif.: Hayward State University, Masters Thesis.
- Storer, T. I. 1925. A synopsis of the amphibian of California. University of California Publications in Zoology 27:1-342.

- Swaim, K. 1994. *Aspects of the Ecology of the Alameda Whipsnake* (*Masticophis lateralis euryxanthus*). Masters Thesis, California State University, Hayward. 140 pp.
- Sycamore Associates LLC. 2003. *California Red-legged Frog Focused Surveys for the Indian Valley Property, Moraga, Contra Costa County, California*. Unpublished technical report prepared for David Bruzzone. December 31.
- Sycamore Associates LLC. 2004. *Botanical Assessment of the Indian Valley Property, Moraga, Contra Costa County, California*. Unpublished technical report prepared for David Bruzzone. In preparation.
- Tiebout III, H.M. and R.A. Anderson. 1997. A comparison of corridors and intrinsic connectivity to promote dispersal in transient successional landscapes. *Conservation Biology* 11:620-627.
- U.S. Fish and Wildlife Service (USFWS) 1996a. *Endangered and Threatened Plant and Animal Taxa; Proposed Rule*. 50 CFR part 17. February.
- U.S. Fish and Wildlife Service (USFWS). 1996b. *Endangered and Threatened Wildlife and Plants: Determination of Threatened Status for the California Red-legged Frog*. 50 CFR part 17 Vol. 61(101): 25813-25833. May 20.
- U.S. Fish and Wildlife Service (USFWS). 1997. *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (*Rana aurora draytonii*). Sacramento Field Office. February.
- U.S. Fish and Wildlife Service 1998. *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area*. Portland, Oregon.
- U.S. Fish and Wildlife Service (USFWS). 1999. *Endangered and Threatened Wildlife and Plants*. 50 CFR Part 17 Vol. 62(234): 64306-64320. December 31.
- U.S. Fish and Wildlife Service (USFWS). 2000. *Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the Alameda Whipsnake* (*Masticophis lateralis euroxanthus*). Final Rule. 50 CRF Part 17.Vol. 65 (192): 58933-58946. October 3.
- U.S. Fish and Wildlife Service (USFWS). 2001. *Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the California Red-legged Frog*. Final Rule. 50 CRF Part 17.Vol. 66 (49): 14625-14671. March 13.
- Whittaker, R. 1998. *Island Biogeography: Ecology, Evolution and Conservation*. Oxford University Press. 285 pp.
- Williams, D.F. 1986. *Mammalian Species of Special Concern in California*. California Department of Fish and Game. Wildlife Management Division Administrative Report 86-1. 112 pp.
- Zuidema, P.A., J.A. Sayer, and W. Dijkman. 1996. Forest fragmentation and biodiversity: the case for intermediate-sized conservation areas. *Environmental Conservation* 23:290-297.

Personal Communications

Case, Bob 2002. Deputy Agricultural Commissioner, Contra Costa County. Personal communication with Christopher Thayer. November 25.

