

TRA THOMAS REID ASSOCIATES

545 Middlefield Road, Suite 200, Menlo Park, CA 94025
Tel: (650) 327-0429 Fax: (650) 327-4024
www.TRAenviro.com

March 17, 2006
Case Code: BBIO

Jack Chamberlain
The Chamberlain Group
655 Sky Way, Suite 230
San Carlos, CA 94070

Re: Biological Assessment for Lots #1-8 within the Highland Estates, San Mateo County, California.

Dear Mr. Chamberlain:

This letter is to inform you of the results of the biological surveys that I conducted on lots #1-8 within the Highland Estates project in San Mateo, California. This survey was conducted in order to update the biological assessment that was performed by TRA in June 2003.

Summary

This survey was focused on evaluating the biological resources within eight proposed lots on a 98-acre parcel in San Mateo, California. Four of the proposed lots (#1-4) are located on Bunker Hill Drive at the northern end of the Highlands subdivision, and four lots (#5-8) are located on Ticonderoga Drive, at the southern end of the Highlands subdivision (Figure 1). (The Highlands subdivision is an existing residential community that was developed in the 1950's). The eight lots comprise a total area of approximately 3.2 acres. The development of the lots would impact approximately 2.0 acres (1.2 acres of lot #8 would not be impacted by the project).

The project site (lots #1-8) consists of primarily upland areas that have been previously disturbed by grading activities that occurred in the 1950's when the Highlands subdivision was built (Figures 2 and 3). Coast live oak woodland covers the remaining portions of the lots (eastern section of lot #8, and the southern portions of lots #1-4). Based on the habitat types observed on site, no serpentine soils, special status serpentine endemic plants, or wetlands were identified in the project area. In addition, no existing wildlife corridors would be disturbed by the proposed project.

Previous biological assessments were conducted on the project site in 1989 and 1990 (John Stanley Associates), 1998 (EIP), and 2003 (TRA). Those assessments evaluated the entire 98-acre parcel. The 2003 biological assessment identified potential habitat for one sensitive animal species, the federally threatened California red-legged frog (*Rana aurora draytonii*), (CRLF hereafter), and documented the occurrence of one sensitive plant species, western leatherwood (*Dirca occidentalis*), a California Native Plant Society List 1B plant. No potential habitat for CRLF and no occurrences of western leatherwood were found within the eight parcels assessed in this report. All other sensitive species identified in the previous reports as potentially occurring on the 98-acre property are similarly unlikely to be present within lots #1-8. These species and habitat requirements are documented in Table 1 of the June 2003 Biological Assessment (Appendix A).

Plant communities identified within the eight lots consist of coast live oak (*Quercus agrifolia*) woodland, annual grassland, and iceplant. Approximately 10-15 coast live oak trees would be removed at the Bunker Hill location (lots #1-4) by the proposed project, and no trees are proposed for removal at the Ticonderoga location (lots #5-8). A separate report (in preparation) by Ralf Osterling Consultants will address the number and size of the coast live oak trees within lots #1-4.

The coast live oak woodland habitat that is located on the southern section of lots #1-4, and on the eastern portion of lot #8, provides habitat for the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), potential nesting habitat for Cooper's hawk (*Accipiter cooperii*) and other nesting birds, and potential roosting habitat for several special status bat species. Table 1 lists potential impacts to sensitive species within the eight lots with recommended mitigation measures.

Site Description

The project site consists of eight lots that total approximately 3.2 acres, located within an existing residential community (the Highlands). The lots are composed of previously graded, ruderal grassland, iceplant and coast live oak woodland habitats. Four of the lots are located on the north end of the property, along Bunker Hill Drive (lots #1-4), and four lots are located on the south end of the property along Ticonderoga Drive (lots # 5-8) (Figure 1). The majority of the property, a 98-acre contiguous stand of coast live oak woodland, coastal scrub, riparian forest, and valley needlegrass grassland, is not proposed for development.

Methods

On March 1, 2006, I conducted a field visit and inspected lots #1-8 for approximately 3 hours (between 11:00 and 2:00 PM) and all plants, wildlife species and habitat types encountered were identified and recorded. Weather was calm, partly cloudy and approximately 60 °F. The following data sources were consulted in performing this biological assessment:

- Site Plan Drawings prepared by BKF Engineers Surveyors Planners (BKF, Revised October 2005).
- California Department of Fish and Game Natural Diversity Data Base (CNDDDB) Updated December 2, 2005. Performed 5-mile radius search around project site.
- Biological Assessment for the Highland Estates Residential Development Project, (TRA, June 2003).
- California Native Plant Society Sixth Inventory of Rare and Endangered Plants query of the following nine USGS 7.5 minute quadrangles: *Half Moon Bay, Hunters Point, Montara Mountain, Palo Alto, Redwood Point, San Francisco South, San Leandro, San Mateo, and Woodside* (CNPS, 2001);
- United States Department of Agriculture, Soil Conservation Service, 1991. Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California.
- The Rare and Endangered Plants of San Mateo and Santa Clara County, by Corelli T. and Zandik, Z. 1995. Monocot Press, Half Moon Bay, CA.

Results and Discussion

The plant communities and wildlife habitats present in the project area have not changed significantly since the previous Biological Assessment was prepared in 2003. These habitats were classified using *A Manual of California Vegetation* (Sawyer & Keeler-Wolf, 1995). The communities present within the eight lots proposed for development are Coast live Oak Series, Iceplant Series, and California Annual Grassland Series.

Coast Live Oak Series dominates the eastern portion of lot # 8 near Ticonderoga Drive, and the southern half of lots # 1 - 4 along Bunker Hill Drive. The northern half of lots # 1- 4 are dominated by Californian Annual Grassland Series, and lots #5, 6, 7 and the western portion of lot #8 are dominated by Iceplant Series (*Carpobrotus edulis*) (Figures 2 and 3).

