

**Open Space and Wildlife Habitat Assessment
Lands of Alfa Partners, LLC
2050 Redwood Hill Road
APN 079-100-019**



Prepared
By

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EXECUTIVE SUMMARY

This study was conducted at the request of Frederick Wilkins Jr., AIA | ALFA Partners. The project proposes placement of the property into a Hybrid Williamson Act Contract (Agriculture + Open Space Wildlife Habitat). The property is north of Santa Rosa on the south side of Mark West Springs Road. The parcel including a 6-acre vineyard, residence and infrastructure that burned during the Tubbs Lane Fire of 2017.

The purpose of the report is to provide background information essential for inclusion of the property within a Hybrid Williamson Act Contract. This report provides an evaluation of the open space qualities, habitat, wildlife resource value and botanical resources as well as recommendations for management practices that will enhance and maintain the land as open space and habitat for native flora and fauna.

Our fieldwork was conducted on January 10, 2019. Our findings are based on analysis of pertinent literature, onsite study, habitat types present, and the relationship of the parcel to surrounding habitat and regional biological resources:

- The property consists of three parcels that total 60-acres. Approximately 87% of the property is proposed as Open Space / Wildlife Habitat. The majority of the property burned in the 2017 Tubbs fire.
- The plant communities/associations or habitat types present on the proposed Open Space Wildlife Habitat area would be termed: Forest or Woodland Alliances, with Riparian Woodlands, Shrubland/Chaparral Alliance (Chamise Chaparral), and Semi-natural grassland.
- The parcel is within the watershed of Mark West Creek and the Russian River;

Open Space Wildlife Habitat Qualities and Wildlife Resources:

- The primary consideration is that undeveloped habitat of the property is effectively linked to extensive woodlands within the Mark West Creek Watershed. The undeveloped open space access (lack of perimeter deer fencing) on the parcel effectively provides wildlife with
- The accessibility from the adjacent large undeveloped areas of the Mark West Creek watershed offers high potential for support, migration and dispersal of local wildlife species; and
- The burn recovery and different plant communities/alliances with their interfacing "edges" will support a wide array of fungi, lichens, mosses, ferns, conifers and flowering plants, insects, amphibians, reptiles, birds and mammals. Ecologically burned areas are prime areas for wildlife foraging.

Ecological Functions and Services:

- The proposed Open Space Wildlife Habitat is within the watershed of Mark West Creek and the Russian River. As a watershed it functions to: maintain surface water quality through filtration and decomposition of pollutants, recharge of groundwater resources, maintain water quality through silt retention and by filtering out sediment and nutrients from run-off, the prevention of flooding and minimization of channel erosion by slowing surface runoff;
- The burn recovery offers a high-quality environment for local wildlife and plant species; and
- The property provides a link between adjoining parcels allowing genetic dispersal of wildlife as well as botanical gene flow.

California's biotic resources are being lost as our population continues to expand. The loss or conversion of open space and wildlife habitat has been occurring in the County and State at an accelerated rate. The proposed Open Space Wildlife Habitat area will preserve an area that associated with undeveloped open space elements of the watershed. The recognition as an Open Space Wildlife Habitat Area will allow significant value and service as a wildlife and botanical corridor connecting local biological resources as well as functioning as watershed and view shed. The connectivity of the site to adjacent open space offers the highest potential for the sustainable support of a rich diversity of wildlife.

Recommendations

It is recommended that only the vineyard and Compatible Use area be provided with deer fencing. It is recommended that all Deer fencing within the proposed Open Space / Wildlife Habitat area be removed. Area within Deer fencing cannot be justified as Open Space / Wildlife Habitat.

It is recommended that the burned area of woodlands be retained as is and allowed to regenerate naturally leaving all standing trees (hazardous trees or potential for blocking road access may be removed).

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A. PROJECT DESCRIPTION

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A.1 Introduction

The property extends upslope south of Mark West Springs Road. The 60-acre parcel prior to the consists of a small vineyard, access road, vineyard infrastructure and residence. The entire property was burned in the 2017 Tubbs fire. Plate I provides a Site and Location Map of the property. Plate III is an aerial photograph of the property showing vegetation types. The land use in the local area consists of rural/residential housing, open space, watershed and agricultural lands.

The Williamson Act or California Land Conservation Act of 1965 is a legislative act intended to preserve agriculture and agricultural lands (Government Code Section 51200-51207). The act also allows upon consultation, consideration of "Wildlife Habitat Area" as "areas of great importance for the protection or enhancement of the wildlife resources of the state" and also consideration of Open Space Use as "the use or maintenance of land in a manner that preserves its natural characteristics, beauty, or openness, to provide essential habitat for wildlife."

Our findings and conclusions are based on literature resources, field conditions, plant associates, habitat present, the association of the property with adjacent properties including, the remoteness and inaccessibility of significant portions of property, the lack of perimeter vineyard deer fencing, and the familiarity with other properties in the area. Our 2019 fieldwork was a winter analysis of the property, which is reflected in the species list attached. Seasonal studies will undoubtedly find numerous additional plant and animal species as residents on the property or transient in their appearance as they migrate through.

B. SURVEY METHODOLOGY

Our fieldwork and property survey is a reconnaissance level survey and was undertaken to provide sufficient information for determining the quality of wildlife habitat value on the property and the potential connectivity to local adjoining biological resources, which would provide justification for consideration of the property as a candidate for Williamson Act Open Space and Wildlife Habitat Area.

B.1 Field Survey Methodology

Fieldwork was conducted by walking the property with two personnel (Chris K. Kjeldsen and Daniel T. Kjeldsen). We reviewed the neighboring parcels from the edges of the property (private property was not entered) and aerial photographs. Field surveys were conducted on January 10, 2019.

Our fieldwork studied the property and surrounding habitat, noting habitat types or plant community/associations and searching for special-status organisms or the presence of suitable habitat, which would support special-status organisms animal or plant species that are listed by the State, Federal Government, or California Native Plant Society. Special-status species with potential for the area were reviewed in online in the California Native Plant Society (CNPS), California Department of Fish and Wildlife (CDFW) Natural Diversity Data Base (CNDDDB), and Federal Endangered and Threatened Species known for U.S.G.S. 7 1/2 Minute Quadrangle and the nine surrounding Quadrangles listed by the United States Fish and Wildlife Service (USFWS).

Plants were identified in the field or specimens were collected, when necessary, for laboratory examination with a binocular microscope. 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. A complete record of all plant species observed and collected as voucher material is presented in Appendix A.

Animals were identified in the field by their sight, sign, or call. Our field technique for surveying and identification of birds was facilitated with the aid of field binoculars. Our field survey was conducted in the afternoon when bird activity is at its lowest. Additional surveys would increase the amount of birds identified on the property.

Wildlife corridors were evaluated by searching for game trails on the ground and viewing aerial photos of the property. Game trails were present and randomly located across and through the property.

Photographs for this report were taken using a Nikon digital camera and printed on a HP Office Jet Pro printer to illustrate field conditions. Selected photographs are included in this report.

C. RESULTS / FINDINGS

Our results and findings are based on our site visit and background material available for the project.

C.1 Property Description / Biological Setting

Figures 1 to 8 below illustrate habitat found on the property and Plate IV shows potential wildlife corridors across the property. The property is within the Mark West Springs USGS Quadrangle. The proposed Open Space Wildlife Habitat area drains by sheet flow into unnamed tributaries of Mark West Creek thence the Russian River.

The proposed Open Space Wildlife Habitat area is located within the inner Coast Range Mountains east of the Santa Rosa Plain. The topography consists of sections of steep, rugged terrain with burned vegetation that was a function of aspect, moisture regime and edaphic conditions. The complexity of these conditions is such that microhabitats allow for plant alliances that overlap and integrated with one another.

The area proposed for consideration as Open Space Wildlife Habitat was burned during the Tubbs Lane Fire of 2017. In general, the oaks present were severely damaged but standing. They show signs of regrowth but the burn was such that most of these will decay over time and survive from stump sprouts. Madrone and Bay trees were similarly impacted. The Douglas-fir trees are standing but dead and will only recover by seedling growth.

The agricultural element of the property consists of approximately 6-acres of vineyards and access roads. The residence and outbuildings completely burned in 2017. Deer Fencing has been replaced following the fire within a portion of the proposed Open Space / Wildlife Habitat area by the previous owner. Invasive French Broom (*Genista monspessulana*) has sprouted within the understory of woodlands areas that burned.

Table I. Proposed Williamson Act Land Use Alfa Partners, LLC.