Appendix A - Potentially Occurring Special-Status Plant Species at Indian Valley

Family Scientific Name Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Asteraceae - Sunflower Family				
<i>Blepharizonia plumosa</i> ssp. plumosa big tarweed	Federal: none State: CEQA CNPS IB:3-3-3	Valley/foothill grasslands, on dry sites. Extant in Alameda, Contra Costa, and San Joaquin counties. Believed extirpated in Stanislaus and Solano counties.	July-October annual herb	None: marginally suitable habitat present. Would have been detectable.
<i>Centromadia parryi</i> ssp. <i>congdonii</i> Congdon's tarplant (formerly Hemizonia parryi ssp. <i>congdonii</i>)	Federal: SC State: CEQA CNPS IB:3-3-3	Valley/foothill grasslands on alkaline soils. Restricted to San Luis Obispo, Monterey, Alameda, Contra Costa, and Santa Clara counties; presumed extirpated in Santa Cruz and Solano counties.	June-November annual herb	None: marginally suitable habitat present. Would have been detectable.
<i>Helianthella castanea</i> Diablo helianthella	Federal: SC State: CEQA CNPS IB:2-2-3	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley/foothill grassland. Occurs in Alameda, Contra Costa and San Mateo counties; presumed extirpated in Marin and San Francisco counties.	April-June perennial herb	None: suitable habitat present. Would have been detectable.
<i>Holocarpha macradenia</i> Santa Cruz tarplant	Federal: FT State: CE CNPS IB:3-3-3	Coastal prairie, valley/foothill grassland, often on heavy clay soils. Known from coastal areas of Contra Costa, Monterey and Santa Cruz counties; presumed extirpated in Alameda and Marin counties. Several introduced populations present along San Pablo Ridge in western Contra Costa County.	June-October annual herb	None: marginally suitable habitat present. Would have been detectable.
<i>Lasthenia conjugens</i> Contra Costa goldfields	Federal: FE State: CEQA CNPS IB:3-3-3	Mesic sites in valley/foothill grassland, vernal pools. Known from Napa and Solano counties and recently rediscovered in Contra Costa County. Presumed extirpated in Alameda, Mendocino, Santa Barbara and Santa Clara counties.	March-June annual herb	None: marginally suitable habitat present. Would have been detectable.
Boraginaceae - Borage Family				
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	Federal: none State: CEQA CNPS IB:2-2-3	Open woods, valley/foothill grasslands. Reported from the vicinity of the San Francisco Bay to Lake, Shasta and Siskiyou counties.	March-June annual herb	Detected in several populations on site during botanical surveys.
Brassicaceae - Mustard Family				
<i>Streptanthus albidus</i> ssp. <i>peramoenus</i> most beautiful jewel-flower	Federal: SC State: CEQA CNPS IB:2-2-3	Chaparral, cismontane woodland and valley/foothill grasslands on serpentine. Known from Alameda, Santa Clara and Contra Costa counties.	April-June annual herb	None: marginally suitable habitat present. Would have been detectable.

Appendix A - Potentially Occurring Special-Status Plant Species at Indian Valley

Family Scientific Name Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Caprifoliaceae - Honeysuckle Family				
<i>Viburnum ellipticum</i> oval-leaved viburnum	Federal: none State: CEQA CNPS 2-2-1-1	Chaparral, cismontane woodland, lower montane coniferous forests. Distributed from the Central Valley and the Sierra Nevada to the North Coast, Oregon and Washington.	May-June shrub (deciduous)	None: suitable habitat present. Would have been detectable.
Ericaceae - Heath Family				
<i>Arctostaphylos pallida</i> pallid manzanita	Federal: FT State: CE CNPS 1B-3-3-3	Broadleaved upland forest, cismontane woodland, chaparral and coastal scrub, on siliceous shale, sandy and gravelly soils on uplifted Marine terraces. Restricted to Alameda and Contra Costa counties.	December-March evergreen shrub	None: no suitable habitat present. Would have been detectable.
Fabaceae - Pea Family				
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	Federal: None State: CEQA CNPS 1B-3-2-3	Playas, valley/foothill grasslands, on adobe clay and alkaline vernal pools. Extant in Merced, Solano, and Yolo counties. Extirpated throughout the Bay Area and San Joaquin Valley. Recently Rediscovered in Alameda County.	March-May annual herb	None: no suitable habitat present. Would have been detectable.
Geraniaceae - Geranium Family				
<i>Erodium macrophyllum</i> round-leaved filaree	Federal: none State: CEQA CNPS 2-2-3-1	Cismontane woodland, valley and foothill grasslands, on clay soil. Widespread throughout California, Baja California, Oregon, Utah, and other states.	March-May annual herb	None: marginally suitable habitat present. Would have been detectable.
Juglandaceae - Walnut Family				
<i>Juglans californica</i> var. <i>hindsii</i> Northern California black walnut	Federal: SC State: CNPS		April-May tree (deciduous)	None: Natural populations not present
Lamiaceae - Mint Family				
<i>Monardella antonina</i> ssp. <i>antonina</i> San Antonio Hills monardella	Federal: none State: none CNPS 3-?-2-3	Chaparral and cismontane woodland. Recorded from Monterey County; possible also in Alameda, Contra Costa, San Benito and Santa Clara counties.	June-August perennial herb (rhizomatous)	None: suitable habitat present. Would have been detectable.
<i>Monardella villosa</i> ssp. <i>globosa</i> robust monardella	Federal: none State: CEQA CNPS 1B-3-2-3	Openings in chaparral, cismontane woodland. Occurs from the San Francisco Bay Area to Humboldt County.	June-July perennial herb (rhizomatous)	Detected in several populations on site during botanical surveys.