Coast Live Oak Series

This plant community has dense canopy layers and associated canopy species include California buckeye (*Aesculus californica*), and California bay (*Umbellularia californica*). Shrub species associated with these habitats include coyote brush (*Baccharis pilularis*), California blackberry (*Rubus ursinus*), canyon gooseberry (*Ribes menziesii*) and toyon (*Heteromeles arbutifolia*). Herb cover is diverse in these forests and includes wood fern (*Dryopteris arguta*), hawkweed (*Hieracium albiflorum*), sweet cicely (*Osmorhiza chilensis*), Douglas iris (*Iris douglasiana*), fairy lantern (*Calochortus albus*) California brome (*Bromus carinatus*) and streamside orchid (*Epipactus gigantea*). These forested habitats provide habitat for numerous wildlife species including mule deer (*Odocoileus hemonius*), striped skunk (*Mephitis mephitis*) and scrub jay (*Aphelocoma insularis*).

California Annual Grassland Series

This plant community is dominated by annual non-native grasses including wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*) and sterile brome (*Bromus sterilis*). These communities sometimes have strong associations of native herbs including purple needlegrass (*Nassella pulchra*), narrow-leaved mule's ear (*Wyethia angustifolia*), owl's clover (*Castilleja densiflora*), lupine (*Lupinus formosus*) and California poppy (*Eschscholzia californica*). This community provides foraging habitat for many raptor species including red-tailed hawks (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*) and American kestrel (*Falco sparverius*). Other wildlife species that utilize these habitats include black-tailed jackrabbit (*Lepus californicus*). Due to the very limited size of this habitat type (approximately 0.1 acres) on the project site wildlife utilization of these areas is considerably limited (Figure 2). In addition, the native plant species component was observed to be very poor due to prior grading activities, which occurred in the 1950's during construction of the existing Highlands development.

Iceplant Series

This habitat type is characterized by Iceplant (*Carpobrotus edulis*), and is found within lots 5,6,7 and 8. This invasive non-native species significantly reduces the potential for native plant and wildlife species to occur. Iceplant is dominant on lots #5, 6, and 7, and covers the western portion of lot # 8 (Figure 3).

Special Status Habitats and Species

No serpentine soils, serpentine endemic plants, or other special status plants were observed within lots #1-8. Underlying soils within the lots are classified as sandy clay loams and urban

orthants cut and fill material (USDA, 1991). A small section of native grassland was observed on the east end of lot # 8 (approximately 0.03 acres), along the roadcut above Ticonderoga Drive. No development is proposed for this area. A small section (approximately 0.07 acres) of non-native annual grassland was identified on lots #1-4. No other grassland areas were observed within lots #1-8. Though it is unlikely that any serpentine endemic plants are present based on the quality of the grassland on site, there are a number of special status plant species that bloom in the later spring (e.g. Marin Western Flax (*Hesperolinon congestum*), San Mateo thorn-mint (*Acanthomintha duttonii*)). It is therefore recommended that a follow-up rare plant survey be done in April/May to determine if any late spring blooming special status plants are present on the site (Table 1).

No seeps, springs or wetland features were observed within lots #1-8. Approximately 150 feet to the east of lots #1-4 there is a small, unnamed intermittent creek, which drains the adjacent canyon. This creek flows eastward along Bunker Hill Drive through dense coast live oak woodland and under suburban development for approximately 2000 feet before draining into San Polhemus Creek. A second intermittent drainage that also drains into Polhemus Creek is located in a canyon approximately 2000 feet to the south (Figure 1).

The only significant resource identified on lots #1-8 is coast live oak woodland. Coast live oak woodland is located on the southern portion of lots #1-4, and on the eastern portion of lot # 8. No coast live oak trees are proposed for removal within lot # 8. Removal of any oak trees within the parcels is subject to the San Mateo County Ordinance Regulations for Removal of Significant and Heritage Trees. A separate report (in preparation) by Ralf Osterling Consultants will address the sizes and locations of the Coast live oak trees within lots #1- 4. A protection plan for the coast live oak trees on the property should be prepared, and the California Department of Fish and Game should be consulted to determine an appropriate mitigation ratio for any oak trees removed.

San Polhemus Creek in the vicinity of Ticonderoga Drive and Polhemus Road was identified as being potential habitat for California red-legged frog in the 2003 Biological Assessment. This area is located approximately 900 feet from lots #5- 8. CRLF are known to move over one mile through upland habitats when dispersing from breeding locations in the rainy season, and therefore could potentially reach the proposed development sites on Bunker Hill Drive, and Ticonderoga Drive. However, there is a low likelihood that San Polhemus and its tributaries, provide preferred breeding habitat for CRLF, due to the lack of pond or slack water areas. It is also unlikely that CRLF would disperse through the proposed development sites, due to the steepness of terrain that separates Polhemus Creek and the project sites, and the lack of any breeding habitat in the vicinity of the Highlands development.

San Francisco Dusky-Footed Woodrat (California Special Concern species)

The San Francisco dusky-footed woodrat is a California Special Concern species (CSC). Approximately 10 woodrat nests were identified within the lower (southern) section of lots #1-4, and approximately 70 woodrat nests were identified on the eastern section of lot #8. The project will not result in impacts to the eastern section lot #8. Approximately 90 acres of suitable woodrat nesting habitat is contiguous with the southern border of lots #1-4, and with the northeastern border of lot #8. For this reason, the following mitigation is recommended: Dusky-footed woodrat nests within lots #1-4 should be carefully dismantled in the late summer (after the breeding season) to allow individuals to find suitable nesting habitat in the adjacent open space areas. Prior to conducting this work, authorization from the California Department of Fish and Game must be obtained.

*Nesting Birds, including Coopers Hawk (California Special Concern species)
and Special Status Bat Species*

The project could result in impacts to nesting birds, including Cooper's hawk (CSC), and special status bat species if any coast live oak trees that are providing bat roosting or bird-nesting habitat are removed. In addition, construction noise and human activity during the breeding season (spring and summer) for birds and bats could disturb these species and cause nest or roost abandonment. Preconstruction surveys for nesting birds should be conducted at lots #1-8 prior to grading and/or vegetation removal. In addition, one night acoustic survey for bats in the spring is recommended for lots #1-4 and lot #8 to assess whether bats are utilizing coast live oak trees within or adjacent to these lots.

