Appendix C

Biological Review

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Re: **Biological Review**
Proposed Reservoir and Point of Diversion
31111 King Ridge Road
Sonoma County, California

BIOLOGICAL REVIEW
Proposed Reservoir and Point of Diversion
31111 King Ridge Road
Sonoma County, California

EXECUTIVE SUMMARY

The project proposes the construction of an agricultural reservoir for King Ridge Vineyards LLC. The project site is within APN 109-290-011 at 31111 King Ridge Road Cazadero, Sonoma County. The findings presented are the result of field study conducted on May 31, and June 11, 2013 by Kjeldsen Biological Consulting. Fieldwork on an initial proposed site showed that it would impact seasonal drainages. A secondary site has been selected and is the basis for this report.
The findings are the following:

- The project site has been used for historic agricultural grazing and timber harvest. The past use is such that native flora and plant communities or associations have been altered by the introduction of non-native naturalized species in the grasslands;

- The point of diversion is on an unnamed blue line creek (USGS Fort Ross Quadrangle) that is a tributary of Marshal Creek thence the South Fork of Gualala River. The habitat at the point of diversion consists of *Rubus armeniacus* Semi-natural Shrubland Stand;

- The point of diversion will be a well adjacent to the drainage above the bed and bank of a blue line stream and will require consultation with California Department of Fish and Wildlife (CDFW);

- *Rana boylii* Foothill Yellow-legged Frog was observed approximately 500 feet below the proposed Point of Diversion;

- The plant alliances or communities on the reservoir site consist of ruderal grasslands (Grassland Semi-natural Stands with Herbaceous Layer) and Cismontane Woodland (Woodland or Forest Alliance specifically a *Pseudotsuga menziesii* Forest Alliance Douglas- fir Forest);

- No special-status animals or plants were observed on the reservoir site or the point of diversion;

- The reservoir is located on a swale or drainage that does not contain a definable bed or bank and does not appear to be ACOE jurisdictional as "Waters of the US";

- Sediment and erosion has the potential to impact aquatic species downslope from the project (Best Management Practices (BMP) and standard erosion control measures must be implemented; and

- All plants and animals observed on or surrounding the site are included as an attachment.

BIOLOGICAL REVIEW
Proposed Reservoir and Point of Diversion
31111 King Ridge Road

INTRODUCTION

This study was conducted at the request of Guadalupe S. Chavarria, PE. The project proposes an agricultural reservoir for King Ridge Vineyards LLC. The project site is within APN 109-290-011 at 31111 King Ridge Road Cazadero, Sonoma County. The parcel is located in the northwest corner of the Fort Ross USGS Quadrangle.

An initial reservoir study site was abandoned due to the potential impacts to Jurisdictional "Tributaries to Waters of the U. S." The present proposed reservoir site was selected to avoid potential impacts to Army Corps of Engineers Jurisdictional "Waters of the U.S".

The study area (reservoir site and point of diversion) is on the west side of an existing ranch access road. The point of diversion is approximately 100 yards south of the proposed reservoir location. Plate I illustrates the project site, Plate III provides an aerial photograph of the site, and Plate IV provides a site plan. The findings presented below are the results of fieldwork conducted by Kjeldsen Biological Consulting.

PURPOSE

A biological review of the proposed project site was conducted on May 31, and June 11, 2013. This review was conducted to determine the potential for or the presence of habitat for Special-status species listed by the US Fish and Wildlife Service or known to occur in the area as shown in the Department of Fish and Wildlife California Natural Diversity Data Base Rare Find 3, or species listed by the California Native Plant Society, to identify habitat types present on and adjacent to the project site, and to evaluate the potential for impacts to Special-status plant species by the project.

The project site was also reviewed to determine the presence of "Jurisdictional Waters" as per U.S. Army Corps of Engineers.

METHODS

The fieldwork was conducted on May 31, and June 11, 2013 between the hours of 08:30 and 12:00. Our fieldwork consisted of walking the site and the searching for special-status species or unique or rare plants and or animals for the region.

Plants Our field survey was conducted recording and identifying all species on the study site and in the near proximity. The open nature of the site, historic and on going agricultural practices, and small size of the proposed development footprint facilitated our field studies.

The fieldwork for identifying special-status plant species is based on our knowledge and many years of experience in conducting special-status plant species surveys in the region. Plants were identified in the field or reference material was collected, when necessary, for verification using laboratory examination with a binocular microscope and reference materials. Herbarium specimens from plants collected on the project site were made when relevant. Voucher material for selected individuals is in the possession of the authors. All plants observed (living and/or remains from last season's growth) were recorded in field notes.

Habitat is also a key characteristic for consideration of special-status species in a study area. Many special-status species are rare in nature because of their specific and often very narrow habitat or environmental requirements. Their presence is limited by specific environmental conditions such as: hydrology, microclimate, soils, nutrients, interspecific and intraspecific competition, and aspect or exposure. In some situations special-status species particularly annuals may not be present each year and in this case one has to rely on skeletal material from previous years. A site evaluation based on habitat or environmental conditions is therefore a reliable method for including or excluding the possibility of special-status species in an area.

Animals were identified in the field by their sight, sign, or call. Our field techniques consisted of surveying the area with binoculars and walking the perimeter of the project site. Existing site conditions were used to identify habitat, which could potentially support special status species. All animal life was recorded and is presented in Appendix A.

Trees were surveyed to determine whether occupied raptor nests were present within the proximity of the project site (i.e., within a minimum 500 feet of the areas to be disturbed). Surveys consisted of scanning the trees on the property (500 ft +) with binoculars searching for nest or bird activity. Our search was conducted from the property and by walking under existing trees looking for droppings or nest scatter from nests that may be present that were not observable by binoculars.

Potential bat breeding habitat was surveyed for within 200 feet of the proposed project, by looking for roosting habitat in buildings that were accessible, rock outcrops, tree crevasses, and evidence of roosting.

Aerial photos were reviewed to look at the habitat surrounding the site and the potential for wildlife movement, or wildlife corridors from adjoining properties onto or through the site.

Wetlands The project site was reviewed to determine from existing environmental conditions with a combination of vegetation, soils, and hydrologic information if seasonal wetlands were present. Wetlands were evaluated using the ACOE's three-parameter approach: Vegetation, Hydrology, and Soils. Tributaries to Waters of the US are determined by the evaluation of continuity and "ordinary high water mark", containing a definable bed and bank as well as USGS Quadrangle Maps.

SCOPING

Special-status Species

Special-status organisms are plants that have been designated by Federal or State agencies as rare, endangered, or threatened. Section 15380 of the California Environmental Quality Act [CEQA (September, 1983)] has a discussion regarding non-listed (State) taxa. This section states that a plant (or animal) must be treated as Rare or Endangered even if it is not officially listed as such. If a person (or organization) provides information showing that a taxon meets the State's definitions and criteria, then the taxa should be treated as such.

The scoping for the project considered location and type of habitat and or vegetation types present on the property or associated with potential special-status plant species known for the Quadrangles, surrounding Quadrangles the County or the region. Our scoping also considered records in the most recent version of the Department of Fish and Wildlife California Natural Diversity Data Base (DFW CNDDB Rare Find-3), Biogeographic Information and Observation System Online mapping tool, and the California Native Plant Society (CNPS) Electronic Inventory of Rare or Endangered Plants. "Target" special-status species are those listed by the State, the Federal Government or the California Native Plant Society or considered threatened in the region. Our scoping is also a function of our familiarity with the local flora and fauna as well as previous projects on other properties in the area.

Table I presents the DFW CNDDB Rare Find-3 plant species within five miles and Table II presents the DFW CNDDB Rare Find-3 plant species within five miles. We also considered as part of our scoping species which are known for the nine surrounding Quadrangles as shown in Appendix C.

Sensitive Communities

DFW Natural Diversity Data Base uses environmentally sensitive plant communities for plant populations that are rare or threatened in nature. Sensitive habitat is defined as any area in which plants or their habitats are either rare or especially valuable and any area which meets one of the following criteria: (1) habitats containing or supporting "rare and endangered" species as defined by the State Fish and Wildlife Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.

The project site and survey area have been historic agricultural grazing lands. The past use is such the native flora and plant communities or associations have been altered by management practices and introduced non-native species.

Jurisdictional Wetlands

The term **"Wetland"** is defined as those areas, which 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.

Wetlands generally include swamps, marshes, bogs, and similar areas (Part 230-Section 404 (b) (1), section 230.3 Federal Register, Vol. 45, No. 249). Wetlands also include less conspicuous types such as vernal pools and other seasonal wetlands.
Wetlands have the following general diagnostic environmental characteristics:

(1) Vegetation. The prevalent vegetation consists of macrophytes which are typically adapted to areas having hydrologic and soil conditions described above. Hydrophytic species, due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively complete, reproduce, and/or persist in anaerobic soil conditions.

(2) Hydric Soil. A hydric soil is a soil which is saturated, flooded, or with standing water for long enough during the growing season to develop anaerobic conditions which favor the growth and regeneration of hydrophytic vegetation. Hydric soils may be classified into two broad categories: Organic and Mineral. Organic soils (Histosols) develop under conditions of nearly continuous saturation and/or inundation. All organic soils are hydric soils except Folists, which are freely drained soils occurring on dry sloped where excess litter accumulates over bedrock. Organic hydric soils are commonly known as peat and mucks. All other hydric soils are mineral soils. Mineral soils have a wide range of textures. Mineral hydric soils are those periodically saturated for sufficient duration to produce chemical and physical soil properties associated with a reducing environment. They are usually gray and/or mottled immediately below the surface horizon, or they have thick, dark-colored surface layers overlying gray or mottled subsurface horizons.

(3) Hydrology. The term "Wetland hydrology" encompasses all hydrologic characteristics of areas which are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions respectively. Such characteristics are usually present in areas, which are inundated or have soils that are saturated to the surface for sufficient duration to develop hydric soils, and support vegetation typically adapted for life in periodically anaerobic soil conditions. Hydrology is often the least exact of the parameters and indicators of wetland hydrology are sometimes difficult to find in the field. However, it is essential to establish that a wetland area is periodically inundated or has saturated soils during to growing season.