Appendix A - Potentially Occurring Special-Status Plant Species at Indian Valley

Family Scientific Name (Common Name)	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Comments	Potential for Occurrence On Site
Onagraceae - Evening Primrose Family				
<i>Clarkia franciscana</i> Presidio clarkia	Federal: FE State: CE CNPS IB-3-3-3	Coastal scrub, valley/foothill grassland, on serpentinite. Known from fewer than five occurrences in Alameda and San Francisco counties.	May-July annual herb	None: no suitable habitat present. Would have been detectable.
Polygonaceae - Buckwheat Family				
<i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower	Federal: FE State: CEQA CNPS IB-3-3-3	Openings and sandy locations in cismontane woodland, coastal dunes, and coastal scrub. Restricted to Monterey and Santa Cruz counties; believed extirpated in Alameda, Santa Clara and San Mateo counties.	May-September annual herb	None: no suitable habitat present. Would have been detectable.
Rosaceae - Rose Family				
<i>Horkelia cuneata</i> ssp. <i>sericea</i> Kellogg's horkelia	Federal: SC State: CEQA CNPS IB-3-3-3	Closed-cone coniferous forest, old dunes and coastal scrub. Restricted to coastal areas from Santa Barbara to San Mateo counties; presumed extirpated in San Francisco, Alameda and Marin counties.	April-September perennial herb	None: no suitable habitat present.
Scrophulariaceae - Figwort Family				
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i> Pt. Reyes bird's-beak	Federal: SC State: CEQA CNPS IB-2-2-2	Coastal saltmarsh. Believed extant in Humboldt, Marin and Sonoma counties; presumed extirpated in Alameda, Santa Clara and San Mateo counties.	May-October annual herb (hemiparasite)	None: no suitable habitat present.
Thymelaeaceae - Mezereum Family				
<i>Dicra occidentalis</i> western leatherwood	Federal: none State: CEQA CNPS IB-2-2-3	Broadleaf upland forest, closed cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland. Restricted to brushy slopes and mesic sites. Known from San Mateo to Sonoma counties.	January-April shrub (deciduous)	None: suitable habitat present. Would have been detectable.
Liliaceae - Lily Family				
<i>Calochortus pulchellus</i> Mount Diablo fairy-lantern	Federal: none State: CEQA CNPS IB-2-2-3	Chaparral, cismontane woodland, valley/foothill grassland. Known from Contra Costa and possibly Solano counties.	April-June perennial herb (bulbiferous)	None: marginally suitable habitat present. Would have been detectable.
<i>Calochortus umbellatus</i> Oakland star-tulip	Federal: none State: none CNPS 4:1-2-3	Broadleafed and upland forest, chaparral, lower montane coniferous forest, valley/foothill grassland, often on serpentinite. Known from Alameda, Contra Costa, Marin, Santa Clara and San Mateo counties. Presumed extirpated in Santa Cruz County.	March-May perennial herb (bulbiferous)	Detected in several populations on site during botanical surveys.
<i>Fritillaria liliacea</i> fragrant fritillary	Federal: SC State: CEQA CNPS IB-2-2-3	Coastal prairie, coastal scrub, valley/foothill grassland near the coast, on clay or serpentinite. Known from the Central Coast from Sonoma to Monterey counties and the San Francisco Bay Area.	February-April perennial herb (bulbiferous)	None: marginally suitable habitat present. Would have been detectable.

