BIOLOGICAL RESOURCE ASSESSMENT
WITH BOTANICAL SURVEYS
for the
VIDA VALIENTE WINERY PROJECT

APN 021-410-013
St. Helena, CA

August 26, 2020
Updated April 7, 2021

Prepared by

Northwest Biosurvey

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CONTENTS

Section		Page
1.0	**PROJECT DESCRIPTION**	**1**
1.1	Proposed Project	1
1.2	Location	1
2.0	**ASSESSMENT METHODOLOGY**	**3**
2.1	Botanical Survey Methods	4
2.2	Bat Habitat Survey Methods	4
2.3	Woodland Assessment Methods	4
2.4	Survey Dates	4
2.5	Biological Assessment Staff	4
3.0	**SITE CHARACTERISTICS**	**5**
3.1	Topography and Drainage	5
3.2	Soils	5
3.3	Vegetation Types	6
4.0	**PRE-SURVEY RESEARCH RESULTS**	**10**
4.1	CNPS Electronic Inventory Analysis	10
4.2	California Natural Diversity Database	10
4.3	Wildlife Habitat Analysis Results	21
4.4	Wildlife Assessment	21
5.0	**FIELD SURVEY RESULTS**	**24**
5.1	Botanical Field Survey Results	24
5.2	Bat Habitat Survey Results	25
6.0	**NAPA COUNTY WOODLAND ASSESSMENT**	**30**
6.1	Procedure	30
6.2	Regional Setting	32
6.3	Wildlife Value of Woodland	34
7.0	**CONFORMANCE WITH NAPA COUNTY BDR**	**38**
7.1	Sensitive Biotic Communities	38
7.2	Special Status Plants and Wildlife	38
7.3	Potential Wildlife Movement Corridors	38
7.4	Fisheries Resources	38
8.0	**SUMMARY, IMPACT ANALYSIS AND RECOMMENDATIONS**	**39**
8.1	Summary	40
8.2	Potential Impacts and Recommended Mitigations	41
9.0	**BIBLIOGRAPHY**	**45**

FIGURES AND TABLES

Section		Page
Figure 1	Location Map	2
Figure 2	Vegetation Map	9
Figure 3	Regional Overview	37
Table 1	Plant Communities and Other Cover Types	8
Table 2	Selected CNPS Plants	11
Table 3	CNDDB Sensitive Plant and Wildlife Species	15
Table 4	Flora of the Vida Valiente Winery Property	26
Table 5	Tree Survey Data Summary-Mixed Oak Woodland	30
Table 6	Tree Survey Data Summary-Douglas Fir Forest	31
Table 7	Estimated Numbers of Species of Trees Impacted	31

APPENDIX A CNDDB 9-Quad Species List

APPENDIX B CWHR Results

APPENDIX C Tree Survey Data Forms

APPENDIX D Effects of Cave Excavation on Forest and Woodland Trees

1.0 PROJECT DESCRIPTION

1.1 Proposed Project: This Biological Resource Assessment covers a parcel approximately 17.8-acres in size, a portion of which is proposed for a winery. The parcel is currently developed with several vineyards in the more level areas near the road. A biological assessment was conducted by Northwest Biosurvey in 2018 on the non-forested portion of the property at the request of the client.

The initial phase of this assessment evaluates the potential of the parcel to contain sensitive plant and wildlife habitat. The second phase consists of a floristic-level botanical survey listing all plant taxa[1] on and around the project area. The assessment will determine whether the property contains sensitive plants or potentially contains sensitive wildlife requiring mitigation under the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA). As used here, the terms sensitive plant or wildlife includes all state or federal rare, threatened, or endangered species and all species listed in the California Natural Diversity Database (CNDDB) list of "Special Status Plants, Animals and Natural Communities".

Two sections are added to this assessment to meet Napa County environmental review policy. These are the "Napa County Woodland Assessment" (Section 6.0) and "Conformance with the Napa County Baseline Data Report" (Section 7.0).

A delineation of waters of the U.S. was conducted in 2019 for this property and is not included in this report.

2021 Updated Report: This report has been updated to reflect modifications in the project design and to reflect impacts of the 2020 Glass Fire. All mapping and canopy cover analysis complies with updated Napa Ordinance Code Section §8.80.130(B).

1.2 Location: The property is located at 408 Crystal Springs Road, St. Helena, California (APN 021-410-013; Sec. 13&14 T08N R06W, St. Helena, Calif. 7½' topographic Map). A location map is provided in **Figure 1**.