Seasonal Wetlands. In many regions especially in western states, depression areas occur which have wetland indicators of all three parameters during the wetter portion of the growing season, but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophyte and facultative wetland plant species normally are dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. These areas may be inundated during the wetter portion of the growing season, realizing that wetland hydrology indicators may be totally lacking during the drier portion of the growing season. It is important to establish that an area truly is a water body. Water in a depression normally must be sufficiently persistent to exhibit an ordinary high water mark of the presence of wetland characteristics before it can be considered as a water body potentially subject to Clean Water Act jurisdiction. The determination that an area exhibits wetland characteristics for a sufficient portion of the growing season to qualify as a wetland under the Clean Water Act must be made on a case-by-case basis. Such determinations should consider

the respective length of time that the area exhibits upland and wetland characteristics, and the manor in which the area fits into the overall ecological system as a wetland.

"Tributaries to Waters of the U.S." Tributaries to the waters of the U.S. are defined as creeks, streams, rivers, and seasonal stream channels with a definable bed and bank (U.S. ACOE and CDFG).

FINDINGS

The site is located in the North Coast Range Mountains, a geographic subdivision of the larger California Floristic Province (Hickman, 1993), which is strongly influenced by the Pacific Ocean. The region is in a climate Zone "Ocean influenced Northern and Central California" characterized as an area with ocean or cold air influence. The climate of the region is characterized by hot, dry summers and cool, wet winters, with precipitation that varies regionally from less than 30 to more than 60 inches per year. This climate regime is referred to as a "Mediterranean Climate". The average annual temperature ranges from 45 to 90 degrees Fahrenheit. The variations of abiotic conditions in the region including geology results in a high level of biological diversity per unit area.

Habitat

The project site and survey area have been historic agricultural grazing lands and sites for timber harvest. The past use is such the native flora and plant communities or associations have been altered by past management practices (grazing, fire prevention, timber harvests) and the concurrent introduced non-native naturalized species. Non-native wild pigs have completely rooted portions of the study area and this has had a dramatic effect on the vegetation. It is also noted that a portion of the site has been used for a rock quarry.

The vegetation of California has been considered to be a mosaic with major changes present from one area to another often with distinct changes within short distances. The variation in vegetation is a function of topography, geology, climate and biotic factors. It is generally convenient to refer to the vegetation associates on a site as a plant community or alliance. Wildlife biologists use habitat types or biotic communities for the plant and animals that are associated with a particular vegetation type in a region. Typically plant communities are identified or characterized by the dominant vegetation form or plant species present. There have been numerous community classification schemes proposed by different authors using different systems for the classification of vegetation. A basic premise for the designation of plant communities or associations is that in nature there are distinct plant populations occupying a site that are stable at any one time (climax community is a biotic association, that in the absence of disturbance maintains a stable assemblage over long periods of time). There is also evidence that vegetation on the site is part of a continuum without well-defined boundaries. There is no agreement as to which system of nomenclature to use for describing plant communities.

The CNPS list of rare plants for California associates the rare and endangered species with "Habitat Types." The Habitat Types for the property would be considered to be Valley and Foothill Grassland, and Oak Woodland.

A Manual of California Vegetation Second Edition classifies the vegetation on the reservoir site as Grassland Semi-natural Stands with Herbaceous Layer and Woodland or Forest Alliance (See photos # 1 and 2). The point of diversion consists of *Rubus armeniacus* Semi-natural Shrubland Stand Himalayan black berry brambles (See Photo # 3). This classification is the presently preferred system that over time will replace existing classification systems. Sawyer uses the term "Semi-natural Stands to refer to non-native introduced plants that have become established. This includes what can be termed weeds, aliens, exotics or invasive plants in agricultural and nonagricultural settings. Semi-natural stands are those dominated by non-native species that have become naturalized primarily as a result of historic agricultural practices and or management practices for weed abatement and fire suppression. This includes what can be termed weeds, aliens, exotics or invasive plants in agricultural and nonagricultural settings. The Semi-natural Herbaceous Stands present within the proposed project are described below.

PROPOSED RESERVOIR SITE

Grassland Semi-natural Stands with Herbaceous Layer on the site consists of patches of the following depending on the aspect slope and degree of past disturbance;

Avena (barbata) Semi-Natural Herbaceous Stands Wild oats grasslands. *Avena barbata* or *A. fatua* is dominant or co-dominant in the herbaceous layer. Herbs <1.2 m; cover is open to continuous. Stands are present in waste places, rangelands, and openings in woodlands. The membership rules require *Avena ssp.* to be> 75% relative cover; other non-native <5% absolute cover, if present, in the herbaceous layer. *Avena* species are cool-season, annual grasses from Eurasia. These annual grasslands are common in the region.

Bromus diandrus Semi-Natural Herbaceous Stands Annual brome grassland; (Membership Rules *Bromus diandrus >60%* relative cover with other non-natives in the herbaceous layer). *Bromus diandrus* is dominant or co-dominant with non-native in the herbaceous layer. Emergent trees and shrubs may be present at low cover Herbs<75 cm tall are intermittent to continuous. Ripgut brome is an annual grass from Eurasia. This alliance accounts for the largest acreage of grassland vegetation in cismontane California. Stands in our area contain *Aria caryophylla, Cynosurus echinatus, Dichelostemma multiflorum, Erodium botrys, Limnanthes douglasii, Taeniantherum caput-medusae,* and *Baccharis pilularis* shrubs.

Festuca perennis = Lolium perenne **Semi-Natural Herbaceous Stands Perennial Rye Grass Field**; *Festuca perenne* is dominant or co-dominant with other non-natives in the herbaceous layer with *Agrostis stolonifera, Alopecurus aequalis, Ascliepias fascicularis, Avena fatua, Brassica nigra, Bromus didandrus, B. hordeaceus, Centaurium muhlenbergii, Cirsium vulgare, Crypthantha flaccida, Euphorbia spthulata, Festuca arundinacea, Holcus lanatus, Hordeum brachyantherum, Hordeum marinum, Lentodon taraxacoides, Leymus triticoides, Lotus corniculatus, Microseris douglasii, Stipa pulchra, Phalaris aquatica, Plantago erecta, Poa pratensis, Rorippa nasturtium-aquaticum, Rumex crispus* and *Trifolium ssp.* Emergent Trees and shrubs may be present at low

cover. Herbs < 1 m tall; canopy is intermittent to continuous. (Membership Rules *Festuca perenne*> %50 relative cover, native plants< 15% relative cover). *Festuca perenne* is a non-native grass from Europe introduced into temperate regions throughout the world. It is an annual or a perennial, cool-season bunch grass.

Phalaris aquatica Semi-Natural Herbaceous Stands Harding grass swards, *Phalaris aquatica* is dominant in the herbaceous layer. Scattered emergent shrubs such as *Baccharis pilularis* may be present. Herbs <1.5 m; canopy is intermittent to continuous. (Membership Rules *Phalaris aquatica* > %50 relative cover in the herbaceous layer or *Phalaris aquatica* > 15% absolute cover and 75% relative cover when compared to native species in the herbaceous layer. *Phalaris aquatica* is an erect, tufted perennial grass from Mediterranean Europe. Stands of *P. aquatica* forms dense patches that prevent the germination of other species. Native species richness drops when *Phalaris aquatica* is present because of a thick surface of litter and thatch build-up.

Woodland or Forest Alliance The woodland or forest alliance on the project site consists of patches modified by grazing and previous forest harvests. The Alliance would be considered to be a Douglas fir alliance as described below.

Pseudotsuga menziesii Forest Alliance Douglas fir Forest; *Pseudotsuga menziesii* is dominant or co-dominant with hardwoods in the tree canopy with *Abies concolor, Acer macrophyllum, Alnus rhombifolia, Arbutus menziesii, Calocedrus decurrens, Chamaecyparis lawsoniana, Chrysolepis chrysophylla, Cornus nuttallii, Pinus contorta, P. lambertiana, P. jefferyi, Quercus agrifolia, Q. chrysolepis, Q. garryana, Q. kelloggii,* and *Sequoia sempervirens* (membership rules >50% relative cover in the tree canopy and reproducing successfully, though hardwoods may dominate or co-dominate in the subcanopy and regeneration layer). Trees > 75 m; canopy is intermittent to continuous, and it may be two tiered. Shrubs are infrequent or common. Herbaceous layer is sparse or abundant.

PROPOSED POINT OF DIVERSION

Rubus armeniacus **Semi-natural Shrubland Stand** Himalayan black berry brambles. *Rubus armeniacus* is dominant or co-dominant in the shrub layer. Emergent trees of *Quercus agrifolia, Populus fremontii,* or *Salix* ssp. may be present at low cover. Shrubs < 3 m; canopy is intermittent to continuous. Herbaceous layer is open to intermittent. Stands are typically found in pastures, roadsides, streamsides, floodplains, fence lines and right-of-way corridors. As a stand *Rubus armeniacus* is a non-native shrub that has an Invasive Species Ranking (Cal-IPC) of High. Member ship rules: *Rubus armeniacus* > 60% relative cover in the shrub layer.

The aerial photo illustrates the site (Plate III) and the photographs further document existing conditions of the study site. For a complete list of species observed in this see Appendix A.

Photo 1. Live oak woodlands and grassland at the project site.

Photo 2. Drainage feature through the proposed reservoir site.

Photo 3. View down slope from the project site where channel contains a definable bed and bank.

Photo 4. Proposed Point of Diversion below existing road adjacent to an unnamed blue line stream. The vegetation consists of Himalayan black berry *Rubus armeniacus*.

Photo 5. Yellow-legged frog observed downslope from the Point of Diversion.

Photo 6. Habitat upslope from the project site.