¹ Explanation of sensitivity status codes provided in Appendix C.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species at Indian Valley

Scientific Name Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence Onsite
Invertebrates			
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	Federal: FT State: None	Restricted to Santa Clara and San Mateo Counties in California. Habitat exists on shallow, serpentine-derived or similar soils, which support the butterfly's larval food plant, California plantain (<i>Plantago erecta</i>) and nectar plants including desert-parsely (<i>Lomatium</i> spp.) and California goldfields (<i>Lasthenia californica</i>), among others	Not expected: no suitable habitat present.
<i>Helminthoglypta nickliniana bridgesi</i> Bridges' coast range shoulderband (snail)	Federal: FSC State: None	Inhabits open hillsides of Alameda and Contra Costa Counties, tends to colonize under tall grasses and weeds. Nearest record less than 3 miles to the northeast (Roth 1989).	Moderate: suitable habitat present.
<i>Speyeria callippe callippe</i> Callippe silverspot butterfly	Federal: FE State: None	Inhabits grasslands containing larval host plant <i>Viola pedunculata</i> . Known from three locations, including San Bruno Mt. (on the San Francisco Peninsula), Joaquin Miller Park in Alameda Co. and in the vicinity of American Canyon, Solano County.	Not expected: no suitable habitat present.
Fish			
<i>Oncorhynchus mykiss</i> Steelhead	Federal: None State: None	Present in cold water riverine habitats with gravel beds and root wads. Landlocked population known to occur in Indian Creek and San Leandro Creek in the vicinity of the study area.	Moderate: potentially suitable spawning habitat present. Suitable foraging habitat present.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species at Indian Valley

Scientific Name Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence Onsite
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander	Federal: FPT State: CSC	Breeds in temporary or semi-permanent pools. Seeks cover in rodent burrows in grasslands and oak woodlands. Inhabits the Coast Ranges from Santa Barbara to Sonoma counties along the coast and inland to Colusa, Yolo and Tulare counties.	Not expected: no suitable breeding habitat present. Very limited aestivation habitat present. Believed extirpated from the area.
<i>Rana aurora draytonii</i> California red-legged frog	Federal: FT State: CSC	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent and/or riparian vegetation. Will occupy upland areas during the wet winter months.	Moderate to High: potentially suitable breeding habitat present. Suitable dispersal and refugia habitat present. However, the species was not detected during focused surveys
<i>Rana boylei</i> Foothill yellow-legged frog	Federal: FSC State: CSC	Inhabits permanent, slow moving stream courses in the Coast Ranges and Sierra Nevada foothills. These streams usually contain a cobble substrate and a mixture of open canopy riparian vegetation.	Low: suitable habitat present. However, the species was not detected during focused surveys conducted in 2003
<i>Clemmys marmorata</i> Western pond turtle	Federal: FSC State: CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes and irrigation ditches with basking sites and a vegetated shoreline. Needs upland sites for egg laying. Occurs from the Oregon border to the San Francisco Bay, inland throughout the Sacramento Valley and south along the coastal zone to San Diego County.	Low: no suitable basking sites present.
<i>Masticophis lateralis</i> <i>euryxanthus</i> Alameda whipsnake	Federal: FT State: ST	Restricted to chaparral and coastal scrub of the Coast Ranges. Uses rock outcrops for refugia. Inhabits appropriate habitat on south, southwest- and southeast-facing slopes and ravines where the shrubs form a vegetative mosaic with grasses. Uses rodent burrows. Feeds on a number of items including <i>Sceloporus</i> spp.	Moderate to High: suitable habitat present.