Land Use	Acreage	See Plate V. Land Use Map
Vineyard	5.7-acres	Land Conservation Map provided by Adobe Associates, Inc.
Compatible Use	2-acres	Area surrounding the existing vineyards
Proposed Open Space Wildlife Habitat	52.3-acres	Oak woodlands, Doug-fir, chaparral, and open grasslands.
Property Total Acreage	60-acres	

C.2 Vegetation Habitat Types Present

It is generally convenient for descriptive needs, to refer to the vegetation associates on a property as a plant community. Plant communities are usually identified by the dominant vegetation form or dominant species present. There have been numerous community classification schemes proposed by different authors using different systems for classification of vegetation on a site with the assumption that there are discrete boundaries. There is also evidence that the vegetation on the site is part of a continuum without well-defined boundaries and that the vegetation associates integrate with one another over the landscape. Natural communities normally have the following attributes: 1) they are physically defined including a given structure and discernable edges or transitions to adjacent communities, 2) they reflect distinct environmental conditions with a composition of characteristic species and can be considered ecological units, 3) they cover a discrete area, and 5) they form units that are treated as habitats by animals and plants and are ecosystems.

Biotic Communities integrate the concept of assemblages of plants and animals in a discrete area of the landscape associated with particular soils climate and topographic conditions.

The dominant plant communities/associations within the area proposed for Open Space Wildlife Habitat consists of: Forest or Woodland Alliances, a small area of Chaparral and Semi-natural Herbaceous Grassland. Plate III maps the vegetation on the property as Doug-Fir, Mixed Oak Woodland, Chaparral and Grassland.

Each of these vegetation types is described below using the classification system A Manual of California Vegetation (Sawyer 2009). Figures 1-8 illustrate portions of the different vegetation types present as mapped in Plate III. The vegetation types Redwood Forest is included within the Doug-Fir mapping and the Madrone and Bay are within the Mixed Oak Woodlands and cannot be mapped separately as they occur randomly within the alliance. Riparian Woodlands also exist along the unnamed drainages on the property.

Table II. Approximate Acreage of Vegetation Coverage

Vegetation Type	Acreage	See Plate IV. Vegetation Map
Forest Woodlands Doug- Fir Woodland	12-acres	Present on the west side of the property and within the Mixed Oak Woodlands.
Forest Woodlands Mixed Oak Woodland	18-acres	Surrounding the property adjacent to open grasslands. Madrone and Bay present within this alliance as well as Douglas-fir. Seral stage.
Open Grassland	18-acres	Found within the center portion of the property with surrounding Oak Woodlands.
Chaparral	4.3-acres	Present in the east corner of property.
Existing Vineyards / Disturbed Developed Landscape	5.7-acres	Vineyards / Roads / Residence (Burned)
Compatible Use	2-acres	Ruderal surrounding existing vineyard.

FOREST OR WOODLAND ALLIANCES

The Forest or Woodland Alliances on the property consist of:

- 1) *Pseudotsuga menziesii* Forest Alliance Douglas fir Forest;
- 3) *Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni)* Forest Alliance Mixed Oak Forest;
- Arbutus menziesii* Forest Alliance Madrone Forest; and *Umbellularia californica* Forest Alliance California Bay Forest exist within the mixed oak woodlands.

Each of these alliances is described below as well as the membership rules as per Sawyer (2009). Woodland Alliances are characterized by a dominant tree overstory and different degrees of understory development. Fire management, canopy age and degree of closure, windfalls, historic use, substrate base, aspect and rainfall are variables that control the degree of understory shrubs, herbs and tree recruitment.

Woodland/Forest The woodland/forest vegetation dominates the property, the most prominent oak woodland/forest type consisting of Oak Woodlands (Sawyer, et al, 2009). This woodland is dominated by live and black oak, but several other species of oaks and other trees are present in varying densities. Understory vegetation is limited because of canopy closure and leaf litter. Scattered herbaceous vegetation typically includes native grasses such as California fescue (*Festuca californica*) and blue wildrye (*Elymus glaucus*). Native forbs (herbaceous flowering plants that are not graminoids) in the understory include milk maids (*Cardamine californica*), Indian warrior (*Pedicularis densiflora*), and blue dicks (*Dichellostema capitata*). The property's woodland alliance appears to be of a relatively mature Oak age class.

Another term to describe the forest or woodlands on the parcel would be Cismontane Woodlands or Oak Woodlands. The composition varies throughout the landscape of the property depending on aspect, soils and historic use. Local Oak woodlands have undergone many changes due to human management and impacts. They were a valuable food source for Native Americans and were managed by the use of fire to increase acorn production and wildlife resources. They were considered to be "weeds" by ranchers raising cattle and by foresters looking for conifer production. The Oak Woodlands in the area were extensively cut for firewood and charcoal production for the early Californians in the absence of coal. Limited lumber and railroad tie production also impacted Oak Woodlands.

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. North Coast interior stands are local and often associated with relic populations of *Sequoia sempervirens*.

Pseudotsuga menziesii Forest Alliance in some instances are a seral stage in Oak Woodlands and in the absence of fires will reach a climax stage eliminating associated oaks.

Wildlife: Douglas fir Woodlands are not as productive for wildlife as other woodlands but the presence of snags, older woodlands are valuable for wildlife. The cones are an important food source for many species of birds and mammals. Douglas Fir trees are significant symbionts for mycorrhizal fungi with roots supporting as many as 300 different species of fungi. Numerous insects also feed on these trees and they are rich in lichens. The wildlife associated with Douglas Fir Woodlands includes the following: deer, squirrels, mountain lion, coyote, striped skunk, bobcat, fox and numerous rodents. Reptiles in this habitat include: western fence lizard, alligator lizard, king snake, common gopher snake, and western rattlesnake. Amphibians include: salamanders, frogs, newts, and toads. Many of California's birds are associated with this habitat.

Forest Alliance Mixed Oak Woodland; *Quercus agrifolia*, *Q. douglasii*, *Q. garryana*, *Q. kelloggii*, *Q. lobata* and/or *Q. wislizeni* are co-dominant in the tree canopy with *Aesculus californica*, *Arbutus menziesii*, *Pinus sabiniana*, *Pseudotsuga menziesii*, and *Umbellularia californica*. Trees > 30 m. The canopy is intermittent to continuous. Shrubs are infrequent or common, herbaceous layer is sparse or abundant, may be grassy. This Alliance is found in valley and on gentle to steep slopes. The membership rules require three or more *Quercus* species present at >30% constancy and they are co-dominant in the tree canopy.

Wildlife: Mixed Oak Woodlands are productive for wildlife and support a variety of shrub and herbaceous species. The understory associates vary with aspect, fire history and grazing pressure. The annual acorn crop provides an important food source for many species of birds and mammals particularly deer and the introduced wild turkey. Numerous insects feed on oaks. The wildlife associated with Oak Woodlands includes the following: deer, squirrels, mountain lion, coyote, striped skunk, bobcat, fox and numerous rodents. Numerous fungi including many mycorrhizal fungi are associated with this species. Many mosses, liverworts and lichens are associated with these trees. Reptiles in this habitat include: western fence lizard, alligator lizard, king snake, common gopher snake, and western rattlesnake. Amphibians include: salamanders, frogs, newts, and toads. Many of California's birds are associated with this habitat.

Forest Alliance Madrone Forest; *Arbutus menziesii* is dominant or co-dominant tree in the canopy with *Acer macrophyllum*, *Notholithocarpus densiflorus*, *Pseudotsuga menziesii*, *Quercus agrifolia*, *Q. chrysolepis*, *Q. kelloggii*, *Q. wislizeni* and *Umbellularia californica*. Trees < 50m; canopy is continuous. The shrub layer is sparse to intermittent. Herbaceous layer is sparse. Membership rules *Arbutus menziesii* >50% relative cover in the tree canopy. *Arbutus menziesii* groves are considered, as part of the mixed evergreen forest and in most cases the species is common as a secondary species in many forest types. *Arbutus menziesii* is a fast growing evergreen hardwood, that can live for 500 years.

Forest Alliance California Bay Forest; *Umbellularia californica* is dominant or co-dominant in the tree or tall shrub canopy (membership rules >30% relative cover of *Umbellularia californica* in the tree canopy, conifers < 30% relative cover in the tree canopy). *Umbellularia californica* alliance consists of trees that are > 25 m and the canopy is intermittent to continuous. The shrub

layer is open to intermittent and the herbaceous layer is sparse to abundant. *Umbellularia californica* forms an association termed *Umbellularia californica-Quercus agrifolia / Toxicodendron diversilobum*.