Special Status Species

Plants

The plants identified on the study site are presented as an attachment. The plants present are typical for grazed and or forest lands in the region. The absence of vernal pools, distance from the coast, lack of wetlands and historic use reasonably precludes the presence of any of the Special-status species of the region. We found no evidence or reason to expect any special-status species.

A map from the DFW CNDDB Rare Find-3 shows known special-status species in the proximity of the project as shown on Plate II. These taxa as well as those listed in Appendix B Special-status Species known for the Quadrangle and Surrounding Quadrangles were considered and reviewed as part of our scoping for the project site and property. Reference sites were reviewed as part of our scoping for some of the species.

Table I. Analysis of potential "target" special-status plant species. The taxa included in the table are selected based on the DFW CNDDB Rare Find 3 records for species known to occur within five miles of the project site (Plate II).

Scientific Name Common Name	Species Habitat Association or Plant Community	Bloom Time	Found on or Near Site	Justification for Concluding Absence on Project Site
Agrostis blasdalei Blasdale's Bent Grass	Coastal bluff scrub	May-June	No	Requisite habitat and vegetation associates absent.
Arctostaphylos bakeri ssp. *sublaevis* The Cedars Manzanita	Chaparral, Serpentinite	March -May	No	Requisite edaphic conditions and vegetation type absent.
Calochortus raichei The Cedars Fairy-lantern	Closed Cone Conifer Forest, Chaparral, Serpentinite	May-Aug	No	Lack of vegetation structure and associates. Requisite edaphic requirements absent.
Campanula californica Swamp Harebell	Seeps in Woodlands	July - August	No	Lack of woodland habitat and moisture regime precludes presence.
Erysimum concinnum Bluff Walflower	Cliffs, Coastal Bluffs, Dunes, Prairies	March -June	No	Absence of requisite habitat precludes presence
Gilia capitata ssp. tomentosa Wooly-headed Gilia	Coastal Strand, Dunes	May-July	No	Absence of requisite habitat.

Scientific Name Common Name	Species Habitat Association or Plant Community	Bloom Time	Found on or Near Site	Justification for Concluding Absence on Project Site
Hesperocyparis pygmaea Pygmy Cypress	Coastal Terraces	NA	No	Lack of requisite edaphic requirements.
Sidalcea malviflora ssp. *purpurea* Purple-stemmed Checkerbloom	Broadleaved Upland Forest	May-June	No	Absence of typical habitat and vegetation associates.
Usnea longissima Long-beard lichen	North coast coniferous forest	N/A	No	Historic clearing of site precludes presence.
Agrostis blasdalei Blasdale's Bent Grass	Coastal bluff scrub	May-June	No	Requisite habitat and vegetation associates absent.

The project site consists of ruderal semi-natural grasslands uplands that have been managed for decades. The special-status species shown in Table I that are known to occur near the project site are associated with the Coastal bluffs, dunes, serpentinite or hydric conditions not present on the project site. Table I indicates the general habitat of potential target species but habitat alone does not determine the existence of or potential for special status species.

Special-status species are limited in nature due to their specific growth requirements including physical tolerance for factors such as nutrients, moisture, and light, as well as biological factors such as competition and succession. Historic land use and introduction of non-native species is also a significant contributing factor. Target species can be further refined and reasonably precluded if requisite habitat (including soils, moisture, exposure, seral stages, and vegetation associates) is absent as well as historic land use.

We found no evidence for the presence of the above referenced special-status species or any other special-status species known for the region. Based on habitat present associated with the proposed project, historic use, and vegetation observed on or near the project footprint we conclude that it is unlikely that any of the species shown in the table above, or known for the region, would be present, or have the potential to occurred on the project site.

As shown above the Sawyer Classification (2009) considers the site to be Semi-natural Grassland Herbaceous Alliance. There were no indications of undisturbed (non-invaded with European weed species) native grasslands present.

It is unlikely that proposed project would have a substantial impact to special-status plant species, either directly or through habitat modifications based on the lack of habitat required for their presence and the historical use of the project site.

Animals

Plate II illustrates the records of special-status animal species, which are present within a five-mile radius of the study site. There are no records of special-status animals for the project site. Table II below provides information and findings relating to the special-status animals within the vicinity of the project site.

Table II. Analysis of special-status animals for the area. The taxa included in the table are selected based on DFW CNDDB records within five miles of the project (Appendix C, and Plate II).

Common Name Scientific Name	**Species Habitat**	**Present on the Project site**	**Justification for Absence on Project Site**
Antrozous pallidus Pallid Bat	Roosts in Caves and buildings	No	Lack of suitable roosting habitat on project site. Potential to forage in adjacent woodland areas.
Arborims pomo Sonoma Tree Vole	Mature Douglas-fir Forests	No	Lack on suitable habitat on the project site or immediately surrounding environment.
Carterocephalus palaemon magnus Sonoma Artic Skipper	Redwood and Evergreen Forest	No	Lack of suitable habitat.
Danaus plexippus Monarch Butterfly	Milkweed, Migrates along Coast	No	No Milkweeds found on site or in the vicinity.
Myotis yumanensis Yuma Myotis	Roosts in old buildings or caves	No	Lack of roosting habitat on project site.. May feed over grasslands.
Rana boylii Foothill Yellow-legged Frog	Streams with pools	Yes	Project site did not contain habitat for this species. Species observed below the project site.

Sensitive Communities

The sensitive habitat type shown in the DFW CNDDB for the project area is Mendocino Pygmy Cypress Forest. Serpentinite is also known for the region and where present often supports special status-species. There was no evidence on the project site for the presence of serpentinite. Vernal pools are known from Sonoma County however there are no known vernal pools in the near vicinity of the project site.

The project site does not include any sensitive habitat types. The Mendocino Pygmy Cypress Forest is not present on the property.

• **Riparian Habitat-** is vegetation associated with the banks of natural watercourses or waterways is termed riparian. Drainages on the property contain riparian vegetation. No riparian habitat or riparian vegetation will be removed by proposed project (reservoir site and or point of diversion).

• **Migratory Corridors-** are natural areas, which are important for animal movement, increasing genetic variation in populations, reduction of population fluctuations, and for movement of wildlife and plant populations. Wide riparian corridors are significant corridors. Wildlife corridors have been demonstrated to not only increase the range of vertebrates including avifauna between patches of habitat but also facilitate two key plant-animal interactions pollination and seed dispersal. There will be no significant impact to wildlife corridors with the proposed project.

• **Nesting or Breeding Habitat, or Unique Plant Distributions or Populations**
We did not find any rookeries, nesting sites for wildlife of the area associated with the project site. There is potential for raptor nests on the property however no nests were observed. There are no unique plant distributions associated with the project.

Jurisdictional Wetlands or Waters of the U.S.

We reviewed two proposed alternative location for the reservoir. The project site reservoir site has been relocated to avoid seasonal drainages or drainages which contain a definable bed and bank. The point of diversion will be a well adjacent to creek and above the bed and bank of the blue line stream and will require consultation and 1600 permit from CDFW.

• **"Waters of the U.S**." The swale where the reservoir will be located does not contain a definable bed and or bank. There is evidence of overland flow in the bottom of the feature but no evidence of transportation of sediment or erosion. The bottom of the swale consists of grasses and woody vegetation. There was not areas of bare or exposed or eroded soil. The area would not be considered Jurisdictional by the U.S. Army Corps of Engineers. CDFW may take jurisdiction on the swale and require a 1600 permit.

• **Wetlands-** are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The proposed project will not impact seasonal wetlands.

• **Vernal Pools-** are a type of seasonal wetland that have a distinct flora and fauna, an impermeable or slowly permeable substrate and contain standing water for a portion of the year. They are characterized by a variable aquatic and dry regime with standing water during the spring plant growth regime. They have a high degree of endemism of flora and fauna. The proposed project site does not contain any evidence of vernal pools.

RECOMMENDED MEASURES FOR CONSIDERATION

Project construction has the potential to impact biological resources without appropriate avoidance and protection measures. Biological resources present include aquatic resources downstream from the Point of Diversion.

The Point of Diversion should be located above the bed and bank of the channel of the Blue Line Creek and constructed in at manner that only water is diverted during high flow events. Water should not be drawn out of the watershed during the summer months. Erosion control measures

must be implemented around the area to eliminate any sediment or erosion to reduce the potential for harm of aquatic species down stream.

Best Management Practices including silt and erosion control measures must be implemented for any upland work to protect off-site movement of sediment and dust during and post construction. Best Management Practices such as retaining ground cover litter, monitoring for invasive species, and providing mulch for bare ground should be initiated with any development.

SUMMARY

This study is provided as background information necessary for evaluating potential impacts of the project on local Biological Resources.

The Point of Diversion has the potential to impact *Rana boylii* Foothill Yellow-legged Frog by the increase of sediment in the blue line creek. The reservoir site does not contain habitat, which would contain special-status plant or animal species. The point of diversion will be a "well" above the bed and bank of a blue line stream and may require a 1600 permit from CDFW. No sensitive natural community will be impacted by the proposed project.

We find that the proposed project following recommendations will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

We find that the project as proposed will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

We find that the project as proposed will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. No wetlands or vernal pools are associated with the proposed project.

We find that the proposed project will not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites provided standard construction methods and best management practices are employed during development.

Should you have any questions, please do not hesitate to contact us at, (707) 544-3091, Fax (707) 575-8030, or by email at (Kjeldsen@sonic.net).

Kjeldsen Biological Consulting

ATTACHMENTS

Names of and Qualifications of Field Investigators
Plate I. Location and Site Map
Plate II. DFW CNDDB Five-Mile Search
Plate III. Aerial Photo
Plate IV. Site Map

Appendix A List of Plants Observed

Appendix B List of Animals Observed

Appendix C CNPS Special Status-species Listed for the Project Quadrangle and Surrounding Quadrangles

DFW CNDDB Rare Find 3 Special-status Species Listed for the Quadrangle and Surrounding Quadrangles

U.S. Fish and Wildlife Service Listed Species for the Quadrangle

Names of and Qualifications of Field Investigators

Daniel T. Kjeldsen, B. S., Natural Resource Management, California Polytechnic State University, San Luis Obispo, California. He spent 1994 to 1996 in the Peace Corps managing natural resources in Honduras, Central America. His work for the Peace Corps in Central America focused on watershed inventory, mapping and the development and implementation of a protection plan. He has over eight years of experience in conducting Biological Assessments, DFW Habitat Assessments, COE wetland delineations, wetland rehabilitation, and development of and implementation of mitigation projects and mitigation monitoring. He has received 3.2 continuing education units MCLE 27 hours in Determining Federal Wetlands Jurisdiction from the University of California Berkeley Extension. A full resume is available upon request.