APPENDIX B

Potentially Occurring Special-Status Wildlife Species at Indian Valley

Scientific Name Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence Onsite
Birds			
<i>Accipiter cooperii</i>	Federal: MB	Nests primarily in deciduous riparian forests. May also occupy dense canopied forests from gray pine-oak woodland to ponderosa pine. Forages in open woodlands.	High: suitable breeding and foraging habitat present.
Cooper's hawk (nesting site only)	State: CSC		
<i>Accipiter striatus</i>	Federal: MB	Dense to open canopy pine or mixed conifer forest, riparian habitats, and grassland with scattered trees. Permanent resident in parts of the Sierra Nevada, Cascade, Klamath, and North Coast Ranges. Usually nests in conifers. Does not nest in San Francisco Bay Area.	Detected: only a winter visitor. Does not breed in the San Francisco Bay Area.
sharp-shinned hawk (nesting site only)	State: CSC		
<i>Agelaius tricolor</i>	Federal: FSC	Nests primarily in dense freshwater marshes with cattail or tules. Forages in grasslands. Largely endemic to California. Permanent resident in the Central Valley and along the coast from Marin to San Diego counties. Also known from Lake, Sonoma and Solano Counties. Grasslands provide suitable foraging habitat only.	Not expected: no suitable habitat present.
tricolored blackbird	State: CSC		
<i>Aquila chrysaetos</i>	Federal: MB	Forages in a variety of habitats including grasslands, chaparral and oak woodland supporting abundant mammals. Nests on cliffs and escarpments and tall trees.	High: Suitable breeding and foraging habitat present.
Golden eagle (nesting/wintering sites only)	State: CSC CFP		
<i>Athene cunicularia hypugea</i>	Federal: FSC	Open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Occurs in lowlands throughout California.	Not expected: no ground squirrel activity or burrows detected.
Burrowing owl (burrow sites)	State: CSC		
<i>Dendroica petechia brewsteri</i>	Federal: MB	Nests in riparian areas dominated by willows, cottonwoods, sycamores or alders and in mature chaparral. May also inhabit oak and coniferous woodlands and urban areas near stream courses.	Low: suitable breeding habitat present.
Yellow warbler	State: CSC		

APPENDIX B

Potentially Occurring Special-Status Wildlife Species at Indian Valley

Scientific Name Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence Onsite
<i>Elanus leucurus</i> White-tailed kite (nesting sites)	Federal: FSC State: CFP	Inhabits agricultural areas and low rolling foothills and valley margins with scattered oaks and river bottomlands or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows, marshes and agricultural fields for foraging.	High: suitable breeding and foraging habitat present.
<i>Icteria virens</i> Yellow-breasted chat (nesting)	Federal: MB State: CSC	Nests in dense riparian habitats dominated by willows, alders, ash, blackberry and grape vines.	Low: suitable breeding habitat present.
Mammals <i>Antrozous pallidus</i> Pallid bat	Federal: None State: CSC	Inhabits open, dry habitats such as deserts, grasslands and shrublands with rocky areas for roosting. Roosts in caves, and occasionally in buildings. Forages in open habitats.	Moderate: suitable roosting habitat present.
<i>Myotis evotis</i> Long-eared myotis bat	Federal: FSC State: None	Inhabits thinly forested areas around buildings or trees. Occasionally found in caves. Does not occur in large colonies. Distributed throughout the western U.S.	Moderate: suitable roosting habitat present.
<i>Myotis thysanodes</i> Fringed myotis bat	Federal: FSC State: None	Roosts in colonies in caves and attics of old buildings. Distributed throughout the western U.S. and into Mexico. Most frequent in coastal and montane forests and about mountain meadows.	Moderate: suitable roosting habitat present.
<i>Myotis yumanensis</i> Yuma myotis bat	Federal: FSC State: None	Roosts colonially in caves, tunnels and buildings. Inhabits arid regions. Distributed throughout the western U.S., Mexico, and Canada.	Moderate: suitable roosting habitat present.

¹ Explanation of sensitivity status codes provided in Appendix C.

APPENDIX C

Explanation of Sensitivity Status Codes

CALIFORNIA NATIVE PLANT SOCIETY DESIGNATIONS (CNPS)

- List 1: Plants of highest priority
 List 1A: Plants presumed extinct in California
 List 1B: Plants rare and endangered in California and elsewhere
 List 2: Plants rare and endangered in California but more common elsewhere
 List 3: Plants about which additional data are needed
 List 4: Plants of limited distribution

CNPS R-E-D Codes

R (Rarity)

- 1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
 2 = Occurrence confined to several populations or to one extended population.
 3 = Occurrence limited to one or a few highly restricted populations, or present in such low numbers that it is seldom reported.
 ? = More data are needed

E (Endangerment)

- 1 = Not endangered
 2 = Endangered in a portion of its range
 3 = Endangered throughout its range
 ? = More data are needed

D (Distribution)

- 1 = More or less widespread outside California
 2 = Rare outside California
 3 = Endemic to California
 ? = More data are needed

¹As of Feb. 28, 1996, all Category 1 candidate taxa are now regarded merely as Candidates.