Wildlife Corridors

The proposed project, which consists of constructing 8 homes on infill areas within an existing residential community, would not remove or constrict existing wildlife corridors. Wildlife such as terrestrial mammals, can move through the 98-acre Highland Estates property and access the Crystal Springs Watershed through dense oak woodland open space corridors on the north, and through a grassland/oak woodland mitigation area on the south that is part of the San Mateo County Juvenile Hall expansion project. The Highlands residential community, constructed in the 1950's, essentially blocks all other access routes for wildlife to the Highland Estates property. Wildlife moving to and from the Highland Estates property currently need to make one road crossing over Ticonderoga Drive on the south, and one road crossing over Bunker Hill Drive on the north, near the intersection of Polhemus Road, in order to reach the Pulgas Ridge and Crystal Springs open space areas (Figure 1). Small to medium sized mammals such as skunks, raccoons, woodrats, and mice may be able to move through culverts under these roadways.

Table 1. Species potentially within or near proposed lots #1-8, and recommended mitigation measures to avoid potential impacts.

No.	Species	Impact	Recommended Measures to Avoid or Mitigate Impacts	Result
1	San Francisco Dusky-Footed Woodrat (CSC)	Approximately 10 Woodrat nests within lots #1-4 would be disturbed.	Dismantle nests after the breeding season (late July--September) to allow woodrats to potentially move into other existing nests or build new nests. (Approximately 90 acres of open space area with suitable nesting habitat is adjacent to the site). Consultation with DFG is required to determine if this is an appropriate mitigation.	Impacts to the San Francisco dusky-footed woodrat population on site are avoided.
2	Special Status Bat Species	Potential bat roosting habitat within coast live oak woodland on project site.	Conduct one night of acoustic surveys for bats in the spring (March/April) within the oak woodland on lots #1-4. If bat roosts are detected, use one-way door bat exclusions for at least 2 days to keep bats from returning to roost prior to any tree removal.	Potential impacts to special status bat species are avoided.
3	Sensitive Plants	No sensitive plants were detected within lots #1-8, however several sensitive plants are found in the general vicinity of the project site.	Conduct one follow up survey in April 2006 during the blooming period for sensitive plants in the region.	Potential Impacts to sensitive plant species on site are avoided.
4	Nesting Raptors, including Cooper's Hawk (CSC), and other nesting birds.	Potential birds/raptors nesting habitat within oak woodland habitat could be impacted by the project.	Conduct one follow-up survey for nesting birds including raptors within the coast live oak woodlands on the project site during April/May . If any nesting birds could be impacted by the project, DFG should be consulted to determine an appropriate buffer zone.	Potential impacts to Cooper's hawk and nesting birds on site are avoided.

No.	Species	Impact	Recommended Measures to Avoid or Mitigate Impacts	Result
5	Significant and Heritage trees	Approximately 10-15 coast live oak trees would be potentially impacted by the project.	A separate report (in preparation) by Ralf Osterling Consultants will address the sizes and locations of the Coast live oak trees within lots #1- 4. A protection plan for the coast live oak trees on the property should be prepared, and DFG should be consulted to determine appropriate replacement ration for any oak trees removed.	Impacts to coast live oak trees on site are mitigated through protection and mitigation measures to be determined.
6	Creek Protections	Construction activities on lots #1-8 could cause siltation of San Polhemus Creek and an unnamed tributary stream.	Suitable erosion control and stormwater control measures should be undertaken to protect these water bodies from siltation.	San Polhemus Creek and its tributaries are protected from siltation and stormwater impacts from the proposed project.



Figure 1. Proposed project sites (shown in red) located along Bunker Hill Drive (lots # 1- 4) and Ticonderoga Drive (lots # 5 -8) in San Mateo, California. Map by TRA, basemap provided by AirPhoto USA. Photo Date: 11/01/2005. Approximate Scale: 1 inch = 1100 feet.



Figure 2. Lots #1- 4 along Bunker Hill Drive, San Mateo, California. Ruderal annual grassland in foreground, with coast live oak woodland in background. Photo date: 3/01/06.

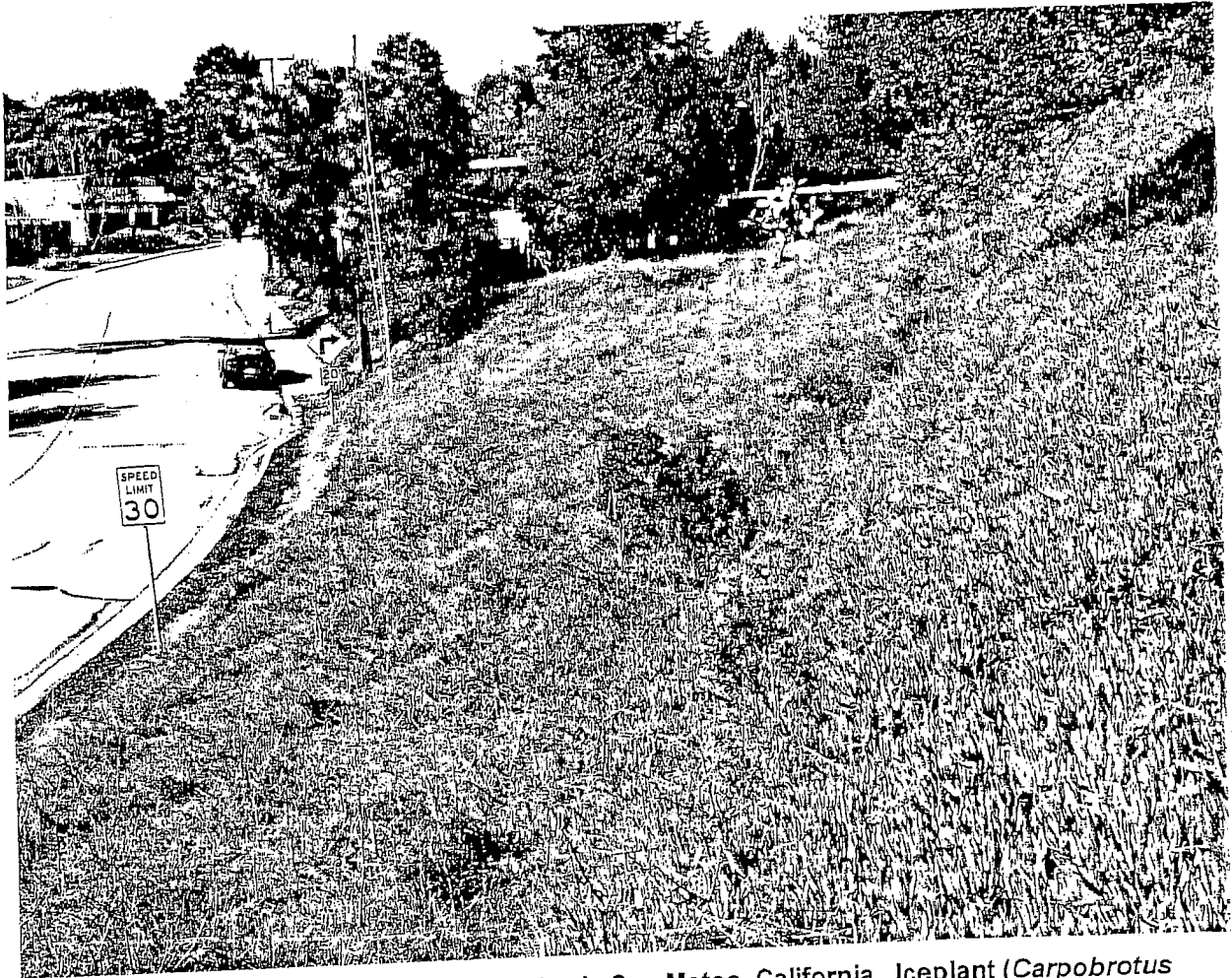
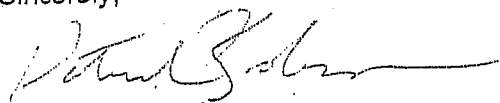