Chris K. Kjeldsen, Ph.D., Botany, Oregon State University, Corvallis, Oregon. He has over thirty-five years of professional experience in the study of California flora. He was a member of the Sonoma County Planning Commission and Board of Zoning (1972 to 1976). He has over thirty years of experience in managing and conducting environmental projects involving impact assessment and preparation of compliance documents, Biological Assessments, DFW Habitat Assessments, DFW SB 34 Mitigation projects, COE Mitigation projects and State Parks and Recreation Biological Resource Studies. Experience includes conducting special-status species surveys, jurisdictional wetland delineations, general biological surveys, 404 and 1601-1603 permitting, and consulting on various projects. He has taught Plant Taxonomy at Oregon State University (three years) and numerous botanical science and aquatic botany courses (thirty-five years) at Sonoma State University including sections on wetlands and wetland delineation techniques. He has supervised numerous graduate theses, NSF, DOE and local agency grants and served as a university administrator. A full resume is available upon request. He has a valid DFW collecting permit.

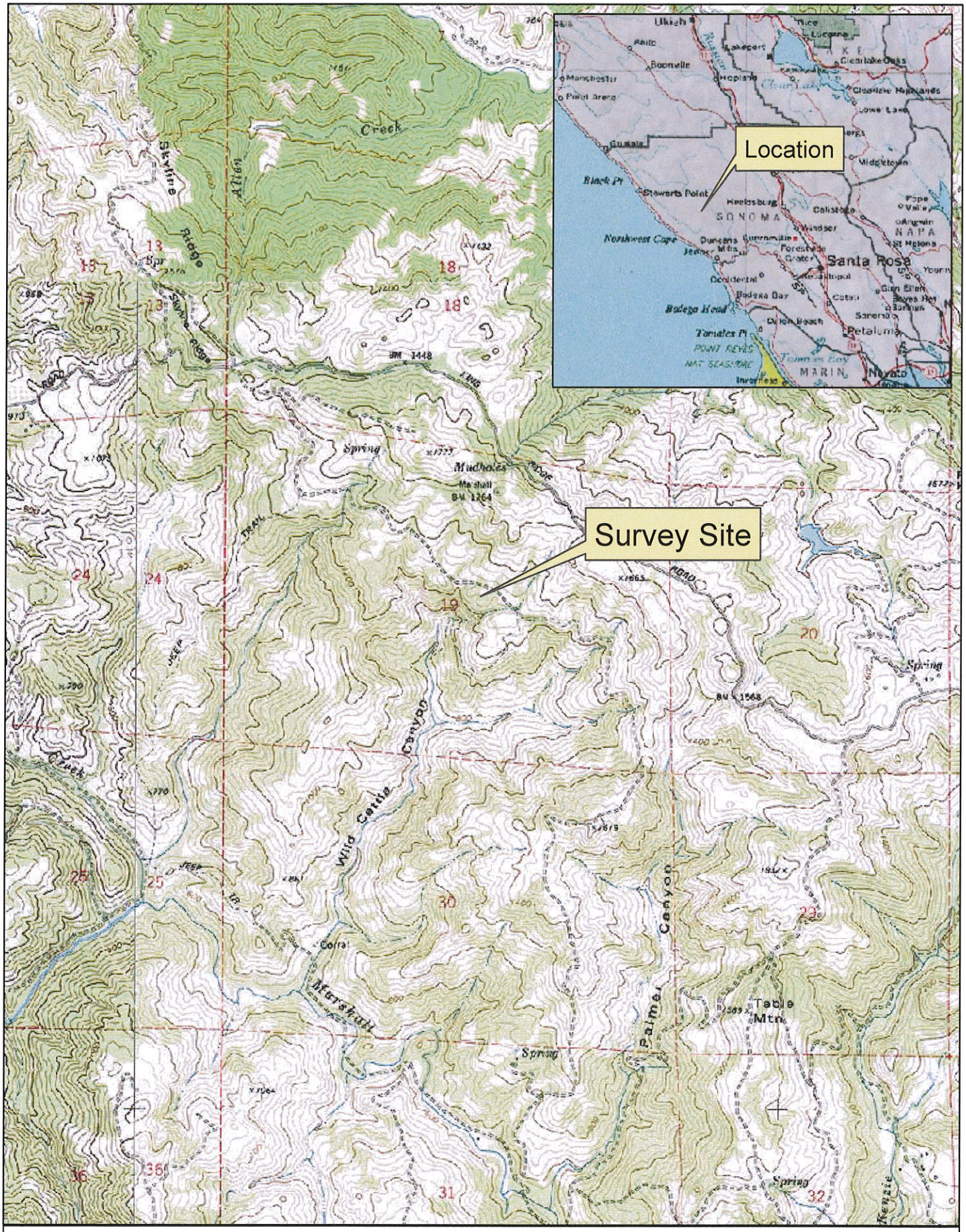


Plate I. Site / Location Map

(Fort Ross Quadrangle)

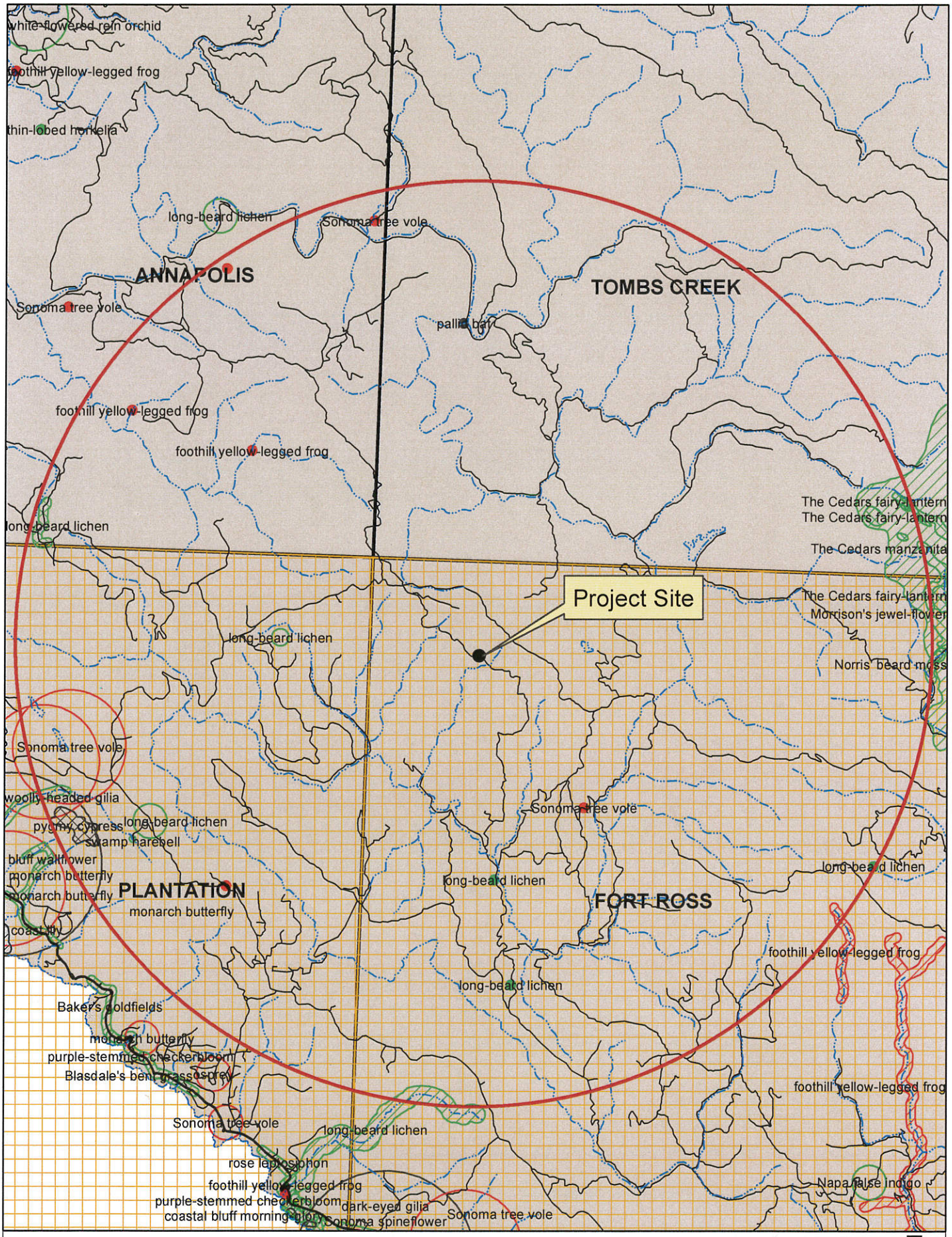


Plate II DFG CNDDB 5-Mile Search

0 0.5 1 2 Miles

(Data Date June 2013)