Note: Currently, all CNPS list 1B and 2 taxa are considered "Special Plants" by the CDFG.

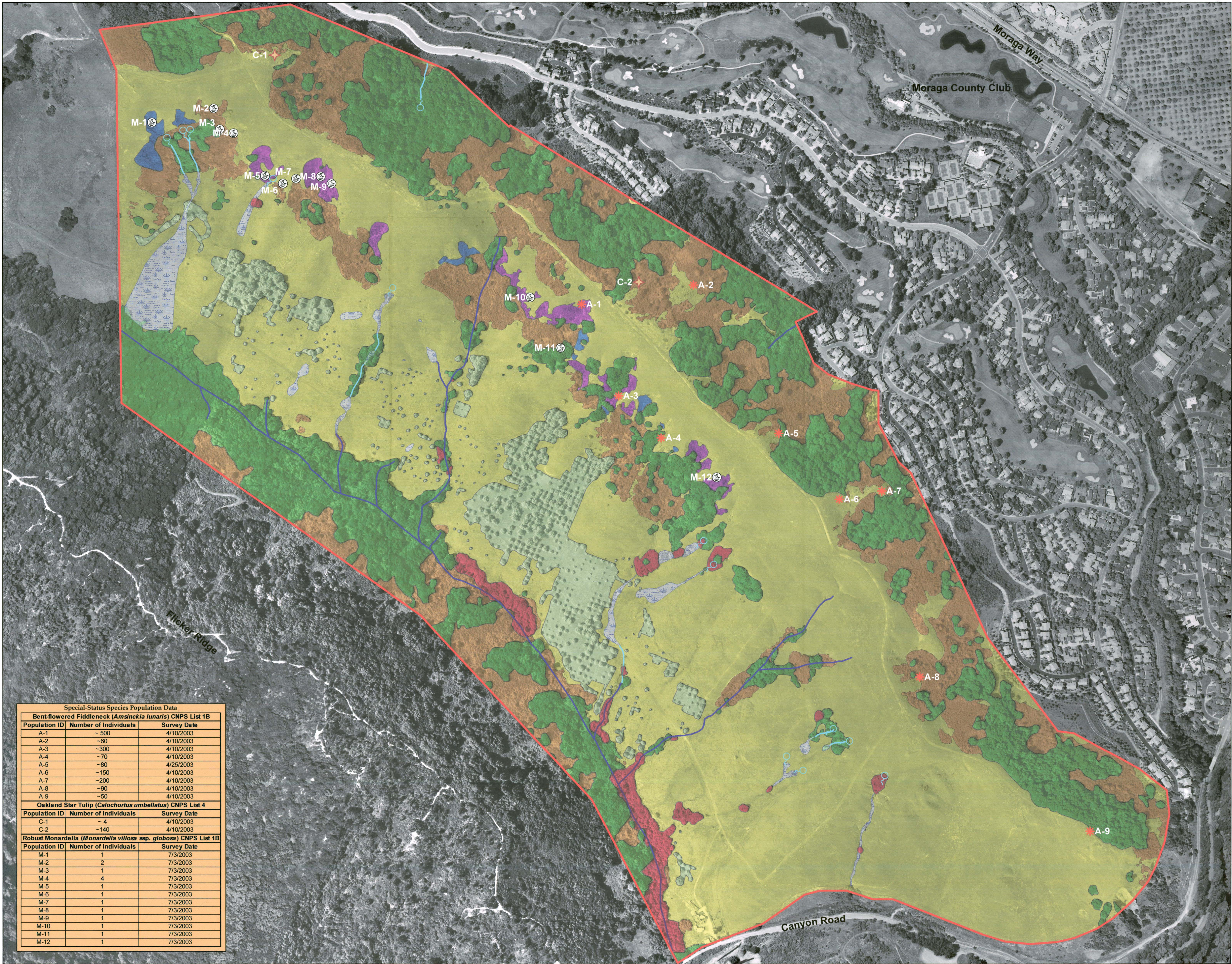
U.S. FISH AND WILDLIFE DESIGNATIONS (USFWS)