Wildlife: Madrone and Bay Woodlands are productive for wildlife. The annual berry provides an important food source for many species of birds and mammals. Numerous insects also feed on the leaves. The wildlife associated with Madrone Woodlands includes the following: deer, squirrels, mountain lion, coyote, striped skunk, bobcat, fox and numerous rodents. Reptiles in this habitat include: western fence lizard, alligator lizard, king snake, common gopher snake, and western rattlesnake. Amphibians include: salamanders, frogs, newts, and toads. Many of California's birds are associated with this habitat.

SHRUBLAND / CHAPARRAL ALLIANCE

Chaparral Alliance is a structurally homogeneous brush land type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. Shrub height and crown cover vary considerably with age since last burn, precipitation regime aspect, and soil type. At maturity, the structure is typically is a dense, nearly impenetrable thicket with greater than 80 percent absolute shrub cover. Canopy height ranges from 1 to 4 m, occasionally to 6 m. Considerable leaf litter and standing dead material may accumulate in stands that have not burned for several decades. Due to the dense nature of the shrublands on the site, the understory is limited or lacking.

Shrublands (chaparral) on the property cover areas of shallow soils with southern exposure. The dominant plant species that define the chaparral habitat sub-type will be dependent on the soil substrate. The principal shrub constituents of Chaparral/Scrub are; chemise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos* ssp.), sticky monkey flower (*Mimulus aurantiacus*), ceanothus (*Ceanothus* ssp.), scrub oak (*Quercus berberidifolia*), poison oak (*Toxicodendron diversilobum*), California broom or coyote brush (*Baccharis pilularis*), chaparral pea (*Pickeringia montana*), California coffee berry (*Frangula californica* ssp. *californica*), toyon (*Heteromeles arbutifolia*) and pitcher sage (*Lepchinia calycina*).

This vegetation type has been divided by numerous authors into Mixed Chaparral/Scrub., and Chamise Chaparral. Chaparral plants are usually found in areas with Mediterranean climate that have shallow-rocky, low-nutrient soils, steep slopes, and a high degree of solar exposure. Chaparral communities are usually found on south facing slopes or areas where water is not retained in the soil profile. This combination of physical factors results in xeric plants growing under stressed edaphic conditions. Chaparral is a vegetation type that is restricted to dry, exposed slopes and is typical for the ridges and slopes of the interior Coast Range Mountains of the County. Chaparral vegetation consists mainly of shrubs that are woody and with leaves adapted to xeric conditions that are typically small-waxy leaves. Periodic fires are characteristic of this community. Chaparral plant communities are adapted to fire, with cycles as frequent as 10 to 40 years between fires. In fact, most species require fire for seed germination and stump sprouting. Chaparral as a seral stage is threatened by the absence of a normal fire regime.

Shrubland Alliance Chamise Chaparral: *Adenostoma fasciculatum* is dominant in the shrub canopy with *Arctostaphylos glandulosa*, *A. manzanita*, *Ceanothus* ssp., *Diplacus aurantiacus*, *Eriodictyon californicum*, *Eriogonum fasciculatum*, *Heteromeles arbutifolia*, *Quercus berberidifolia*, *Q. wislizeni*, and *Toxicodendron diversilobum*. Emergent trees may be present at low cover. Shrubs < 4 m; canopy is intermittent to continuous. Herbaceous layer is sparse to intermittent. Membership Rules *Adenostoma fasciculatum* >50% relative cover in the shrub canopy: codominance of *A. fasciculatum* with the following species *Arctostaphylos glandulosa* and *Ceanothus cuneatus*. This alliance occurs across cismontane California in a variety of topographic settings. *Adenostoma fasciculatum* is a long-lived, shade intolerant shrub that grows to 3.5 m. Stands over 60 years old produce little new growth as dead stem biomass accumulates.

Wildlife diversity in chaparral is generally quite low. Animals that utilize this habitat include a variety of birds, reptiles, rodents and mammals. Habitat value is increased with factors such as: seed production, variety of nesting habitat. Native Americans recognized the value of this habitat was increased by setting periodic fires, which induced stump sprouting and young vegetation growth that favored browsing by large mammals.

SEMINATURAL GRASSLAND

Grassland; Semi-natural Herbaceous Stands with Herbaceous Layer are a result of decades of grazing and the introduction of non-native grasses and herbs. Sawyer uses the term “Semi-natural Stands to refer to non-native introduced plants that have become established and coexist with native species. Semi-natural stands are those dominated by non-native species that have become naturalized primarily as a result of historic agricultural practices and fire suppression 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.

This community is typically found on fine-textured soils, which may range from moist, possibly even waterlogged during the rainy season, to very dry during the dry season. It is primarily composed of non-native annual grasses although native annual forbs (“wildflowers”) may also be present during years of favorable precipitation. Non-native grassland communities are found in the valleys and foothills throughout much of California. Characteristic species include wild oats (*Avena* spp.), bromes (*Bromus* spp.), Ryegrass (*Festuca perennis*), California poppy (*Eschscholzia californica*), lupine (*Lupinus* spp.), and baby blue-eyes (*Nemophila menziesii*).

The ruderal grasslands have been termed California Annual Grassland Alliance. This extensive series is composed of many introduced non-native species with relict native annual species within the stands. The common taxa include non-native: wild oat (*Avena* spp.), ripgut brome (*Bromus didandrus*), soft chess (*Bromus hordordaceus*), wild barley (*Hordium murinum*), Mediterranean barley (*Hordium murinum* ssp. *gusoneanum*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), dogtail grass (*Cynosurus echinatus*), cultivated timothy (*Phleum pretense*), annual hairgrass (*Deschampsia danthoioides*), hood canarygrass (*Phalaris paradoxa*), fescue (*Festuca arundinacea*), Medusa head-grass (*Elymus caput-medusae*) and rattail fescue (*Festuca myuros*). Often this alliance is invaded by star thistle (*Centaurea solstitialis*). Common forbs

include filaree (*Erodium cicutarium*), smooth cat's ear (*Hypochoeris glabra*), rough cat's ear (*Hypochoeris radicata*), bur clover (*Medicago polymorpha*), California poppy (*Eschscholzia californica*), clover (*Trifolium* ssp.), vetch (*Vicia* ssp.) and plantain (*Plantago lanceolata*).

Wildlife: Grasslands provide foraging and nesting habitat for a wide variety of wildlife species including raptors, seed eating birds, small mammals, amphibians, and reptiles. Wildlife species typically associated with grasslands include western skink (*Eumeces skiltonianus*), Pacific gopher snake (*Pituophis melanoleucus catenifer*), common garter snake (*Thamnophis sirtalis*), deer mouse (*Peromyscus maniculatus*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), mule deer (*Odocoileus hemionus*), western meadowlark (*Sturnella neglecta*), and savannah sparrow (*Passerculus sandwichensis*). Grasslands also provide important foraging habitat for raptors such as the American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and red-tailed hawk (*Buteo jamaicensis*).

Experts conclude that native grasslands in California are among the most endangered ecosystem in the United States. This is due to historical land use, the introduction of naturalized non-native species of grasses and herbs and introduced disease. It is estimated that less than 1% of our state's original grasslands remain.

RIPARIAN

Riparian Zone Woodland (Within Mixed Oak and Doug-Fir Woodlands) is found along the unnamed tributies of Mark West Creek on the property. Riparian vegetation is associated with streams and is a function or result of soils, location and hydrology. Riparian vegetation is primarily a result of the availability of water for growth and local herbivory. The width of riparian vegetation varies. Riparian vegetation is characterized by tree layer, shrub/vine layer and groundcover. The scale and scope of this habitat is limited in the county depending on location and there are great differences associated with location, soils, biotic factors and rain shadow. The riparian tree cover is characterized by the presence of broadleaved, deciduous trees such as *Salix*, *Alnus*, *Quercus* and *Umbellularia*, which are found along the banks and floodplains of waterways. Common shrubs include *Toxicodendron diversilobum*, *Baccharis pilularis*, *Rubus armeniacus* and *Vitis californica*. The understory consists of torrent sedge, mule fat, and California polypody. Sawyer (2009) does not recognize Riparian Woodland as a separate Alliance but includes it as a component of woodland alliances. Sonoma County (Ordinance No. 60898) defines Riparian Vegetation: "Plant communities contiguous to and affected by surface and subsurface hydrologic features of water bodies (rivers, streams, lakes, or wetlands) that have one or both of the following characteristics: 1) distinctly different vegetative species than adjacent areas, and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms. Riparian vegetation is usually transitional between wetland and upland." This is recognized as a Biotic Habitat Zone (BH) as part of the general plan. These provisions are intended to protect and enhance riparian corridors and functions along designated streams, balancing the need for agricultural production, urban development, timber and mining operations, and other land uses with the preservation of riparian vegetation, protection of water resources, floodplain management, wildlife habitat and movement, stream shade, fisheries, water quality, channel stability, groundwater recharge,

opportunities for recreation, education and aesthetic appreciation and other riparian functions and values.