Plate III. Aerial Photo

AGRICULTURAL POND FOR KING RIDGE VINEYARDS LLC

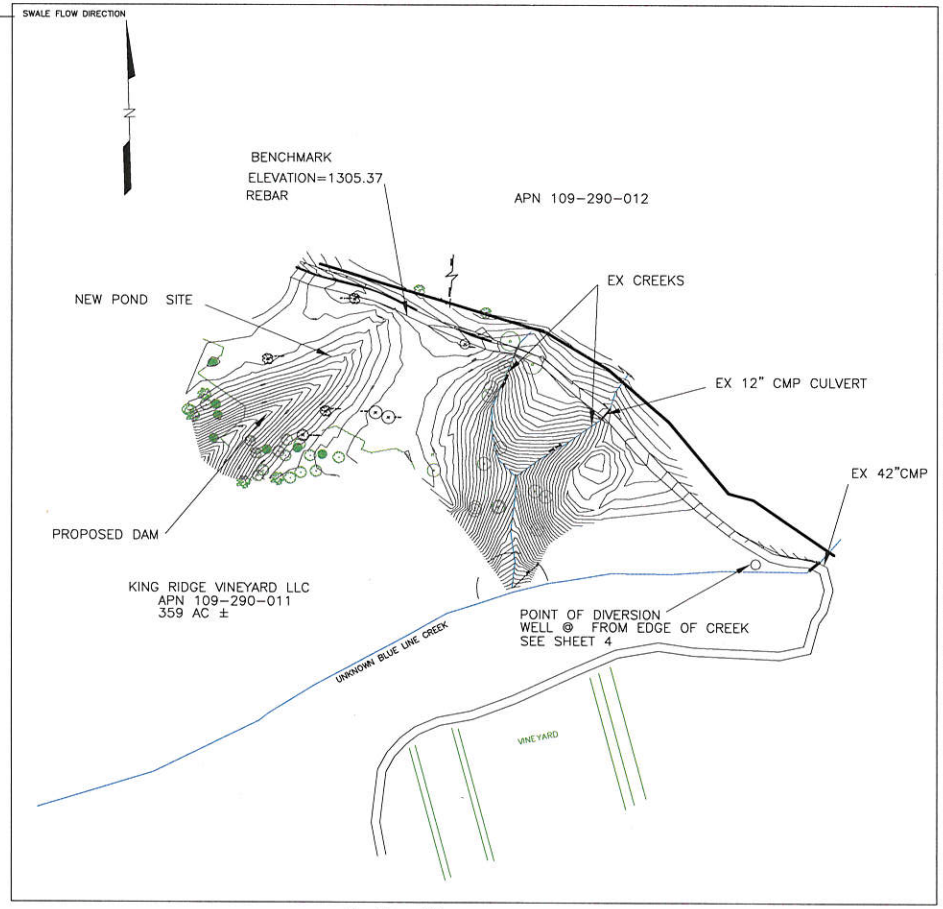
31111 KING RIDGE ROAD
CAZADERO CA
APN 109-290-011

LEGEND

EXISTING		PROPOSED	
—SD—	EX STORM DRAIN	SD	STORM DRAIN
—SAN—	EX SANITARY	SAN	SANITARY
—W—	EX WATER LINE	W	WATER LINE
	EX FIRE HYDRANT		FIRE HYDRANT
	EX WATER VALVE		WATER VALVE
	EX SAN OR SD MH		SAN OR SD MH
	EX SANITARY CLEANOUT		SANITARY CLEANOUT
	EX BALL VALVE		BALL VALVE
	EX POWER POLE		POWER POLE
	BUILDING OUTLINE		SWALE FLOW DIRECTION

275 CONTOUR LINE MAJOR
270 CONTOUR LINE MINOR
DAYLIGHT LINE
BUILDING SETBACK LINE
PROPERTY LINE
UT UTILITY TRENCH
EXIST TREE
TREE PROTECTION FENCE
W WATER WELL

CP	CENTRAL PRECAST
CL	CENTER LINE
CO	CLEAN OUT
DWY	DRIVEWAY
EG	EXIST GROUND
FL	FLOW LINE
FD	FRENCH DRAIN
FG	FINISHED GRADE
EG	EXIST GRADE
EP	EDGE OF PAVEMENT
EX	EXIST
EASE	EASEMENT
FF	FINISHED FLOOR
FC	FACE OF CURB
FNC	FENCE
FM	FORCE MAIN
GRT	GRATE
GVL	GRAVEL
HP	HIGH POINT
INV.	INVERT
IFO	IN FAVOR OF
JT	JOINT TRENCH
O.C.	ON CENTER
PAV.	PAVEMENT
PED	PEDESTRIAN
PVT	POINT OF VERTICAL INTERSECTION
PVI	PRIVATE
P.U.E.	PUBLIC UTILITY EASMENT
PP	POWER POLE
RC	RELATIVE COMPACTION
SB	SETBACK LINE
SAN	SANITARY SEWER
SS	SIDE SLOPE
SW	SIDE WALK
SDE	STORM DRAIN EASEMENT
TC	TOP OF CURB
TYP.	TYPICAL
TG	TOP OF GRATE
WS	WATER SERVICE
45.5	EXIST SPOT ELEV



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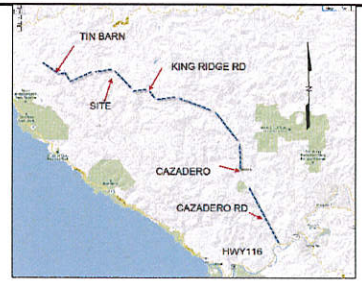


AREA MAP

VICINITY MAP

SHEET LIST

1. TITLE
2. NOTES
3. POND 1 GRADING AND EROSION CONTROL

OWNER:

DEL DOTTO VINEYARDS INC
1291 W Zinfandel Lane
ST HELENA CA
(707) 963-2134

PROJECT

31111 KING RIDGE ROAD
CAZADERO
ZONE 1 SONOMA GUALALA BASIN
GW AVAIL- LOW OR HIGHLY VARIABLE YEILD
USGS QUAD 17A

ENGINEER:

GUADALUPE S. CHAVARRIA, PE
P.O. BOX 1782 WINDSOR CA 95492
CEL 707-799-5432
FAX 707-838-9161

PURPOSE STATEMENT

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT AN AGRICULTURAL POND FOR VINEYARD IRRIGATION

BENCHMARK

VERTICAL ELEVATION IS ASSUMED SHOWN ON THIS SHEET.

DISTURBED AREA

1. DISTURBED AREA 1.64 ACRES

EARTHWORK

1. THE EARTHWORK SHOWN IS AN APPROXIMATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN TAKEOFF. CUT 20,100 CY

DAM VOLUME

VOLUME OF DAM WITH 1' FREEBOARD IS 12 AC-FT

H W B
117 WEST NORTH STREET
HEALDSBURG, CALIFORNIA 95448
(707) 433-9760
FAX (707) 433-9761

BOUNDARY LINES

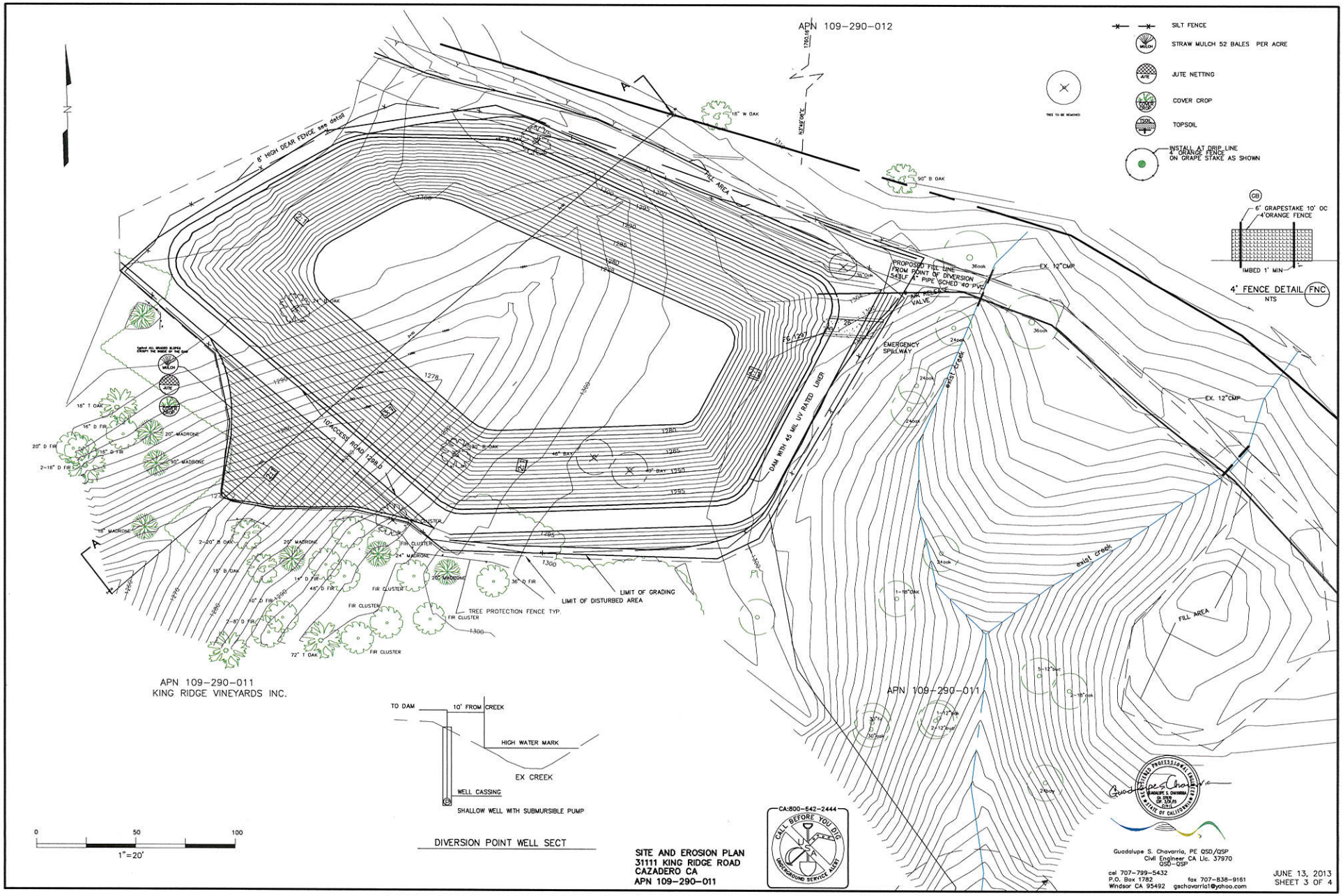
BOUNDARY LINES WERE TAKEN FROM RECORD INFORMATION AND ARE APPROXIMATE.
THE TOPOGRAPHY WAS CONDUCTED WITH A FILED SURVEY BY A FIELD SURVEY FROM HWB (WEST SIDE) AND FIELD SURVEY BY GSC ON THE EAST SIDE. THE FIELD SURVEY RECORDED ALL VISIBLE INFORMATION FROM THE GROUND. SUBSURFACE INFORMATION WAS TAKEN FROM RECORD INFORMATION AVAILABLE AT COUNTY RECORDS.