Figure 3. Lots # 5- 8 along Ticonderoga Drive in San Mateo, California. Iceplant (*Carpobrotus edulis*) is the dominant species on site within the proposed development areas. Photo date: 03/01/06.

Sincerely,

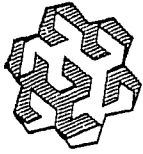


Patrick Kobernus
Senior Biologist
TRA Environmental Consultants
545 Middlefield Road, Suite 200
Menlo Park, CA 94025
Ph: 650-327-0429 x89
Fx: 650-327-4024
Kobernus@traenviro.com

Appendix A

Biological Assessment of Highland Estates Project,
San Mateo California,

June 9, 2003
(TRA)



TRA THOMAS REID ASSOCIATES
ENVIRONMENTAL CONSULTANTS

560 Waverley Street, Suite 201, P.O. BOX 880, Palo Alto, CA 94301
Tel: (650) 327-0429 ☐ Fax: (650) 327-4024 ☐ www.TRAenviro.com

June 9th, 2003

The Chamberlain Group
655 Sky Way, Suite 230
San Carlos, CA 94070
(415) 595-5582
Attn: Jack Chamberlain

Dear Mr. Chamberlain:

This letter is to inform you of the results of the biological and resource survey that I conducted on your behalf for the Highland Estates Residential Development Project. This survey was conducted in order to update the biological resource section of the Environmental Impact Report previously prepared by EIP Associates (1998). The data sources I consulted in performing this update included:

- Biotic Resources Assessment – Bunker Hill Estates Property, San Mateo County, CA (John Stanley and Associates, 1989);
- Spring Survey and Habitat Assessment of Rare, Threatened and Endangered Species, Highland Estates, San Mateo County, CA (Stanley and Associates, 1990);
- Highland Estates Residential Development Environmental Impact Report, April 1998, State Clearinghouse # 91063010 (EIP Associates, 1998);
- Site Plan Drawings prepared by BKF Engineers Surveyors Planners (BKF, 2002);
- California Department of Fish and Game Natural Diversity Data Base (CNDDDB) query of the following nine USGS 7.5 minute quadrangles: *Half Moon Bay, Hunters Point, Montara Mountain, Palo Alto, Redwood Point, San Francisco South, San Leandro, San Mateo, and Woodside* (CDFG-NDDB, 2002).
- California Native Plant Society Sixth Inventory of Rare and Endangered Plants query of the following nine USGS 7.5 minute quadrangles: *Half Moon Bay, Hunters Point, Montara Mountain, Palo Alto, Redwood Point, San Francisco South, San Leandro, San Mateo, and Woodside* (CNPS, 2001);
- U.S. Fish and Wildlife Services Species List for the *San Mateo* 7.5 minute quadrangle (USFWS, 2003).

Before visiting the site I determined which rare and endangered species had the potential to occur in the area. I performed a nine quad survey of the CNDDDB and reviewed the Environmental Impact Report (1998) and other pertinent data concerning the project area. I surveyed the project site on May 19, 2003. My survey efforts were particularly focused on the parcels where development is proposed (approximately 15 acres), which are shown on the overall site plan (page 1 of 9) of the CAD Drawings prepared by BKF (BKF, 2002). However, I performed representative intuitive surveys in all of the habitats present in the entire project area (approximately 98 acres).

Site Description

The project site encompasses approximately 98 acres of east to northeast facing slopes and ridgelines that primarily drain to Polhemus Creek, a tributary of San Mateo Creek. The site is bounded by Polhemus Road to the east, Ticonderoga Drive to the south and Bunker Hill Drive to the north. It is located in Township 5 South, Range 4 West of the San Mateo 7.5 minute USGS Quadrangle. Elevations at the site range from 325 to 750 feet above mean sea level. The slopes of the project site are drained by several spring and seep-fed intermittent and ephemeral drainages. Seeps, streambeds and small wetland areas characterize the lower forested slopes of the project area. Numerous sandstone rock outcrops and emergent boulders are present on the property, especially along the upper slopes and ridges.