Wildlife: The riparian woodland vegetation cover provides habitat as well as food resources for local wildlife. The shade and water that is available in these areas make them popular with wildlife. Common wildlife associated with this habitat include amphibians such as the Pacific tree frog; birds such as downy woodpecker, yellow warbler, and yellow-breasted chat. The mammals are those of the oak woodlands and grasslands. As a habitat type it also functions as a corridor for access to the various communities along its route and upslope. The quality of riparian habitat is enhanced where there are multilayered tree structures and complex vegetation layering.

Significance and Function: Riparian Zones Woodlands are significant biologically for the diversity that they provide, the influence on the hydrologic cycle and aquatic ecosystems, for environmental stability derived, and their role as biofilters and soil conservation. Riparian Vegetation is by all standards considered sensitive. Riparian Vegetation functions to control water temperature, regulate nutrient supply (biofilters), bank stabilization, rate of runoff, wildlife habitat (shelter and food), release of allochthonous material, release of woody debris which functions as habitat and slow nutrient release, and protection for aquatic organisms. Riparian vegetation is also a moderator of water temperature has a cascade effect in that it relates to oxygen availability. The beneficial uses of areas in and along streams, included: provides food, water, breeding, egg deposition and nesting areas for fish, amphibians, reptiles, birds, insects, and mammals; providing protective cover, shade and woody debris to stream channels as habitat for coho salmon, steelhead, freshwater shrimp, and other protected and common aquatic-dependent species; providing movement opportunities, protective cover, and breeding; roosting, and resting habitat for terrestrial wildlife, filtering sediment and pollutants in runoff into streams; providing erosion protection for stream banks; and groundwater recharge. The flora and fauna observed during our study are presented in Appendix A.



Figure 1. Oak woodlands illustrating regrowth of burned trees.



Figure 2. View of north facing slope with Mixed Oak Woodlands.



Figure 3. View of area proposed for open space.



Figure 4. Grassland slope within the proposed open space area.



Figure 5. View of understory within Doug-Fir Woodland.



Figure 6. California bay tree regeneration and understory growth of French broom.



Figure 7. Oak woodland and grassland habitat within open space area.



Figure 8. Oak woodland and grassland habitat within open space area.

C.3 Special-Status Species

We did not find any special-status species of plants or animals on the property during our fieldwork. The CDFW CNDDDB does not show any records of special-status species for the property or immediately adjoining the property.

ANIMALS

Plate II illustrates special-status animal species recorded in the CDFW CNDDDB known to be present near the property. The following special-status animals in the list below are known to be near the property or associated with the habitat on the property:

- Foothill Yellow-legged Frog
- Coho Salmon-Central California Coast ESU
- Red Bellied Newt
- California Giant Salamander

PLANTS

Plate II illustrates special-status plant species recorded in the CDFW CNDDDB known to be near the property. The following special-status plants in the list below are known to be near the property or associated with the habitat on the property:

- Rincon Ridge Ceanothus
- Rincon Ridge Manzanita
- Many-flowered Navarretia

The following summarizes our findings related to special-status species:

- No special-status animal species were observed; seasonal studies may reveal additional species;
- There are no records of special-status animal species in the Department of Fish and Wildlife Natural Diversity database for the property;
- No special-status plant species were observed on or associated with the property, a full spring floristic survey could reveal special-status plant species; and
- There are no records of special-status plant species in the Department of Fish and Wildlife Natural Diversity Data Base for the property.

C.4 Open Space Qualities and Wildlife Resources

The primary open space considerations include the location of the property, portions with an unfenced perimeter, diversity of vegetation types, watershed, view shed and the position between the biological resources of the adjoining parcels.

The Woodland Alliances present contain essential resources of native wildlife as well as significant visual benefit to the public and location within the watershed of Mark West Springs Creek.

The relative remoteness of the proposed Open Space Wildlife Habitat Area and its biological accessibility from the adjacent parcel and connectivity to adjoining parcels offers high potential for support, migration and dispersal of local wildlife species. The remoteness from human activities is critical for species that require large territories such as mountain lion and bear.

The habitat types and or plant communities with their interfacing “edges” around the proposed “Open Space / Wildlife Habitat Area” support a wide array of fungi, lichens, mosses, liverworts, ferns, conifers and flowering plants and wildlife.

C.5 Corridor Connectivity

Corridors are natural areas interspersed within developed areas. They are important for animal movement, increasing genetic variation in plant and animal populations, reduction of population fluctuations, and retention of predators of agricultural pests and for movement of wildlife and plant populations. The Mediterranean climate of our area dictates the need for connectivity to water resources. 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. Corridors also provide ecosystem services such as preservation of watershed connectivity. Corridor users can be grouped into two types: passage species and corridor dwellers. The data from various studies indicate that corridors should be at least 100 feet wide to provide adequate movement for passage species and corridor dwellers in the landscape.

The proposed Open Space Wildlife Habitat area is positioned such that (as shown on Plate IV) the site will allow access or passage of wildlife through the property. This positioning allows connectivity from parcels south of the property to the extensive open space lands in the region. The drainages that traverse the property also function as corridors. This connectivity is essential for genetic exchange and the maintenance of viable plant and wildlife populations.

The Oak Woodlands provide foraging and nesting needs of local wildlife. The recognition and preservation of the non-farmed areas of the parcel as Open Space Wildlife Habitat Areas will offer replacement generations for the mature trees on the property. The association of Open Space “Wildlife Habitat Area” with agriculture offers a sustainable balance for preserving natural diversity for future generations.

C.6 Riparian

The Riparian Vegetation along drainages on the property is by all standards considered sensitive. Riparian Vegetation functions to control water temperature regulate nutrient supply (biofilters), bank stabilization, rate of runoff, wildlife habitat (shelter and food), release of allochthonous material, release of woody debris which functions as habitat and slow nutrient release, and

protection for aquatic organisms. Riparian vegetation is also a moderator of water temperature has a cascade effect in that it relates to oxygen availability. The proximity of the proposed Open Space “Wildlife Habitat Area” to this resource further justifies the biotic value of the proposal for local wildlife.

C.7 Recommended Land Use Restrictions and Allowable Uses

As part of the qualification procedures for the Williamson Act, the following recommendations of prohibited uses will insure the continuance of habitat functions and value of the Open Space Wildlife Habitat area:

- No grading or disturbance of ground, including the development of new roads;
- No agricultural development;
- No deer fencing within Open Space / Wildlife Habitat area;
- No domestic agricultural grazing within Open Space Area;
- No removal of any vegetation except as specifically described in the Permitted Uses section;
- No vehicular use except as may be necessary to carry out a use specified in the Permitted Uses section.

It is anticipated that there will be no change in land use of the area designated as Open Space Wildlife Habitat area. The Williamson Act Site Plan insures that any change in use will require either modification of Williamson Contract or cancellation of the Contract.

The following allowable management measures recommended for the Open Space Wildlife Habitat Area:

- Removal of invasive plants;
- Removal of only hazard trees;
- Removal of man-made material (Deer Fencing) debris or garbage in a manner not disruptive or injurious to the plants;
- Removal of non-status vegetation by hand operated equipment when required by a fire - protection agency and when intended to prevent the build up of fire related fuel type vegetation or dead wood; and
- Emergency equipment access by agency personnel.

These standards and uses are critical in assuring that the Open Space Wildlife Habitat area retains its value over time so the tax relief provides a long-term public benefit.

D. DISCUSSION AND CONCLUSIONS

California's biotic resources are being lost as our population continues to expand. The loss or conversion of open space and wildlife habitat has been occurring in the County and State at an accelerated rate. The proposed Open Space Wildlife Habitat area will preserve an area of Mark West Creek Watershed and associated with undeveloped areas of the interior coast range mountains. The recognition as an Open Space Wildlife Habitat Area will allow significant value and service as a wildlife and botanical corridor connecting local biological resources as well as functioning as watershed and view shed.