CA:800-642-2444
CALL BEFORE YOU DIG
UNDERGROUND SERVICE ALERT

REGISTERED PROFESSIONAL ENGINEER
GUADALUPE S. CHAVARRIA
CIVIL
STATE OF CALIFORNIA

Guadalupe S. Chavarria, PE QSD/QSP
Civil Engineer CA Lic. 37970
QSD-QSP
cel 707-799-5432
P.O. Box 1782
Windsor CA 95492
fax 707-838-9161
gschavarria1@yahoo.com

JUNE 13, 2013
SHEET 1 OF 4



SITE AND EROSION PLAN
31111 KING RIDGE ROAD
CAZADERO CA
APN 109-290-011

Guadalupe S. Chavarria, PE QSD/QSP
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gschavarria1@yahoo.com

JUNE 13, 2013
SHEET 3 OF 4

Appendix A
Plants Observed

The nomenclature for the list of plants found on the project study areas and the immediate vicinity follows: Baldwin, B.G., *et.al.*, editors, 2012, for vascular plants; Brodo, Irwin M., Sylvia Duran Sharnoff and Stephen Sharnoff, 2001, for the lichens; S. Norris and Shevrock - 2004, for the mosses; Doyle and Stotler - 2006 for liverworts and hornworts.

Habitat type indicates the general associated occurrence of the taxon on the project site or in nature. **Abundance** refers to the relative number of individuals on the project site or in the region.

MAJOR PLANT GROUP **Family** **Genus**	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

FUNGI		
Basidiomycota- Club Fungi		
AGARICACEAE		
Agaricus augustus	Woodlands	Occasional
The Prince		
POLYPORACEAE		
Trametes versicolor	Woodlands on Dead Wood	Common
Turkey Tail		
Ascomycota - Sac Fungi		
DALDINEACEAE		
Daldinia grandis	Woodlands on Dead Wood	Common
Carbon Balls		
MOSSES		
MINACEAE		
Alsia californica (W.J.Hooker&Arnott) Sullivant	Coastal Forests On Trees	Common
NCN		
Atrichum selwynii Aust.	Ruderal	Common
NCN		
Dendroalsia abietina (Hook.) Brit.	Woodlands	Common
NCN		
Hedwigia stellata Hedenas	Grasslands on Rocks	Common
NCN		
Homalothecium nuttallii (Wilson) Jaeger	Epiphytic on Trees Near Coast-Inland	Common
NCN		

MAJOR PLANT GROUP **Family** **Genus**	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

Kindbergia oregana (Sull) Ochyra NCN	Woodlands	Common
Orthotrichum lyellii Hook & Tayl. NCN	Woodlands, Upper Canopy	Common
Pseudobraunia californica (Lesq.) Broth. NCN	Woodlands on Base of Trees Also on rocks or cut banks	Common
Scleropodium touretii (Brid.) L Koch. NCN	Woodlands	Common
LICHENS		
FOLIOSE		
Flavoparmelia caperata (L.) Hale NCN	On Oaks	Common
Flavopunctilia flaventor (Stirt.) Hale NCN	On Oaks	Common
Parmelia sulcata Taylor NCN	On Oaks	Common
@*Parmotrema perlatum* (Osbeck) Hale & Ahti=*P. chinense* NCN	On Oaks	Common
Physconia americana Essl. Fancy Frost Lichen	On Oak Limbs	Common
Xanthoparmelia mexicana (Gyeln.) Hale NCN	On Rocks	Common
Xanthoria polycarpa (Hoffm.) Rieber Pin-cushion Sunburst Lichen	On Oaks Young Twigs	Common
UMBILICATE		
*Umbilicaria phaea*Tuck. NCN	On Rocks	Common
FRUTICOSE		
Evernia prunastri (L.) Ach. NCN	On Oaks	Common
@*Ramalina leptocarpha* Tuck. NCN	On Oaks	Common
@*Usnea cavernosa* Tuck. *NCN*	On Oaks	Common
Usnea intermedia=U. arizonica NCN	On Oaks	Common

MAJOR PLANT GROUP Family Genus	Habitat Type	Abundance
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

VASCULAR PLANTS FERNS

DENNSTAEDTIACEAE

Pteridium aquilinum (L.) var. *pubescens* Underw. Grasslands or Woodlands Common
Bracken Fern

PTERIDACEAE

Adiantum jordaniii C. Mueller Hal. Canyons and Shadey Slopes Common
Calironia Maidenhair Fern

Pentagramma triangularis (Kaulf.)G.Yatsk. subsp. *triangularis* Woodlands Common
Goldback Fern

VASCULAR PLANTS DIVISION CONIFEROPHYTA--GYMNOSPERMS

PINACEAE

Pseudotsuga menziesii (Vassey) Mayr var. *menziesii* Woodlands Common
Douglas-fir

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE- TREES

MAGNOLIIDS

LAURACEAE

Umbellularia californica (Hook.&Arn.) Nutt. Conifer&Oak Woodlands Occasional
California Laurel, Sweet Bay, Pepperwood, California Bay

EUDICOTS

ERICACEAE Heath Family

Arbutus menziesii Pursh Woodlands Common
Madrone

FAGACEAE Oak Family

Notholithocarpus densiflorus (Hook&Arn.)Manos var. *densiflorus* Woodlands Common
Tan Oak

Quercus garryana Hook. Woodlands Common
Oregon Oak

Quercus kelloggii Newb. Woodlands Common
Black Oak

SAPINDACEAE Soapberry Family

Aesculus californica (Spach) Nutt. Woodlands, Riparian Common
California Buckeye

MAJOR PLANT GROUP Family Genus Common Name	Habitat Type	Abundance

NCN = No Common Name, * = Non-native, @= Voucher Specimen

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE-SHRUBS AND WOODY VINES

EUDICOTS

ADOXACEAE Muskroot Family		
Sambucus nigra subsp *caerulea* (Raf.) Bolli Blue Elderberry (=*S. mexicana, S. caerulea)*	Shrub/Scrub	Occasional
ANACARDIACEAE Sumac Family		
Toxicodendron diversilobum (Torry&Gray) E.Green Poison Oak	Woodlands	Common
CAPRIFOLIACEAE Honeysuckle Family		
Lonicera hispidula Douglas var. *vacillans* Honeysuckle	Woodlands, Riparian	Occasional
Symphoricarpos mollis Nuttall Creeping Snowberry, Trip Vine	Woodlands	Common
ERICACEAE Heath Family		
Arctostaphylos manzanita Parry ssp. *glaucesens* Common Manzanita	Woodlands	Common
FABACEAE (Leguminosae) Legume Family		
Acmispon glabor (Vogel) Bouillet Deerweed, California Broom (=*Lotus scoparius*)	Grasslands, Chaparral	Common
PHRYMACEAE Lopseed Family		
Mimulus aurantiacus Curtis Bush Monkey Flower	Woodlands	Occasional

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE-HERBS

EUDICOTS

APIACEAE (Umbelliferae) Carrot Family		
**Dacus carota*L. Wild Carrot, Queen Anne's Lace	Ruderal Grasslands	Common
Osmorhiza bertoli DC. Sweet Cicely (=*Osmorhiza chilense)*	Woodlands, Ruderal	Common
Sanicula crassicaulis DC. Pacific Sanicle	Woodlands	Common
**Torilis arvensis* (Huds.) Link Hedge-parsley	Grasslands Woodlands	Common
ASTERACEAE (Compositae) Sunflower Family		
Agoseris heterophylla (Nutt.) Green Annual Agoseris	Ruderal	Occasional

MAJOR PLANT GROUP **Family** **Genus**	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

Anisocarpus madioides Nutt.	Woodlands	Common
Woodland Tarweed (=*Madia madioides)*		
**Anthemis cotula* L.	Ruderal	Common
Mayweed, Stinkweed, Dog-fennel		
Anaphalis margaritacea (L.) Benth	Ruderal	Occasional
Pearly Everlasting		
Arnica discoidea Benth.	Chaparral, Foothill Woodland	Occasional
Rayless Arnica		
**Carduus pycnocephalus* L.subsp.*pycnocephalus*	Woodlands	Common
Italian Thistle		
Eriophyllum lanatum(Pursh)J.Forbes var. *arachnideum*	Woodlands	Common
Wooley Sunflower		
Hieracium albiflorum Hook.	Woodlands, Grasslands	Occasional
White-flowered Hawkweed		
**Hypochaeris glabra* L.	Ruderal	Common
Cat's Ear		
**Hypochaeris radicata* L.	Ruderal	Common
Harry Cat's Ear		
**Lactuca serriola* L.	Ruderal	Occasional
Prickly Lettuce		
Madia elegans D.Don	Ruderal, Grasslands	Common
Common Madia		
@*Madia exigua* (Sm.) A.Gray	Grasslands	Common
Threadstem Madia, Tarweed		
Pseudognaphalium californicum (DC.)Anderb.	Dry Open Woodlands	Occasional
Cudweed (=*Gnaphalium californicum)*		
**Taraxacum officinale* F.H.Wigg	Ruderal	Common
Dandelion		
Uropappus lindleyi (DC.) Nutt.	Ruderal Grasslands	Common
Silver Puffs		
BRASSICACEAE Mustard Family		
**Raphanus sativus* L.	Ruderal	Common
Wild Radish		
CARYOPHYLLACEAE Pink Family		
Silene laciniata Cav. subsp *californica*	Chaparral, Oak Woodlands	Occasional
Indian Pink		
EUPHORBIACEAE Spurge Family		
Croton setigerus Hook.	Ruderal	Common
Turkey Mullein, Dove Weed (=*Eremocarpus setigerus)*		