The plant communities and wildlife habitats present in the project area do not appear to have changed significantly since the previous EIR was prepared. These habitats were classified using *A Manual of California Vegetation* (Sawyer & Keeler-Wolf, 1995). The communities present include:

Blue Blossom Series

Blue blossom (*Ceanothus thyrsiflorus*) was one of the dominant shrubs in sections of the coastal scrub habitat present on the property. Associated shrub species were diverse and included holly-leaf cherry (*Prunus ilicifolia*), toyon (*Heteromeles arbutifolia*), coast silk tassel (*Garrya elliptica*), pitcher sage (*Lepichinia calycina*), yerba santa (*Eriodictyon californica*), poison oak (*Toxicodendron diversilobum*), blue elderberry (*Sambucus mexicana*) and oceanspray (*Holodiscus discolor*). Associated herbs included miner's lettuce (*Claytonia perfoliata*), blue-eyed grass (*Sisynchrium bellum*) and phacelia (*Phacelia ramosissima*). These shrub communities provide habitat for numerous mammal, reptile and bird species including coyote (*Canis latrans*), California quail (*Callipepla californica*), Anna's hummingbird (*Calypte anna*) and southern alligator lizard (*Gerrhonotus multicarinatus*). Due to the heterogeneous and patchy nature of the shrub-dominated habitats at the site, these areas may best be viewed as Coastal Bluff Scrub as classified by the earlier NDDB/Holland type.

California Annual Grassland Series

This plant community is dominated by annual exotic grasses including wild oats (*Avena barbata*), soft chess (*Bromus hordeaceus*) and sterile brome (*Bromus sterilis*). These communities have strong associations of native herbs including purple needlegrass (*Nassella pulchra*), narrow-leaved mule's ear (*Wyethia angustifolia*), owl's clover (*Castilleja densiflora*), lupine (*Lupinus formosus*) and California poppy (*Eschscholzia californica*). This community provides foraging habitat for many raptor species including red-tailed hawks (*Buteo jamaicensis*), northern harrier (*Circus*

cyaneus) and American kestrel (*Falco sparverius*). Other wildlife species that utilize these habitats include black-tailed jackrabbit (*Lepus californicus*).

California Sagebrush Series

California sagebrush (*Artemisia californica*) dominates sections of the coastal scrub habitat present on the property. Associated shrub species include poison oak, yerba santa, California broom (*Lotus scoparius*), blue witch (*Solanum umbelliferum*), black sage (*Salvia mellifera*). Associated herbs include cudweed (*Gnaphalium canescens*), blue wildrye (*Elymus glaucus*), and silver puffs (*Uropappus lindleyi*). These shrub communities provide habitat for numerous mammal, reptile and bird species including ringneck snake (*Diadophis punctatus*), Bushtit (*Psaltriparus minimus*), Allen's hummingbird (*Selasphorus sasin*) and western rattlesnake (*Crotalus viridis*). Due to the heterogeneous and patchy nature of the shrub-dominated habitats at the site, these areas may best be viewed as Coastal Bluff Scrub as classified by the earlier NDDB/Holland type.

Coast Live Oak Series

Coast live oak forests dominate the majority of the project site that is proposed for development and a significant portion of the entire property. These stands have dense canopy layers and associated canopy species include California buckeye, and California bay (*Umbellularia californica*). Shrub species associated with these habitats include coyote brush (*Baccharis pilularis*), California blackberry (*Rubus ursinus*), canyon gooseberry (*Ribes menziesii*) and toyon. Herb cover is diverse in these forests and includes wood fern (*Dryopteris arguta*), hawkweed (*Hieracium albiflorum*), sweet cicely (*Osmorhiza chilensis*), Douglas iris (*Iris douglasiana*), fairy lantern (*Calochortus albus*) California brome (*Bromus carinatus*) and streamside orchid (*Epipactus gigantea*). These forested habitats provide habitat for numerous wildlife species including mule deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*) and scrub jay (*Aphelocoma insularis*).

Coyote Brush Series

Coyote brush dominates stands bordering ridgetop grasslands and other coastal scrub habitats in the project site. Associated shrubs include toyon, poison oak and California broom. Herbs associated with these habitats include aster (*Aster chilensis*), mouse-eared chickweed (*Cerastium glomeratum*) and catchfly (*Silene gallica*). These shrub communities provide habitat for numerous mammal, reptile and bird species including western fence lizard (*Sceloporus occidentalis*), chesnut-backed chickadee (*Poecile rufescens*), Downy woodpecker (*Picoides pubescens*) and common garter snake (*Thamnophis sirtalis*). Due to the heterogeneous and patchy nature of the shrub-dominated habitats at the site, these areas may best be viewed as Coastal Bluff Scrub as classified by the earlier NDDB/Holland type.

Nodding Needlegrass Series

Stands of native grasses occur in openings along edges of oak woodlands and coastal scrub, and also on rock outcrops and ridgetops in the project area. These stands are dominated by nodding needlegrass (*Nassella cernua*). Other herbaceous species associated with these communities include purple needlegrass, California brome, mule's ear (*Wyethia helenoides*), columbine (*Aquilegia formosa*), and coastal larkspur (*Delphinium californicum* ssp. *californicum*). These grasslands provide habitat for numerous wildlife species.

Red Willow Series

Arroyo willow (*Salix lasiolepis*) dominates sections of the intermittent drainages in the project site. Associated canopy species include coast live oak (*Quercus agrifolia*) and California buckeye (*Aesculus californica*). Associated herb species include common rush (*Juncus patens*), nutsedge (*Cyperus eragrostis*) and curly dock (*Rumex crispus*). These wetland habitats provide potential foraging, nesting and resting habitat for numerous wildlife species including mammals, migratory songbirds, raptors, Pacific tree frog (*Hyla regilla*) and other amphibians.

Results

The project area provides potential habitat for many rare and endangered species. One rare and endangered plant species, western leatherwood (*Dirca occidentalis*) a CNPS List 1B species was located during this survey. This native species is endemic to California and known only from occurrences in the San Francisco Bay Area. The species was identified during previous surveys, and was included in the previous EIR analysis. However, the status of the species has changed from a CNPS List 4 (Watchlist) to a CNPS List 1B during the last five years because of its increasing rarity. Approximately fourteen western leatherwood shrubs are located in the project area. These shrubs were previously mapped and tagged by The Habitat Restoration Group (i.e. John Stanley and Associates). These shrubs occur within coastal scrub on slopes within areas that are proposed for development. Specifically, these shrubs are located on parcels 18, 19, 20, 23, and 24 northeast of Cobblehill Place and southwest of Polhemus Road (BKF, 2002). This species meets the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and is eligible for state listing. Removal of these plants during proposed construction activities would be considered a significant direct impact requiring mitigation.