The proposed Open Space Wildlife Habitat area burned during the Tubbs Lane Fire of 2017. The intensity of the burn varied on the property depending on aspect and fuel load. Ecologically the vegetation in this area is adapted to burns and will recover providing new growth and diversity within the Conifer and Oak Woodlands. Succession and different age classes of dominant vegetation will occur as well as damaged trees providing habitat and resources for the recovery

Our fieldwork found:

- The property consists of three parcels that total 60-acres. Approximately 87% of the property is proposed as Open Space / Wildlife Habitat. The majority of the property burned in the 2017 Tubbs fire.
- A portion of Deer Fencing has been replaced after the 2017 fire and is within the proposed Open Space / Wildlife Habitat. Only the vineyard blocks (5.7-Acres) and Compatible Use Area (2.0-Acres) should be deer fenced leaving open space corridors through and around the agricultural elements, allowing movement through and within the property;
- The parcel contains significant wildlife habitat (forage and cover);
- The parcel is within the watershed of Mark West Creek and Russian River providing connectivity from interior Coast Range Mountain habitat and its wildlife and vegetation resources to the Sonoma Coast;
- The plant communities/associations or habitat types present on the proposed Open Space Wildlife Habitat area would be termed: Forest or Woodland Alliances, with Riparian Woodlands, Shrubland/Chaparral Alliance (Chamise Chaparral), and Semi-natural grassland.

Ecological Functions:

- The proposed Open Space / Wildlife Habitat Area (Corridors) are within the watershed of Mark West Creek and the Russian River. As a watershed it functions to: maintain surface water quality through filtration and decomposition of pollutants, recharge of groundwater resources, maintain water quality through silt retention and by filtering out sediment and nutrients from run-off, the prevention of flooding and minimization of channel erosion by slowing surface runoff.

- The diversity of habitat types on the parcels and extensive edge effects offers a high-quality environment for the support of and survival of local wildlife and plant species.
- The connectivity of the property to adjoining habitat provides access for biological resources allowing genetic dispersal of wildlife as well as botanical gene flow.

Ecosystem Services of Proposed Open Space Wildlife Habitat Area:

In summary the potential “Ecosystem Services” of the proposed Open Space Wildlife Habitat Area include:

- Burned habitat regenerating with snags;
- Corridor for biological access to diverse essential ecosystem resources allowing seasonal movement and gene flow;
- Breeding and foraging habitat for local and migratory wildlife and avifauna;
- Preservation of diverse plant alliances and natural biota;
- Preservation of biological diversity;
- Protection of and preservation of portions of the watershed;
- Carbon sequestration;
- Improve air quality;
- Natural areas for nutrient recycling (decomposition) by bacteria and fungi that will support terrestrial and aquatic resources on site and off site;
- Soil development and retention;
- Ground water recharge of aquifers; and
- Retention of viewshed.

Establishing a Williamson Act Contract on this property offers a high level of sustainable support of regional biotic resources. The acceptance will preserve essential wildlife habitat and corridor access that will sustainably support local and regional botanical and wildlife resources.

It is recommended that only the vineyard and Compatible Use area be provided with deer fencing. It is recommended that all Deer fencing within the proposed Open Space / Wildlife Habitat area be removed. Area within Deer fencing cannot be justified as Open Space / Wildlife Habitat.

It is also recommended that the burned area of woodlands be retained as is and allowed to regenerate naturally leaving all standing trees (hazardous trees or potential for blocking road access may be removed).

E. LITERATURE CITED / REFERENCES

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E.2 Qualifications of Field Investigators

Chris K. Kjeldsen, Ph.D., Botany, Oregon State University, Corvallis, Oregon. He has over forty 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 Mitigation projects, ACOE 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 1600 permitting, and consulting on various projects. He taught Plant Taxonomy at Oregon State University and numerous botanical science and aquatic botany courses 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. He has a valid DFW collecting permit.

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 eighteen years of experience in conducting Biological Assessments, DFW Habitat Assessments, ACOE 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. Attended Wildlife Society Workshop Falconiformes of Northern California; Natural History and Management California Tiger Salamander 2003, Natural History and Management of Bats Symposium 2005, Western Pond Turtle Workshop 2007, and Western Section Bat Workshop 2011. Laguna Foundation & The Wildlife Project Rare Pond Species Survey Techniques 2009. A full resume is available upon request.

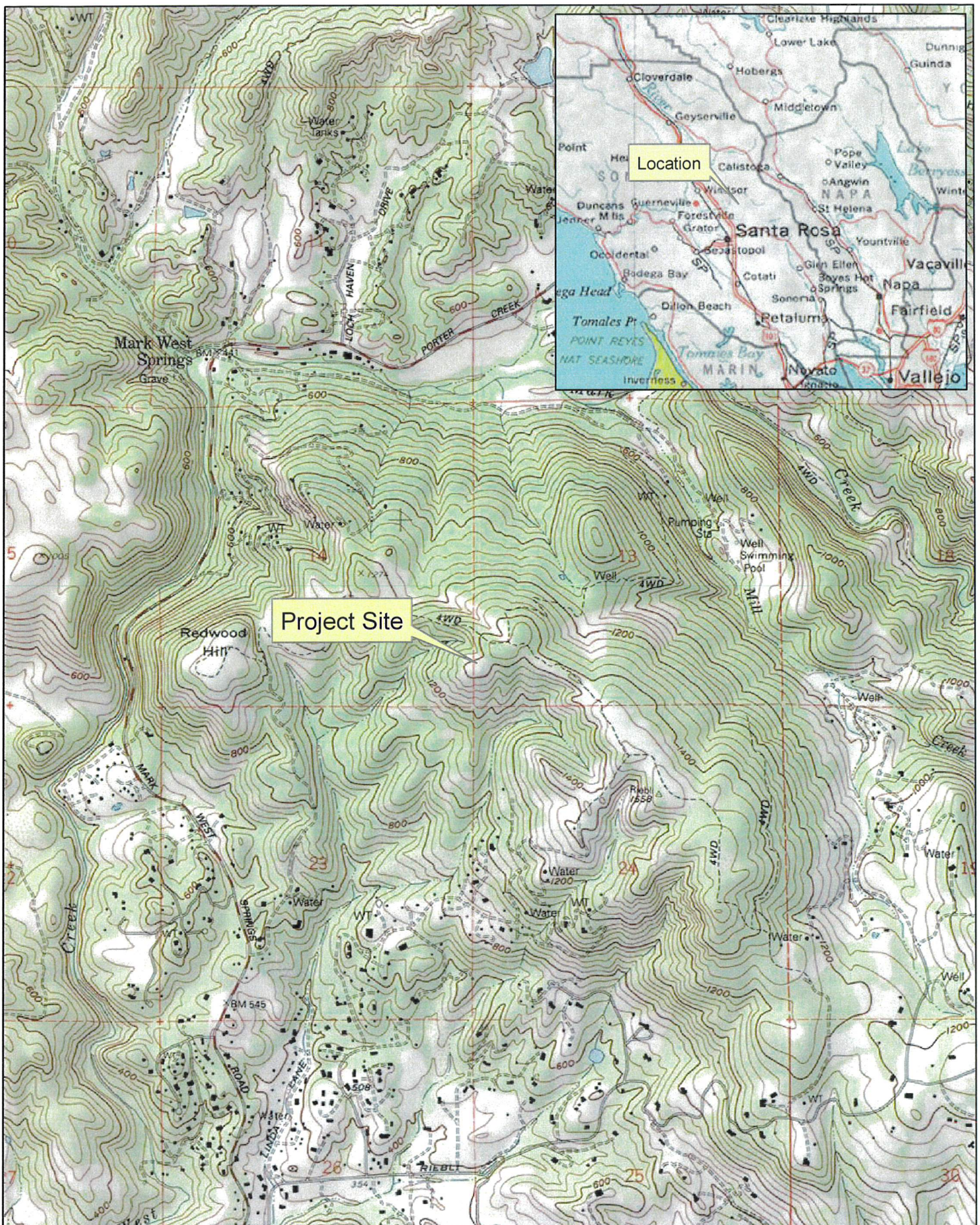


Plate I. Location and Site Map

(USGS Mark West Springs Quadrangle)