MAJOR PLANT GROUP **Family** **Genus**	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

FABACEAE (Leguminosae) Legum Family		
Acmispon micranthus (Torr.&A. Gray)	Grasslands, Ruderal	Common
Small Flowered Lotus (= *Lotus micranthus)*		
@**Lathyrus angulatus* L.	Ruderal	Occasional
NCN		
Lathyrus vestitus Nutt. var. *vestitus*	Woodlands	Occasional
Hillside Pea		
**Trifolium hirtum* All.	Ruderal	Common
Rose Clover		
Trifolium wildenovii Spreng.	Ruderal	Common
Tomcat Clover		
**Vicia sativa* L. subsp. *nigra*	Grasslands, Ruderal	Common
Narrow Leaved-vetch		
GERANIACEAE Geranium Family		
**Erodium botrys* (Cav.) Bertol.	Grasslands	Common
Broadleaf Filaree, Long-beaked Filaree		
LAMIACEAE (Labiatae) Mint Family		
**Mentha pulegium* L.	Ruderal	Occasional
Pennyroyal		
Stachys ajugoides Benth.	Moist Open Places	Occasional
Hedge-nettle		
LINACEAE Flax Family		
Linum usitatissimum L.	Grasslands	Common
Common Flax		
PHRYMACEAE Lopseed Family		
Mimulus guttatus DC.	Riparian	Common
Common Monkey Flower		
PLANTAGINACEAE Plantain Family		
**Plantago lanceolata* L.	Ruderal	Common
English Plantain		
POLEMONIACEAE Phlox Family		
Leptosiphon ciliatus (Benth) Jeps.	Grassland- Open Areas	Occasional
Whisker Brush (= *Linanthus)*		
POLYGALACEAE Milkwort Family		
Polygala californica Nutt.	Woodlands, Shrub/Scrub	Occasional
Milkwort		
POLYGONACEAE Buckwheat Family		
**Rumex crispus* L.	Ruderal	Common
Curly Dock		

MAJOR PLANT GROUP **Family** **Genus**	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

ROSACEAE Rose Family		
Fragaria vesca L.	Woodlands/Grasslands	Common
Wood Strawberry		
RUBIACEAE Madder Family		
@*Galium californicum* Hook.&Arn. subsp. *californicum*	Woodlands	Occasional
California Bedstraw, Cleavers		
VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS CLASS--MONOCOTYLEDONAE-GRASSES		
POACEAE Grass Family		
**Aira caryophyllea* L.	Grassland	Common
Silver European Hairgrass		
**Avena barbata* Link.	Grasslands	Common
Slender Wild Oat		
**Briza maxima* L.	Grasslands, Ruderal	Common
Large Quaking Grass, Rattlesnake Grass		
**Bromus diandrus* Roth	Ruderal, Grasslands	Common
Ripgut Grass		
**Bromus hordeaceus* L.	Grasslands	Common
Soft Chess, Blando Brome (*B.mollis*)		
**Cynosurus echinatus* L.	Ruderal	Common
Hedgehog, Dogtail		
**Elymus caput-medusae* L.	Grasslands	Common
Medusahead (=*Taeniantherum caput-medusae)*		
Elymus glaucus Buckley ssp. *glaucus*	Woodlands	Common
Blue Wildrye		
**Festuca bromoides* L.	Ruderal, Moist Flats become Dry	Common
Six-weeks Fescue *(=Vulpia bromoides)*		
Festuca californica Vassey	Grasslands, Woodlands	Common
California Fescue		
**Festuca myuros* L.	Grasslands	Common
Rattail Fescue,Zorro Annual Fescue (=*Vulpia myuros)*		
**Festuca perennis* (L.) Columubus & Sm.	Grasslands	Common
Perennial Rye Grass (=*Lolium multiflorum, L. perenne)*		
**Holcus lanatus* L.	Grasslands, Ruderal	Common
Velvet Grass		
@*Melica torreyana* Schribn.	Chaparral, Woodlands	Common
Torrey's Melic		
**Phalaris aquatica* L.	Grasslands	Common
Harding Grass		

MAJOR PLANT GROUP Family Genus Common Name	Habitat Type	Abundance
Stipa pulchra Hitchc. Purple Needle Grass (=*Nassella pulchra)*	Oak Woodland, Grasslands	Common
VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS CLASS--MONOCOTYLEDONAE-SEDGES AND RUSHES		
CYPERACEAE Sedge Family		
Cyperus eragrostis Lam. Nut-grass	Ruderal Moist Areas	Common
JUNCACEAE		
Luzula comosa Mey var. *comosa* Wood Rush	Grasslands, Woodlands	Common
VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS CLASS--MONOCOTYLEDONAE-HERBS		
AGAVACEAE Centuray Plant Family		
Chlorogalum *pomeridianum* (DC.) Kunth var. *pomeridianum* Soap Plant	Woodlands, Grasslands	Common
IRIDACEAE Iris Family		
Sisyrinchium bellum Watson Blue-eyed Grass	Grasslands	Common
LILIACEAE Lily Family		
Calochortus amabilis Purdy Yellow Globe Lily, Diogenes' Lantern	Grasslands, Woodlands	Occasional
THEMIDACEAE Brodiaea Family		
Brodiaea californica Lindl. California Brodiaea	Grasslands	Common
Dichelostemma capitatum (Benth.) Wood Blue Dicks	Grasslands, Open Woodlands	Occasional

NCN = No Common Name, * = Non-native, @= Voucher Specimen

Appendix A
Animals Observed

The nomenclature for the animals found on the project site and in the immediate vicinity follows: Mc Ginnis –1984, for the fresh water fishes; Stebbins -1985, for the reptiles and amphibians; and Udvardy and Farrand – 1998, for the birds; and Jameson and Peeters -1988 for the mammals.

AMPHIBIA AND REPTILIA		
ORDER		
Common Name	**Genus**	**Observed**
ANURA		
Foothill Yellow-legged Frog	*Rana boylii*	X Downslope
CAUDATA		
California Newt	*Taricha torosa*	X Downslope
SQUAMATA		
Western Fence Lizard	*Sceloporus occidentalis*	X

AVES		
ORDER		
Common Name	**Genus**	**Observed**
AVES		
Acorn Woodpecker	*Melanerpes fomicivorus*	X
California Quail	*Callipepla californica*	X
Mourning Dove	*Zenaida macroura*	X
Turkey Vulture	*Cathartes aura*	X
Violet-green Swallow	*Tachycineta thalassina*	X
Wild Turkey	*Meleagris gallopavo*	X

MAMMALS		
ORDER		
Common Name	**Genus**	**Observed**
ARTIODACTYLA		
Feral Pig/Wild Boar	*Sus scrofa*	Workings

APPENDIX C

CNPS Special Status-species Listed for the Project Quadrangle and Surrounding Quadrangles

DFW CNDDB Rare Find 3 Special-status Species Listed for the Quadrangle and Surrounding Quadrangles

U.S. Fish and Wildlife Service Listed Species for the Quadrangle

Inventory of Rare and Endangered Plants

CNPS California Native Plant Society

v7-13jun 6-6-13

Your Quad Selection: Fort Ross (519C) 3812352, Duncans Mills (503A) 3812341, Arched Rock (503B) 3812342, Plantation (520D) 3812353, Annapolis (520A) 3812363, Cazadero (519D) 3812351, Warm Springs Dam (519A) 3812361, Tombs Creek (519B) 3812362

scientific	common	family	CNPS
Agrostis blasdalei	Blasdale's bent grass	Poaceae	List 1B.2
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Poaceae	List 1B.1
Amorpha californica var. napensis	Napa false indigo	Fabaceae	List 1B.2
Arctostaphylos bakeri ssp. bakeri	Baker's manzanita	Ericaceae	List 1B.1
Arctostaphylos bakeri ssp. sublaevis	The Cedars manzanita	Ericaceae	List 1B.2
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	Ericaceae	List 1B.1
Calochortus raichei	The Cedars fairy-lantern	Liliaceae	List 1B.2
Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	Convolvulaceae	List 1B.2
Campanula californica	swamp harebell	Campanulaceae	List 1B.2
Carex saliniformis	deceiving sedge	Cyperaceae	List 1B.2
Ceanothus confusus	Rincon Ridge	Rhamnaceae	List

	ceanothus		1B.1
Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	List 1B.2
Chlorogalum pomeridianum var. minus	dwarf soaproot	Agavaceae	List 1B.2
Chorizanthe valida	Sonoma spineflower	Polygonaceae	List 1B.1
Didymodon norrisii	Norris' beard moss	Pottiaceae	List 2.2
Erigeron biolettii	streamside daisy	Asteraceae	List 3
Erigeron greenei	Greene's narrow-leaved daisy	Asteraceae	List 1B.2
Erigeron serpentinus	serpentine daisy	Asteraceae	List 1B.3
Erigeron supplex	supple daisy	Asteraceae	List 1B.2
Eriogonum cedrorum	The Cedars buckwheat	Polygonaceae	List 1B.3
Eriogonum nervulosum	Snow Mountain buckwheat	Polygonaceae	List 1B.2
Erysimum concinnum	bluff wallflower	Brassicaceae	List 1B.2
Erythronium revolutum	coast fawn lily	Liliaceae	List 2.2
Gilia capitata ssp. chamissonis	blue coast gilia	Polemoniaceae	List 1B.1