- FE = listed as Endangered by the Federal Government
 FT = listed as Threatened by the Federal Government
 FPE = proposed as Endangered by the Federal Government
 FPT = proposed as Threatened by the Federal Government
 FSS = federal sensitive species, as listed by Bureau of Land Management and USFWS
 C¹ = Candidate; taxa for which USFWS has sufficient biological information to support a proposal to list as Endangered or Threatened.
 SC¹ = Species of Concern
 MB = migratory non-game birds of management concern to the USFWS; protected under the Migratory Bird Treaty Act.

CALIFORNIA DEPT. OF FISH AND GAME DESIGNATIONS (CDFG)

- CE = Listed as Endangered by the State of California
 CR = Listed as Rare by the State of California
 CT = Listed as Threatened by the State of California
 CPE = Proposed for listing as Endangered
 CSC = California Species of Special Concern
 * = taxa that are restricted in distribution, declining throughout their range, or associated with habitats that are declining in California.
 CFP = Fully protected under the Cal. Fish and Game Code.
 CP = Protected Species under Cal. Code of Regulations.
 CEQA = taxa which are considered to meet the criteria for listing as Endangered, Threatened or Rare by the CDFG; impacts to such taxa must be addressed in CEQA documents.
 CEQA? = Taxa that might be locally significant; should be evaluated for consideration during preparation of CEQA documents, as recommended by the CDFG

Figure 2
Vegetation Communities,
Aquatic Features,
and Special-Status Plant Species
of Indain Valley
David Bruzzone
Moraga, Contra Costa County,
California



Special-Status Species Population Data		
Bent-flowered Fiddleneck (<i>Amsinckia lunaris</i>) CNPS List 1B		
Population ID	Number of Individuals	Survey Date
A-1	~500	4/10/2003
A-2	~60	4/10/2003
A-3	~300	4/10/2003
A-4	~70	4/10/2003
A-5	~80	4/25/2003
A-6	~150	4/10/2003
A-7	~200	4/10/2003
A-8	~90	4/10/2003
A-9	~50	4/10/2003
Oakland Star Tulip (<i>Calochortus umbellatus</i>) CNPS List 4		
Population ID	Number of Individuals	Survey Date
C-1	~4	4/10/2003
C-2	~140	4/10/2003
Robust Monardella (<i>Monardella villosa</i> ssp. <i>globosa</i>) CNPS List 1B		
Population ID	Number of Individuals	Survey Date
M-1	1	7/3/2003
M-2	2	7/3/2003
M-3	1	7/3/2003
M-4	4	7/3/2003
M-5	1	7/3/2003
M-6	1	7/3/2003
M-7	1	7/3/2003
M-8	1	7/3/2003
M-9	1	7/3/2003
M-10	1	7/3/2003
M-11	1	7/3/2003
M-12	1	7/3/2003

Legend

Study Area

Bent-flowered fiddleneck (*Amsinckia lunaris*)
CNPS List 1B

Oakland star tulip (*Calochortus umbellatus*)
CNPS List 4

Robust monardella (*Monardella villosa* ssp. *globosa*)
CNPS List 1B

Seeps

Freshwater Marsh/Seep

Unvegetated Waters

Freshwater Marsh/Seep

Non-native Annual Grassland

Coast Live Oak Woodland and Isolated Oaks

Northern Coyote Brush Scrub

Undifferentiated Scrub

Sage Scrub

Abandoned Orchard

Central Coast Riparian Scrub

Population labels (i.e. A-1) indicate a discrete groupings or individual plants. Plant surveys performed during four blooming periods, 2003. Note: Biological conditions as noted during focused surveys. Conditions may vary and may be reviewed at a later date. For the exclusive use of Dave Bruzzone. Aerial photography provided by HJW.

1:3,600

1 inch equals 300 feet

0

300

600

900

1200

Feet

Sycamore Associates, LLC
2099 Mt. Diablo Blvd. Suite 204
Walnut Creek, CA 94596
925.279.0580
www.sycllc.com