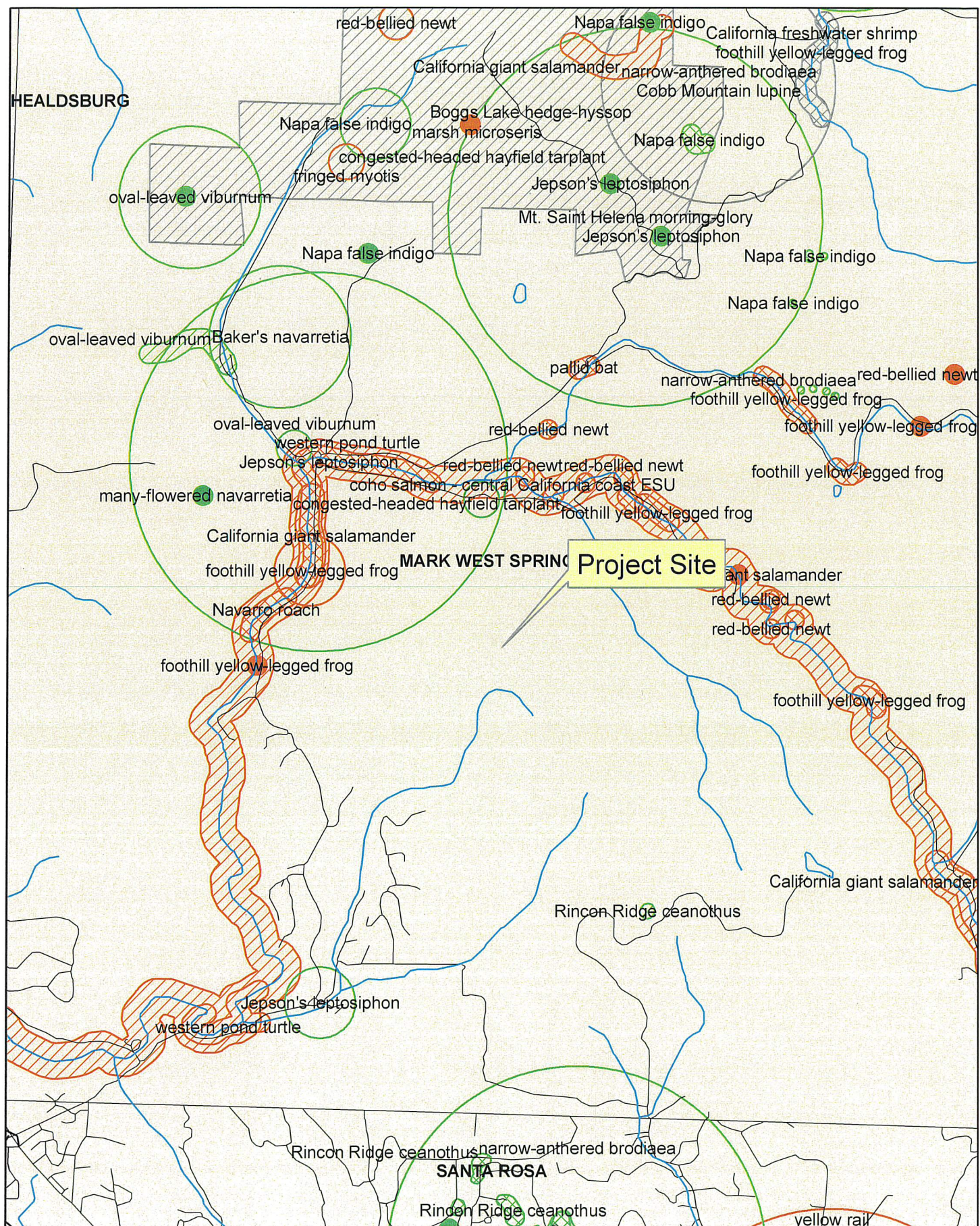


Plate II. CDFW CNDDDB Rare Find Data

(Data Date January 2019)

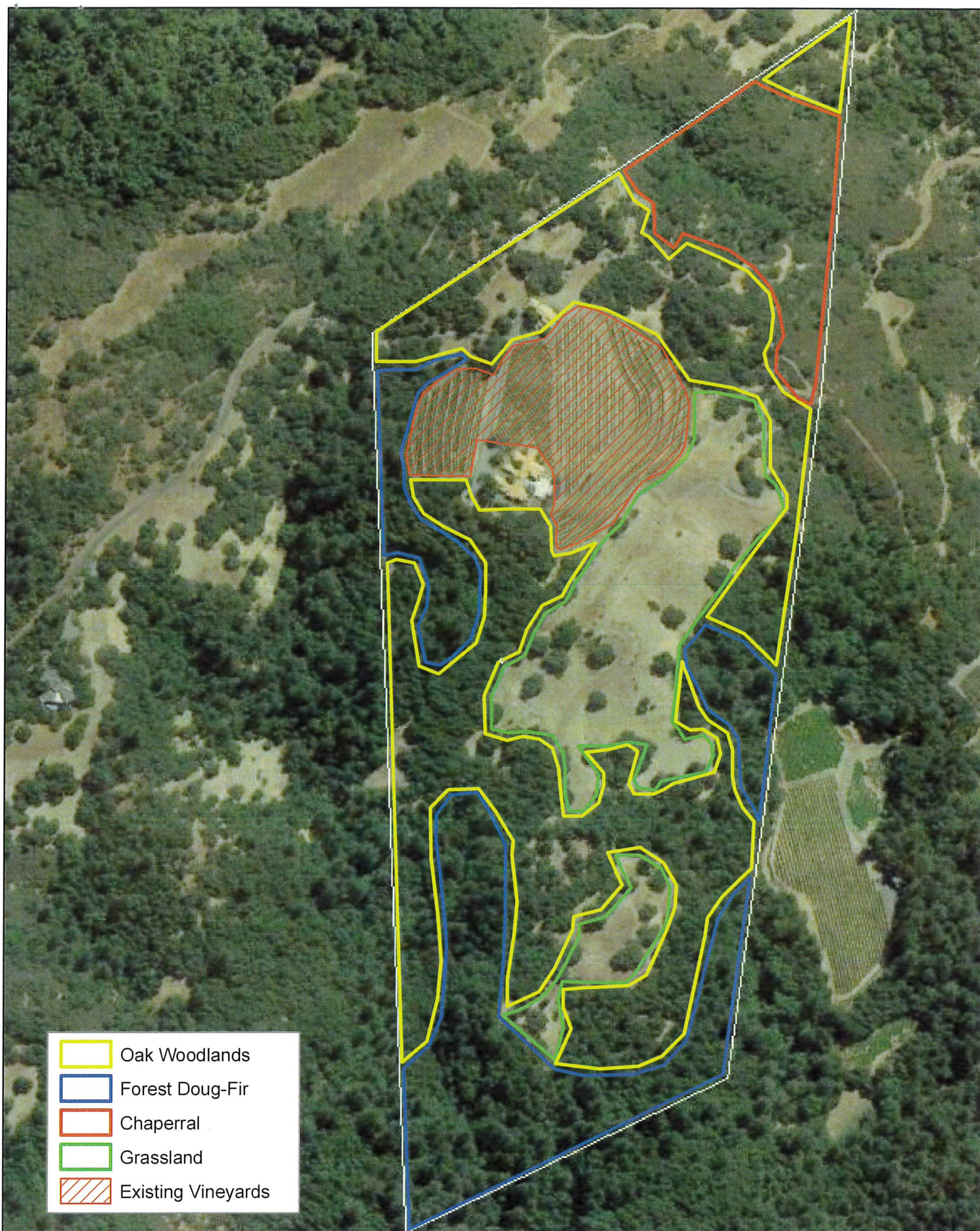


Plate III. Aerial Photo / Vegetation Map





Plate IV. Wildlife Resources Map



Land Conservation Map

Area of the Parcel outside of the Compatible Use Area is for Open Space, except for those utilities necessary to serve the Parcel.