This survey occurred in the middle of the bloom period and many sensitive plant species would have been in identifiable phenology. However, the results of this survey, in combination with the biological surveys performed for the previous biological assessments (John Stanley & Associates, 1989; John Stanley & Associates, 1990; EIP & Associates, 1998), indicate that there is a low potential for other rare or endangered vascular plants to be impacted by the proposed project. A list of vascular plant species identified at the site, including those observed during previous surveys is attached (**Appendix A**). Nomenclature follows that used in the Jepson Manual (Hickman, 1996). Presented below in **Table 1** are those sensitive-status species that have the potential to occur in the project site, their habitat associations, current status and potential to occur in the project area. Species with a medium or higher potential to occur in the project area are in bold.

Table 1. Potential Species of Concern for Highland Estates Property

Vascular Plants	Status Federal/State/ GNPS	Habitat Associations	Potential to Occur
<i>Acanthomintha duttonii</i> San Mateo thorn-mint	FE/CE/1B	Mixed evergreen forests, valley and foothill grasslands and chaparral, typically on serpentine.	Low. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys.
<i>Arctostaphylos hookeri</i> ssp. <i>franciscana</i> Franciscan manzanita	--/--/1A	Coastal bluff scrub and chaparral, typically on serpentine.	Unlikely. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. No manzanitas were located during current or previous surveys.
<i>Arctostaphylos hookeri</i> ssp. <i>ravenii</i> Presidio manzanita	FE/CE/1B	Chaparral and coastal prairie, typically on serpentine.	Unlikely. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. No manzanitas were located during current or previous surveys.
<i>Arctostaphylos imbricata</i> San Bruno Mtn. Manzanita	--/CE/1B	Coastal scrub and chaparral, known from five occurrences on San Bruno Mountain	Unlikely. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. No manzanitas were located during current or previous surveys.
<i>Arctostaphylos montaraensis</i> Montara manzanita	--/--/1B	Coastal scrub and chaparral, known from approximately ten occurrences in San Mateo County near Montara Mountain	Unlikely. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. No manzanitas were located during current or previous surveys.
<i>Cirsium fontinale</i> var. <i>fontinale</i> Fountain thistle	FE/CE/1B	Valley and foothill grasslands, typically on serpentine soils.	Unlikely. Though potential habitat for this species occurs in the project area, the species was not located during current and previous surveys.
<i>Collinsia multicolor</i> San Francisco collinsia	--/--/1B	Closed-cone coniferous forests and coastal scrub, often on serpentine. Occurs rarely in Monterey, Santa Clara, Santa Cruz, San Francisco and San Mateo Counties	Low. Though the project area provides limited suitable habitat for the species, the species was not observed during current or previous surveys.
<i>Dirca occidentalis</i> Western leatherwood	--/--/1B	Broadleaved upland forest, chaparral, riparian scrub, oak woodland, typically associated with moist or shady locations	High. The species occurs in the project area. Approximately fourteen plants were mapped and tagged during previous surveys by John Stanley & Associates and were located during the current survey. Direct impacts to all of these plants will occur from the proposed project.

Vascular Plants	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
<i>Elymus californicus</i> California bottle-brush grass	--/--List 4	Openings in broadleaved upland forests, cismontane woodland, coniferous forests, riparian woodlands and glades. Known from the Crystal Springs watershed.	Low. Though grasslands, meadows and glades occur in the project area, the species was not observed during current or previous surveys.
<i>Eriophyllum latilobum</i> San Mateo woolly sunflower	FE/CE/1B	Occurs in cismontane woodland, on serpentine. Known from only one occurrence near Crystal Springs Road.	Low. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. The species occurs within 1 mile of the project area.
<i>Fritillaria liliacea</i> Fragrant fritillary	--/--1B	Cismontane woodland, coastal prairie, coastal scrub and grasslands, often on serpentine. The species occurs nearby on serpentine grasslands southwest of the project area.	Low. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. The species occurs within 1 mile of the project area.
<i>Helianthella castanea</i> Diablo helianthella	--/--1B	Cismontane woodland, coastal prairie, coastal scrub and grasslands. Closest known occurrence is San Bruno Mountain	Unlikely. Though potential habitat for this species occurs in the project area, the species was not located during current and previous surveys.
<i>Hesperolinon cogestum</i> Marin western flax	FT/CT/1B	Coastal scrub and coastal prairie, often on serpentine. Closest occurrence is less than one mile from project area.	Low. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. The species occurs within 1 mile of the project area.
<i>Lessingia arachnoidea</i> Crystal Springs lessingia	--/--1B	Cismontane woodland, coastal prairie, coastal scrub and grasslands, often on serpentine. Known from seven occurrences near Crystal Springs Reservoir.	Low. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. The species occurs within 1 mile of the project area.
<i>Pedicularis dudleyi</i> Dudley's lousewort	--/CR/1B	Maritime chaparral, cismontane woodland, valley and foothill grasslands.	Low. Though abundant potential habitat for this species occurs in the project area, only the more common Indian warrior (<i>Pedicularis densiflorus</i>) has been located on the property.
<i>Pentachaeta bellidiflora</i> White-rayed pentachaeta	FE/CE/1B	Valley and foothill grassland, on serpentine. Known from one extant occurrence near Woodside south of the project area, historically occurred near Edgewood County Park.	Low. Though suitable habitat for this species occurs in the project area, the species was not located during current and previous surveys. The species occurs within 5 miles of the project area.
<i>Silene verecunda</i> ssp. <i>verecunda</i> San Francisco Campion	--/--1B	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland, often on rock outcrops or sandy sites. Occurs in adjacent quadrangles to project area.	Unlikely. Though potential habitat for this species occurs in the project area, the species was not located during current and previous surveys.