Gilia capitata ssp. tomentosa	woolly-headed gilia	Polemoniaceae	List 1B.1
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	List 1B.2
Hemizonia congesta ssp. congesta	white seaside tarplant	Asteraceae	List 1B.2
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	List 1B.2
Hesperocyparis pygmaea	pygmy cypress	Cupressaceae	List 1B.2
Horkelia tenuiloba	thin-lobed horkelia	Rosaceae	List 1B.2
Lasthenia californica ssp. bakeri	Baker's goldfields	Asteraceae	List 1B.2
Lasthenia californica ssp. macrantha	perennial goldfields	Asteraceae	List 1B.2
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	List 1B.2
Leptosiphon rosaceus	rose leptosiphon	Polemoniaceae	List 1B.1
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	List 3
Lilium maritimum	coast lily	Liliaceae	List 1B.1
Lupinus tidestromii	Tidestrom's lupine	Fabaceae	List 1B.1
Piperia candida	white-flowered rein orchid	Orchidaceae	List 1B.2

Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Malvaceae	List 1B.2
Sidalcea hickmanii ssp. viridis	Marin checkerbloom	Malvaceae	List 1B.3
Sidalcea malviflora ssp. purpurea	purple-stemmed checkerbloom	Malvaceae	List 1B.2
Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewel-flower	Brassicaceae	List 1B.3
Streptanthus morrisonii ssp. elatus	Three Peaks jewel-flower	Brassicaceae	List 1B.2
Streptanthus morrisonii ssp. hirtiflorus	Dorr's Cabin jewel-flower	Brassicaceae	List 1B.2
Streptanthus morrisonii ssp. morrisonii	Morrison's jewel-flower	Brassicaceae	List 1B.2
Trifolium amoenum	two-fork clover	Fabaceae	List 1B.1
Trifolium buckwestiorum	Santa Cruz clover	Fabaceae	List 1B.1

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Fort Ross and Surrounding Quadrangles

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Agrostis blasdalei Blasdale's bent grass	PMPOA04060			G2	S2	1B.2
2	Alopecurus aequalis var. sonomensis Sonoma alopecurus	PMPOA07012	Endangered		G5T1Q	S1	1B.1
3	Amorpha californica var. napensis Napa false indigo	PDFAB08012			G4T2	S2.2	1B.2
4	Antrozous pallidus pallid bat	AMACC10010			G5	S3	SC
5	Arborimus pomo Sonoma tree vole	AMAFF23030			G3	S3	SC
6	Arctostaphylos bakeri ssp. bakeri Baker's manzanita	PDERI04221		Rare	G2T2	S2	1B.1
7	Arctostaphylos bakeri ssp. sublaevis The Cedars manzanita	PDERI04222		Rare	G2T2	S2	1B.2
8	Arctostaphylos stanfordiana ssp. decumbens Rincon Ridge manzanita	PDERI041G4			G3T1	S1	1B.1
9	Ardea herodias great blue heron	ABNGA04010			G5	S4	
10	Calochortus raichei The Cedars fairy-lantern	PMLIL0D1L0			G2	S2	1B.2
11	Calystegia purpurata ssp. saxicola coastal bluff morning-glory	PDCON040D2			G4T2	S2.2	1B.2
12	Campanula californica swamp harebell	PDCAM02060			G3	S3	1B.2
13	Carex comosa bristly sedge	PMCYP032Y0			G5	S2	2.1
14	Carex saliniformis deceiving sedge	PMCYP03BY0			G2	S2.2	1B.2
15	Carterocephalus palaemon magnus Sonoma arctic skipper	IILEP42012			G5T1	S1	
16	Ceanothus purpureus holly-leaved ceanothus	PDRHA04160			G2	S2	1B.2
17	Cerorhinca monocerata rhinoceros auklet	ABNNN11010			G5	S3	
18	Chlorogalum pomeridianum var. minus dwarf soaproot	PMLIL0G042			G5T2	S2	1B.2
19	Chorizanthe valida Sonoma spineflower	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
20	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
21	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
22	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
23	Danaus plexippus monarch butterfly	IILEPP2010			G5	S3	
24	Delphinium bakeri Baker's larkspur	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Didymodon norrisii Norris' beard moss	NBMUS2C0H0			G3G4	S3S4	2.2
26	Emys marmorata western pond turtle	ARAAD02030			G3G4	S3	SC
27	Erigeron greenei Greene's narrow-leaved daisy	PDAST3M5G0			G2	S2	1B.2
28	Erigeron serpentinus serpentine daisy	PDAST3M5M0			G2	S2	1B.3
29	Erigeron supplex supple daisy	PDAST3M3Z0			G2	S2	1B.2
30	Eriogonum cedrorum The Cedars buckwheat	PDPGN087A0			G1	S1	1B.3
31	Erysimum concinnum bluff wallflower	PDBRA160E3			G3	S3	1B.2
32	Fratercula cirrhata tufted puffin	ABNNN12010			G5	S2	SC
33	Gilia capitata ssp. chamissonis blue coast gilia	PDPLM040B3			G5T2	S2.1	1B.1
34	Gilia capitata ssp. tomentosa woolly-headed gilia	PDPLM040B9			G5T2	S2	1B.1
35	Gilia millefoliata dark-eyed gilia	PDPLM04130			G2	S2.2	1B.2
36	Hemizonia congesta ssp. congesta white seaside tarplant	PDAST4R065			G5T2T3	S2S3	1B.2
37	Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011			G4T2T3	S2S3	1B.2
38	Hesperocyparis pygmaea pygmy cypress	PGCUP04032			G2	S2	1B.2
39	Horkelia tenuiloba thin-lobed horkelia	PDROS0W0E0			G2	S2.2	1B.2
40	Lasiurus cinereus hoary bat	AMACC05030			G5	S4?	
41	Lasthenia californica ssp. bakeri Baker's goldfields	PDAST5L0C4			G3TH	SH	1B.2
42	Lasthenia californica ssp. macrantha perennial goldfields	PDAST5L0C5			G3T2	S2.2	1B.2
43	Lavinia symmetricus parvipinnis Gualala roach	AFCJB19025			G5T1T2	S1S2	SC
44	Leptosiphon jepsonii Jepson's leptosiphon	PDPLM09140			G2	S2	1B.2
45	Leptosiphon rosaceus rose leptosiphon	PDPLM09180			G1	S1	1B.1
46	Lilium maritimum coast lily	PMLIL1A0C0			G2	S2	1B.1
47	Lupinus tidestromii Tidestrom's lupine	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
49	Myotis yumanensis Yuma myotis	AMACC01020			G5	S4?	
50	Oncorhynchus mykiss irideus steelhead - central California coast DPS	AFCHA0209G	Threatened		G5T2Q	S2	
51	Pandion haliaetus osprey	ABNKC01010			G5	S3	
52	Phalacrocorax auritus double-crested cormorant	ABNFD01020			G5	S3	
53	Piperia candida white-flowered rein orchid	PMORC1X050			G3?	S2	1B.2
54	Rana boylii foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
55	Rana draytonii California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
56	Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
57	Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	PDMAL11012			G5T2	S2.2	1B.2
58	Sidalcea hickmanii ssp. viridis Marin checkerbloom	PDMAL110A4			G3T2	S2.2?	1B.3
59	Sidalcea malviflora ssp. purpurea purple-stemmed checkerbloom	PDMAL110FL			G5T2	S2.2	1B.2
60	Speyeria zerene myrtleae Myrtle's silverspot	IILEPJ6089	Endangered		G5T1	S1	
61	Spirinchus thaleichthys longfin smelt	AFCHB03010		Threatened	G5	S1	SC
62	Streptanthus glandulosus ssp. hoffmanii Hoffman's bristly jewel-flower	PDBRA2G0J4			G4TH	SH	1B.3
63	Streptanthus morrisonii Morrison's jewel-flower	PDBRA2G0S0			G2	S2	
64	Syncaris pacifica California freshwater shrimp	ICMAL27010	Endangered	Endangered	G1	S1	
65	Taxidea taxus American badger	AMAJF04010			G5	S4	SC
66	Trifolium amoenum showy rancheria clover	PDFAB40040	Endangered		G1	S1	1B.1
67	Trifolium buckwestiorum Santa Cruz clover	PDFAB402W0			G2	S2	1B.1
68	Usnea longissima long-beard lichen	NLLEC5P420			G4	S4.2	

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the
FORT ROSS (519C)
U.S.G.S. 7 1/2 Minute Quad

Database last updated: September 18, 2011
Report Date: June 12, 2013

Listed Species

Invertebrates
Haliotes cracherodii-black abalone (E) (NMFS)

Haliotes sorenseni-white abalone (E) (NMFS)

Speyeria zerene behrensii-Behren's silverspot butterfly (E)

Syncaris pacifica-California freshwater shrimp (E)

Fish
Eucyclogobius newberryi-tidewater goby (E)

Oncorhynchus kisutch-coho salmon - central CA coast (E) (NMFS)
Critical habitat, coho salmon - central CA coast (X) (NMFS)

Oncorhynchus mykiss-Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)
Critical habitat, Northern California steelhead (X) (NMFS)
Northern California steelhead (T) (NMFS)

Oncorhynchus tshawytscha-California coastal chinook salmon (T) (NMFS)

Amphibians
Rana draytonii-California red-legged frog (T)

Birds
Brachyramphus marmoratus-marbled murrelet (T)

Charadrius alexandrinus nivosus-western snowy plover (T)

Diomedea albatrus-short-tailed albatross (E)

Pelecanus occidentalis californicus-California brown pelican (E)

Strix occidentalis caurina-northern spotted owl (T)

Mammals
Arctocephalus townsendi-Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis-sei whale (E) (NMFS)

Balaenoptera musculus-blue whale (E) (NMFS)

Balaenoptera physalus-finback (=fin) whale (E) (NMFS)

Eubalaena (=Balaena) glacialis-right whale (E) (NMFS)

Physeter catodon (=macrocephalus)-sperm whale (E) (NMFS)

Plants
Chorizanthe valida-Sonoma spineflower (E)

Key:
(E) Endangered - Listed as being in danger of extinction.
(T) Threatened - Listed as likely to become endangered within the foreseeable future.
(P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
(C) Candidate - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) Critical Habitat designated for this species