Alfa Partners, LLC

60.0 Acres

DN 2018-052595



Compatible Uses:

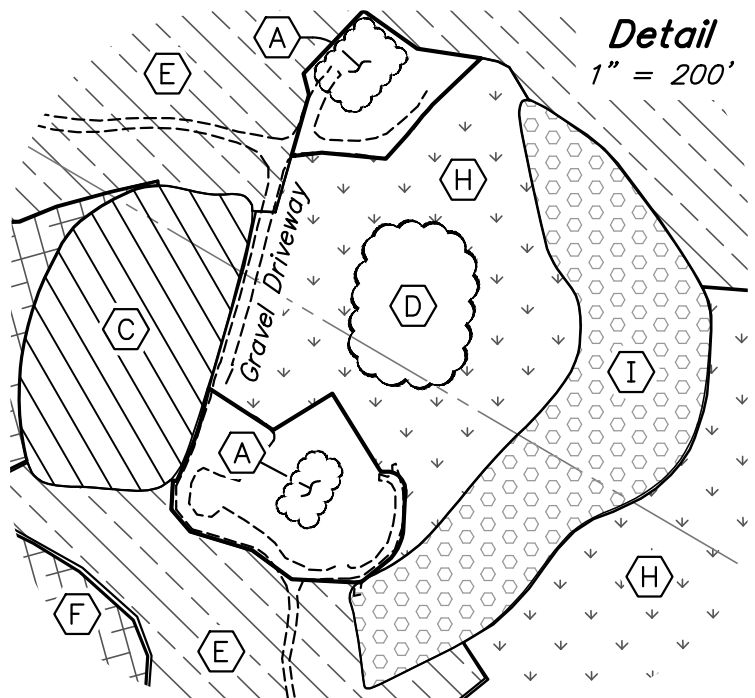
- (A) Proposed Auxiliary Building Sites – 0.2 Acres
- (B) Existing Septic Area – 1 Acre
- (C) Vineyard – 1.3 Acres
- (D) Proposed Primary Building Site – 0.3 Acres

	Oak Woodland	(E) – 18.0 Acres
	Forest Doug-Fir	(F) – 12.0 Acres
	Chaparral	(G) – 5.0 Acres
	Grassland	(H) – 20.3 Acres
	Undesignated	(I) – 1.9 Acres
	Compatible Use Area	– 2.8 Acres

Total Area 60 Acres +/-

Detail

1" = 200'



May 2, 2019

Date

Aaron R. Smith, PLS 7901



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APN 079-100-019, 020, 033

May 2, 2019

APPENDIX A.

Flora and Fauna Observed

Plants Observed on or in the immediate vicinity of the Property

The nomenclature for the list of plants found on the project study areas and the immediate vicinity follows: Brodo, Irwin M., Sylvia Duran Sharnoff and Stephen Sharnoff, 2001, for the lichens; Arora - 1985, for the fungi; S. Norris and Shevrock - 2004, for the mosses; and Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosati, and D.H. Wilkens, editors, 2012 - for the vascular plants.

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

CYANOBACTERIA

<i>Nostoc</i> ssp.	On Soil	Common
NCN		

FUNGI

Basidiomycota- Club Fungi

COPRINACEAE

<i>Panaeolina fomesecii</i> (Pers.) Marie	Lawns or Grasslands	Common
Lawnmowers's Mushroom (= <i>Panaeolus foenisecii</i>)		

NIDULARIALES

<i>Cyathus olla</i> (Batsch) Pers.	Woodlands on Soil or Dead Wood	Common
Bird's Nest Fungus		

POLYPORACEAE

<i>Trametes versicolor</i> (L.) Lloyd	Woodlands on Dead Hardwood	Common
Turkey Tail (= <i>Coriolus versicolor</i> , <i>Polyporus versicolor</i>)		

FUNGI

Ascomycota - Sac Fungi

PEZIZACEAE

<i>Plectania melastoma</i> (Sowerby) Fuckel	On Moss Woodlands	Occasional
Black Cup Fungus (= <i>Peziza melastoma</i>)		

MAJOR PLANT GROUP			
Family	Genus	Habitat Type	Abundance
	Common Name		

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

MOSSES

BRACHYTHECIACEAE

Homalothecium nuttallii (Wilson) Jaeger Logs, Tree Trunks, Rocks Coast-Inland Common

NCN

FUNARIACEAE

Funaria hygrometrica Hedw. Ruderal, Burned Areas Common

NCN

HEDWIGIACEAE

Hedwigia stellata Hedenas Grasslands on Rocks Common

NCN

Pseudobraunia californica (Lesq.) Broth. Woodlands on Base of Trees Common
Also on rocks or cut banks

NCN

ORTHOTRICHACEAE

Orthotrichum lyellii Hook & Tayl. Woodlands, Upper Canopy Common

NCN

LIVERWORTS: "COMPLEX THALLOID"

RICCIACEAE

Riccia californica Austin On Bare Soil Common

NCN

TARGIONIACEAE

Targionia hypophylla L. On Cut Banks Common

NCN

LICHENS

FOLIOSE

Xanthoparmelia mexicana (Gyeln.) Hale On Rocks Common

NCN

UMBILICATE

Umbilicaria phaea Tuck. On Rocks Common

NCN

GELATINOUS

Leptogium palmatum (Huds.) Mont. On Soil or Rocks With Moss Common
Jelly Horn Lichen (= *Leptogium corniculatum*)

CRUSTOSE

Caloplaca saxicola (Hoffm.) Nordin On Rocks Common

NCN

Leicidia atrobrunnea (Ramond ex Lam. & DC.) Schaer. On Rocks Common

NCN

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

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

Leicidia tessellata Flörke
NCN

On Rocks With Rings of Apothecia Common

VASCULAR PLANTS FERNS**DENNSTAEDTIACEAE**

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

POLYPODIACEAE

Polypodium californicum Kaulf. Woodlands or Riparian Common
Common Polypody

PTERIDACEAE

Cheilanthes gracillima D. Eaton On rock Outcrops Occasional
Lip Fern/Lace 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

Quercus agrifolia Nee Woodlands Common
Live Oak

Quercus kelloggii Newb. Woodlands Common
Black Oak

OLEACEAE Olive Family

**Olea europaea* L. Domestic Ruderal Occasional
Olive

SAPINDACEAE Soapberry Family

Acer macrophyllum Prush Riparian, Stream Banks, Canyons Common
Big-leaf Maple

<u>MAJOR PLANT GROUP</u>			
Family	Genus	Habitat Type	Abundance
	Common Name		

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

<i>Aesculus californica</i> (Spach) Nutt.	Woodlands, Riparian	Common
California Buckeye		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS

CLASS--DICOTYLEDONAE-SHRUBS AND WOODY VINES

EUDICOTS

ANACARDIACEAE Sumac Family

<i>Toxicodendron diversilobum</i> (Torry & Gray) E. Green	Woodlands	Common
Poison Oak		

ASTERACEAE (Compositae) Sunflower Family

<i>Baccharis pilularis</i> deCandolle	Woodlands, Grasslands	Common
Coyote Brush		

CAPRIFOLIACEAE Honeysuckle Family

<i>Lonicera hispidula</i> Douglas var. <i>vacillans</i>	Woodlands, Riparian	Occasional
Honeysuckle		

ERICACEAE Heath Family

<i>Arctostaphylos manzanita</i> Parry ssp. <i>glaucescens</i>	Woodlands	Common
Common Manzanita		

FABACEAE (Leguminosae) Legume Family

* <i>Genista monspessulana</i> (L.) Johnson	Woodlands	Common
Broom, French Broom		

PHRYMACEAE Lopseed Family

<i>Mimulus aurantiacus</i> Curtis	Woodlands	Occasional
Bush Monkey Flower		

ROSACEAE Rose Family

<i>Adenostoma fasciculatum</i> Hooker & Arn.	Shrub/Scrub	Common
Chamise		

<i>Heteromeles arbutifolia</i> (Lind.) M. Rome.	Shrub/Scrub	Common
Christmas Berry, Toyon		

<i>Rosa gymnocarpa</i> Nuttall.	Woodlands	Occasional
Wood Rose		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS

CLASS--DICOTYLEDONAE-HERBS

EUDICOTS

APIACEAE (Umbelliferae) Carrot Family

* <i>Dacus carota</i> L.	Ruderal Grasslands	Common
Wild Carrot, Queen Anne's Lace		