Amphibians	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
<i>Ambystoma californiense</i> California tiger salamander	E/SCE/--	Disperses in oak woodlands, broadleaved hardwood forests and grasslands, breeds in vernal pools, stockponds and streams; estabates in small mammal burrows (i.e. ground squirrel). Occurs near Stanford University.	Low. The intermittent drainages in the project area do not provide breeding areas for this species, though adjacent uplands and grasslands provide dispersing habitat. The species is known to occur near the project area. The species has not been located in the project area during current and previous surveys.
<i>Rana aurora draytonii</i> California red-legged frog	FT/CSC/--	Breeds in pools in perennial and intermittent streams and ponds. Known to occur in a broad range of upland habitats including oak woodlands, broadleaved and coniferous forests in the Coast Ranges.	Medium. The intermittent drainages in the project area provide potential foraging habitat and marginal breeding habitat for this species, while adjacent uplands provide dispersing habitat. The species is known to occur near the project area. The species has not been located in the project area during current and previous surveys.
Birds	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
<i>Accipiter cooperi</i> Cooper's hawk (nesting)	--/CSC/--	Nests in trees near riparian forests and woodlands, canyon bottoms. Forages from perches in forests, woodlands and grasslands.	Medium. The project area provides abundant potential nesting and foraging habitat for this species.
<i>Athene cunicularia</i> Western burrowing owl (burrow sites)	--/CSC/--	Nests in small mammal burrows, forages in open grasslands and oak woodlands.	Low. Though limited grassland foraging habitat occurs in the project area, the site does not contain potential nesting habitat.
<i>Calypte costae</i> Costa's hummingbird (nesting)	FSC/CSC/--	Breeds in Central California and eastward into Nevada and Utah, winters in Southern California and Mexico; nests in shrubs or small trees. Often found in chaparral and shrub-dominated communities. Feeds on insects and nectar.	Medium. The project area provides abundant potential foraging and nesting habitat for this species. The species was not observed during surveys of the project area.
<i>Circus cyaneus</i> Northern harrier (nesting)	--/CSC/--	Forages and nests in open grasslands and rolling hills. Nests on the ground, typically in tall grass or at the base of shrubs.	Low. The project area provides limited foraging and nesting habitat for the species. The species was not observed during surveys of the project area.
<i>Dendroica petechia brewsteri</i> Yellow warbler (nesting)	--/CSC/--	Lives in moist thickets, especially along streams and in swampy areas. Nests in small trees. Winters in tropics.	Medium. The project area contains abundant potential foraging and nesting habitat in the proximity of the seeps, creeks and wetlands associated with the oak forests, willow thickets and coastal scrub of the project area.

Birds	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
<i>Elanus leucurus</i> White-tailed kite	--/CSC/--	Open grasslands and farmlands often with scattered woodlands and/or fencelines. Nests in trees.	Low. The project area provides limited foraging and nesting habitat for the species. The species was not observed during surveys of the project area.
<i>Falco peregrinus anatum</i> Peregrine falcon (nesting)	--/CE/--	Nests in cliffs and rock outcrops adjacent to forests, canyons and grasslands. Hunts other birds from the air.	Low. The project area provides foraging habitat for the species. The species was observed foraging in the area during previous surveys of the project area by John Stanley & Associates. Limited marginal nesting habitat at site.
<i>Geothlypis trichas sinuosa</i> Saltmarsh common yellowthroat	FSC/CSC/--	Resident of the San Francisco Bay Region in freshwater and saltmarsh habitats. Prefers moist thickets and grassy marshes for nesting. Historical nesting sites occur west of Adobe Point near Upper Crystal Springs Reservoir, near Polhemus Road and near the Pulgas Water Temple.	Low. Limited nesting and foraging habitat occur in the project area for this species.
<i>Phalacrocorax auritus</i> Double-crested cormorant (breeding)	--/CSC/--	Found in lakes, rivers, swamps, and coasts; breeds. Nests in colonies on rocky islands or cliffs.	Unlikely. No potential habitat for this species occurs in the project area, the species was not located during current and previous surveys.
<i>Riparia riparia</i> Bank swallow (nesting)	--/SCE/--	Nests in colonies on banks or cliffs adjacent to streams, canals or lakes	Unlikely. No potential habitat for this species occurs in the project area, the species was not located during current and previous surveys.
<i>Selasphorus sasin</i> Allen's hummingbird (nesting)	FSC/--/--	Coastal chaparral, shrubland and forest. Breeds along coast from Southern Oregon to Southern California	Medium. The project area provides abundant foraging and nesting habitat for the species and the species has been observed at the site during previous surveys by John Stanley & Associates.
Invertebrates	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
<i>Caecidotea tomalensis</i> Tomales isopod	--/--/--	Inhabits localized fresh-water ponds and streams with still or slow-moving water in several bay area counties. Known from a pond near Skyline Blvd. south of Kings Drive	Low. Limited marginal habitat occurs in the project area.
<i>Calicina minor</i> Edgewood blind harvestman	FSC/--/--	Occupies locations under boulders or logs in serpentine areas. Known to occur at Edgewood County park and near a spring on County Road 14 north of Crystal Springs Dam.	Medium. Limited serpentine outcrops occur on the project area. Surveys for this species were not conducted.
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	FT/--/--	Found in grasslands of the San Francisco Bay Area. Host plants include dwarf plantain (<i>Plantago erecta</i>) and owl's clover (<i>Castilleja densiflorus</i>). Range is restricted, occurs near Kirby Canyon Landfill Site	Low. Though grasslands and host plants for this species are present in portions of the project area, previous studies by Thomas Reid Associates determined too little habitat existed at the site to support a population of the species.
<i>Hydrochara rickseckeri</i> Ricksecker's water	FSC/--/--	Aquatic habitats, such as lakes and ponds, in the San Francisco Bay Area. Range is	Unlikely. Habitat suitable for this species