<i>Sanicula crassicaulis</i> DC.	Woodlands	Common
Pacific Sanicle		

MAJOR PLANT GROUP			
Family	Genus	Habitat Type	Abundance
	Common Name		

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

	* <i>Torilis arvensis</i> (Huds.) Link	Grasslands Woodlands	Common
	Hedge-parsley		
ASTERACEAE (Compositae) Sunflower Family			
	* <i>Anthemis cotula</i> L.	Ruderal	Common
	Mayweed, Stinkweed, Dog-fennel		
	* <i>Calendula arvensis</i> L.	Ruderal	Occasional
	Field Marigold		
	* <i>Carduus pycnocephalus</i> L. subsp. <i>pycnocephalus</i>	Woodlands	Common
	Italian Thistle		
	* <i>Centaurea solstitialis</i> L.	Grasslands, Ruderal	Common
	Yellow Star Thistle		
	* <i>Cirsium vulgare</i> (Savi) Ten.	Grasslands, Ruderal	Common
	Bull Thistle		
	* <i>Erigeron canadensis</i> L.	Ruderal	Occasional
	Horseweed (= <i>Conyza Canadensis</i>)		
	<i>Eriophyllum lanatum</i> (Pursh) J. Forbes var. <i>achillaeoides</i>	Woodlands, Dry Slopes	Common
	Common Wooley Sunflower		
	* <i>Helminthotheca echioides</i> (L.) Holub	Ruderal	Common
	Ox-tongue (= <i>Picris echioides</i>)		
	* <i>Hypochaeris glabra</i> L.	Ruderal	Common
	Cat's Ear		
	* <i>Lactuca serriola</i> L.	Ruderal	Occasional
	Prickly Lettuce		
	* <i>Senecio vulgaris</i> L.	Ruderal	Occasional
	NCN		
	* <i>Silybum marianum</i> (L.) Gaertn.	Ruderal	Common
	Milk Thistle		
	* <i>Sonchus asper</i> (L.) Hill var. <i>asper</i>	Ruderal	Common
	Prickly Sow Thistle		
	<i>Sonchus oleraceus</i> L.	Ruderal	Common
	Common Sow Thistle		
	* <i>Taraxacum officinale</i> F.H. Wigg	Ruderal	Common
	Dandelion		
BORAGINACEAE Borage or Waterleaf Family			
	<i>Phacelia distans</i> Benth.	Woodlands	Occasional
	Wild-heliotrope		
BRASSICACEAE Mustard Family			
	* <i>Brassica nigra</i> (L.) Koch	Ruderal	Common
	Black Mustard		

MAJOR PLANT GROUP			
Family	Genus	Habitat Type	Abundance
	Common Name		

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

	* <i>Capsella bursa-pastoris</i> L. Shepherd's Purse	Ruderal	Common
	* <i>Cardamine hirsuta</i> L. Bitter-cress	Ruderal	Common
	* <i>Raphanus sativus</i> L. Wild Radish	Ruderal	Common
	* <i>Sisymbrium officinalis</i> L. Hedge Mustard	Ruderal, Grasslands	Common
CARYOPHYLLACEAE Pink Family			
	* <i>Cerastium fontanum</i> Baumg. subsp. <i>vulgare</i> Mouse-ear-chickweed	Ruderal	Common
CONVOLVULACEAE Morning-glory Family			
	<i>Calystegia purpurata</i> (Green) Brum. subsp. <i>purpurata</i> Morning-glory	Grassland, Scrub	Common
EUPHORBIACEAE Spurge Family			
	<i>Croton setigerus</i> Hook. Turkey Mullein, Dove Weed (= <i>Eremocarpus setigerus</i>)	Ruderal	Common
FABACEAE (Leguminosae) Legume Family			
	<i>Lathyrus lanszwertii</i> Kellogg var. <i>tracyi</i> NCN	Open Dry Conifer Woodland	Occasional
	* <i>Lotus corniculatus</i> L. Bird's-foot Trefoil	Grasslands, Ruderal	Common
	<i>Lupinus nanus</i> Benth. Sky Lupine	Grasslands	Common
	* <i>Medicago polymorpha</i> L. Bur Clover	Ruderal, Grasslands	Common
	* <i>Trifolium hirtum</i> All. Rose Clover	Ruderal	Common
	* <i>Vicia sativa</i> L. subsp. <i>nigra</i> Narrow Leaved-vetch	Grasslands, Ruderal	Common
GERANIACEAE Geranium Family			
	* <i>Erodium botrys</i> (Cav.) Bertol. Broadleaf Filaree, Long-beaked Filaree	Grasslands	Common
	* <i>Geranium dissectum</i> L. Common Geranium	Grasslands	Common
	* <i>Geranium molle</i> L. Dove's Foot Geranium	Grasslands	Common
LAMIACEAE (Labiatae) Mint Family			
	<i>Stachys ajugoides</i> Benth. Hedge-nettle	Moist Open Places	Occasional

MAJOR PLANT GROUP			
Family	Genus	Habitat Type	Abundance
	Common Name		

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

MALVACEAE Mallow Family

**Malva parviflora* L. Ruderal Common
Cheeseweed, Mallow

MONTIACEAE Miner's lettuce Family

Claytonia perfoliata Willd. ssp. *perfoliata* Woodlands, Riparian Common
Miners Lettuce

ONAGRACEAE Evening-primrose Family

Epilobium ciliatum Raf. Subsp. *ciliatum* Ruderal Common
Northern Willow Herb

OXILIDACEAE Oxalis Family

**Oxalis pes-caprae* L. Ruderal Common
Bermuda Buttercup

PAPAVERACEAE Poppy Family

Eschscholzia californica Cahm. Grasslands Common
California Poppy

PLANTAGINACEAE Plantain Family

Plantago erecta E.Morris Grassland, Open Woodland Common
California Plantain

POLYGONACEAE Buckwheat Family

**Rumex acetosella* L. Ruderal Common
Sheep Sorrel

**Rumex crispus* L. Ruderal Common
Curly Dock

RUBIACEAE Madder Family

Galium aparine L. Woodlands, Riparian, Ruderal Common
Goose Grass

**Galium divaricatum* Lam. Ruderal, Grasslands, Woodlands Occasional
Lamarck's Bedstraw, Tiny Bedstraw

**Galium parisiense* Grasslands, Woodlands Common
Wall Bedstraw

SOLONACEAE Nightshade Family

**Solanum xanthii* A. Gray Ruderal Occasional
Purple Nightshade

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS

CLASS--MONOCOTYLEDONAE-GRASSES

POACEAE Grass Family

**Avena barbata* Link. Grasslands Common
Slender Wild Oat

MAJOR PLANT GROUP			Abundance
Family	Genus	Habitat Type	
Common Name			

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

* <i>Briza maxima</i> L.	Grasslands, Ruderal	Common
Large Quaking Grass, Rattlesnake Grass		
* <i>Bromus diandrus</i> Roth	Ruderal, Grasslands	Common
Ripgut Grass		
* <i>Cynosurus echinatus</i> L.	Ruderal	Common
Hedgehog, Dogtail		
* <i>Festuca perennis</i> (L.) Columubus & Sm. Grasslands		
Perennial Rye Grass (= <i>Lolium multiflorum</i> , <i>L. perenne</i>)		Common
<i>Stipa lepida</i> Hitchc.	Foothill Grasslands, Chaparral	
Foothill Needle Grass, Small Flowered Needle Grass (= <i>Nassella lepida</i>)		Common
<i>Stipa pulchra</i> Hitchc.	Oak Woodland, Grasslands, Chaparral	Common
Purple Needle Grass (= <i>Nassella pulchra</i>)		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS

CLASS--MONOCOTYLEDONAE--SEDGES AND RUSHES

CYPERACEAE Sedge Family		Common
<i>Cyperus eragrostis</i> Lam.	Ruderal Moist Areas	
Nut-grass		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS

CLASS--MONOCOTYLEDONAE--HERBS

AGAVACEAE Century Plant Family		
<i>Chlorogalum pomeridianum</i> (DC.) Kunth var. <i>pomeridianum</i>	Woodlands, Grasslands	Common
Soap Plant		
MELANTHIACEAE False-hellebore Family		
<i>Toxicoscordion fremontii</i> (Torr) Rydb.	Grassy or Wooded Slopes	Occasional
Star Lily (= <i>Zigadenus</i>)		

Fauna Species Observed in the Vicinity of the Project Site

The nomenclature for the animals found on the project site and in the immediate vicinity follows: Udvardy and Farrand-1998, for the birds; and Jameson and Peeters -1988 for the mammals.

AVES

ORDER

Common Name

Genus

Observed

AVES

California Quail

Callipepla californica

X

Common Crow

Corvus brachyrhynchos

X

Dark-eyed Junco

Junco hyemalis

X

Red-tailed Hawk

Cathartes aura

X

Turkey Vulture

Cathartes aura

X

Wild Turkey

Meleagris gallopavo

X

MAMMALS

ORDER

Common Name

Genus

Observed

CARNIVORA

Striped Skunk

Mephitis mephitis

Sign

CERVIDAE

Black-tailed Deer

Odocoileus hemionus

Sight

INSECTIVORA

Broad-footed Mole

Scapanus latimanus

Workings

LAGOMORPHA

Black-tailed Jackrabbit

Lepus californicus

Scat

RODENTIA

Pocket Gopher

Thomomys bottae

Sight