scavenger beetle		restricted. Known historically from Pulgas Water Temple, Upper Crystal Springs Reservoir. Scattered occurrences throughout ponds in bay area counties.	does not occur in the project area.
<i>Icaricia icariodes missionensis</i> Mission blue butterfly	FE/--	Found in grasslands and coastal prairie of the San Francisco Bay Area. Host plants include silver bush lupine (<i>Lupinus albifrons</i>) lupine (<i>Lupinus formosus</i>) and varicolored lupine (<i>Lupinus varicolor</i>). Range is restricted. Known from San Bruno Mountain	Low. Though grasslands and host plants for this species are present in portions of the project area, previous studies by Thomas Reid Associates determined not enough habitat existed at the site to support a population of the species.
Mammals	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	--/CSC/--	Forages and nests in forests, coastal scrub and riparian habitats of the San Francisco Bay Area	Medium. Though no woodrat nests were observed during the survey, the project area provides abundant potential habitat for this species.
<i>Reithrodontomys raviventris</i> Saltmarsh harvest mouse	FE/CE/--	Found in saline emergent wetlands in the San Francisco Bay and associated tributaries. Also uses adjacent upland habitats.	Unlikely. No suitable habitat for this species occurs in the project area.
<i>Sorex vagrans halicoetes</i> Saltmarsh wandering shrew	FSC/CSC/--	Found in saline emergent wetlands in the San Francisco Bay and associated tributaries. Also uses adjacent upland habitats.	Unlikely. No suitable habitat for this species occurs in the project area.
Reptiles	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
<i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake	FE/CE/--	Occurs in freshwater ponds, ditches, streams and marshes, typically associated with emergent vegetation that is used for cover and foraging. Occurs on the San Francisco Peninsula.	Medium. Though suitable habitat for this species occurs in the project area along the wetlands adjacent to Polhemus Road/Ralston Avenue, the species was not located during current and previous surveys. The range of the species is highly restricted.
Natural Communities	Status Federal/State/ CNPS	Habitat Associations	Potential to Occur
Northern maritime chaparral	--/--	Coastal chaparral stands have become increasingly rare in the modern California landscape.	High. This community occurs within the project area and is largely included in the open space proposed on the property.
Valley needlegrass grassland	--/--	Once widespread through the California landscape, native needlegrasslands have become threatened by development, invasion from exotic annual grasses and changes in land management.	High. This community occurs within the project area and will be significantly impacted by the proposed development on the property.

STATUS CODES:

FEDERAL: U.S. Fish and Wildlife Service

FE = Listed as Endangered by the Federal Government

FT = Listed as Threatened by the Federal Government

FPE = Proposed for Listing as Endangered

FPT = Proposed for Listing as Threatened

FC = Candidate for Federal listing

FSC = Federal Species of Special Concern

STATE: California Department of Fish and Game

CE=Listed as Endangered by the State of California

CT=Listed as Threatened by the State of California

CR=Listed as Rare by the State of California (plants only)

CSC=California species of special concern

CFP=Fully protected species

SCE=State candidate for listing as Endangered.

California Native Plant Society (CNPS)

List 1A = Plants believed extinct

List 1B = Plants rare, threatened, or endangered in California and elsewhere

List 2 = Plants rare, threatened, or endangered in California but more common elsewhere

List 3 = Plants about which more information is needed

List 4 = Plants of limited distribution

SOURCE: CDFG, 2002; USFWS; 2003; TRA, 2003, CNPS 2001.

Discussion

Due to the changes in the status of certain species, such as western leatherwood, which occur or have potential to occur on the site, it is recommended that revisions be made to the mitigation sections concerned with impacts to sensitive-status species. The direct impacts to western leatherwood within the proposed development would require mitigation. The locations of these plants have been mapped and are included in site plan drawings by BKF Engineers (Haga, R., pers. comm.). This mitigation may take the form of consultation with the California Department of Fish and Game in order to determine the optimal solution. Alternatives may include avoidance, on-site mitigation and off-site mitigation. Since transplanting of rare plants in California has traditionally met with a success rate of 15% or less (CNPS, 2001), transplanting these shrubs may not be the best solution. However, the shrub is known to be cultivated in the Tilden Botanical Garden in Berkeley and is a species that has been grown horticulturally from wild seed stock (J. Sawyer, pers. comm.). On-site mitigation could involve transplanting these shrubs to other coastal scrub habitats or riparian forests in the project site that will not be developed. All avenues should be explored to avoid direct impacts to these plants.

The project area provides suitable habitat for California Red-legged Frog (CRLF) and protocol-level surveys have not been conducted at the site. This habitat is in the form of intermittent drainages, with small pools and shrub, tree and herbaceous cover and emergent wetlands. These drainages were still flowing and contained habitat during this survey and may sustain flow late into the summer in wetter years. The region of the project area with the most extensive wetland habitat that will be affected by the proposed development is in the southern end of the project site near Ticonderoga Drive and Polhemus Road. A qualified wildlife biologist should conduct protocol level pre-construction surveys for CRLF.

Though the previous EIR states that no habitat for this species is present, in the form of permanently ponded areas, this habitat requirement can now be considered erroneous, as the species has been found in small intermittent and ephemeral drainages throughout the Coast Ranges of California. Taking into consideration new information and research now published in the U.S. Fish and Wildlife Services California Red-legged Frog Recovery Plan (USFWS, 2002), the project site contains limited potential breeding habitat for the species and abundant undisturbed foraging habitat in the form of drainages, emergent wetlands and forested uplands.

Due to the abundance of dense vegetation that occurs on the site in the form of trees, small trees and shrubs and the overall undisturbed condition of the property, it is determined that the property provides optimal nesting habitat for avian species such as Allen's hummingbirds, yellow warblers and raptors, such as the Cooper's hawk. As described in Mitigation 3.2.3-6 of the previous EIR, pre-construction surveys should be conducted for nesting birds by a qualified wildlife biologist.

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Personal Communication:

- Haga, Roland. 2003. Personal communication by phone on June 4, 2003. BKF Engineers/Surveyors/Planners, Redwood City, CA.
- Sawyer, John. 2003. Personal communication by phone and e-mail on June 6, 2003. Arcata, CA.

Sincerely,



Casey J. Stewman M.A.
Associate Biologist
Thomas Reid Associates
650 Waverley St., Suite 201
Palo Alto, CA 94301
(650) 327-0429 x 94
(650) 327-4024 FAX

enclosures