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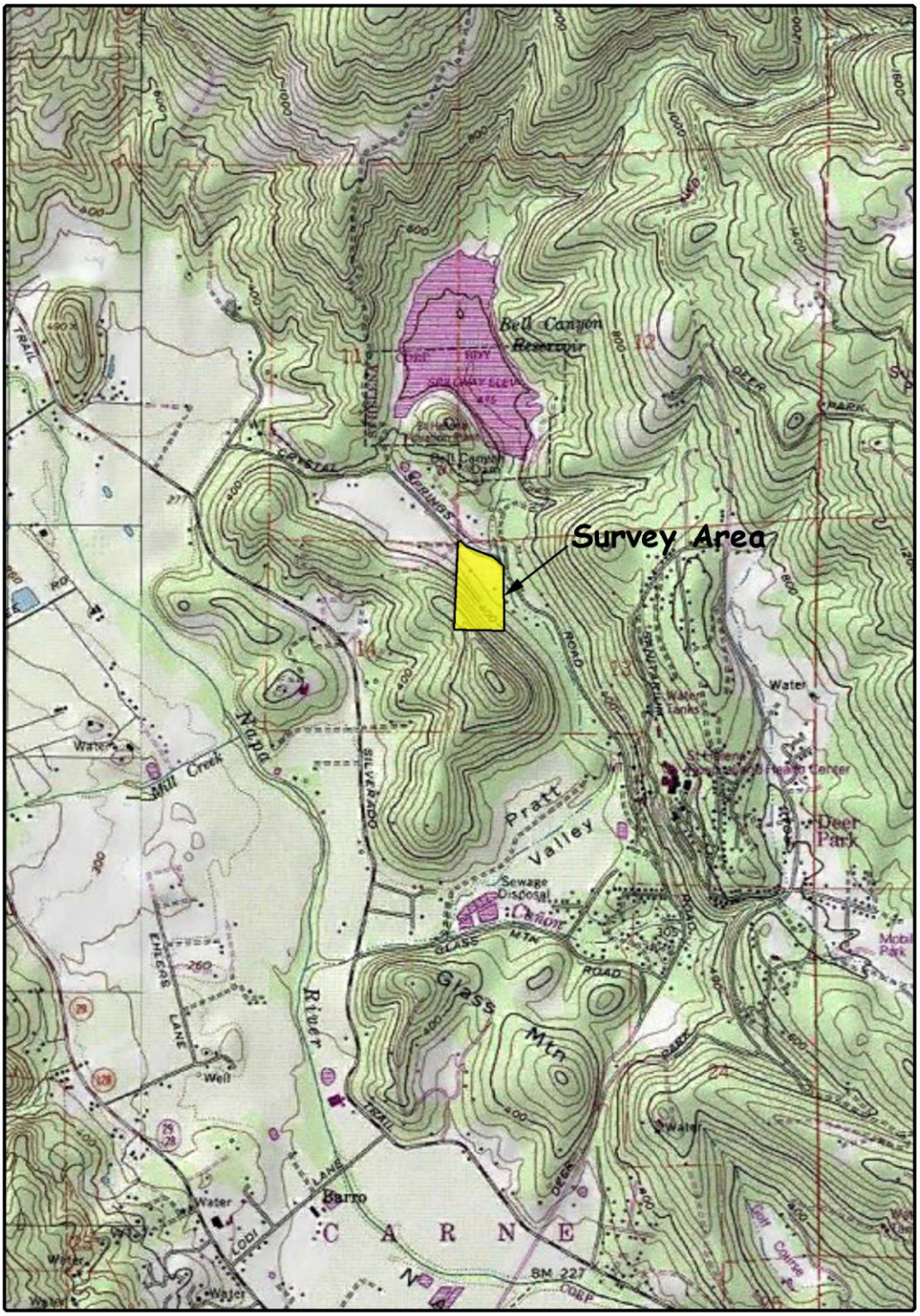
[1] Many sensitive plants and wildlife are subspecies or varieties which are taxonomic subcategories of species. The term "taxa" refers to species and their sub-specific categories.



LOCATION MAP

NORTHWEST BIOSURVEY
1905 Westlake Dr.
Kelseyville, CA 95451
(707) 889-1061

0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km

Figure 1

2.0 ASSESSMENT METHODOLOGY

The basis of the biological resource assessment is a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and wildlife. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The approach is conservative in that it tends to over-estimate the actual number of sensitive species potentially present. The analysis includes the following site characteristics:

- Location of the project area with regard to the geographic range of sensitive plant and wildlife species
- Location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDB)
- Soils of the project area
- Elevation
- Presence or absence of special habitat features such as vernal pools and serpentine soils
- Plant communities existing within the project area

In addition to knowledge of the local plants and wildlife, the following digital databases were used to analyze the suitability of the site for sensitive species:

- California Department of Fish and Wildlife (CDFW), *California Natural Diversity Database (CNDDB)*; RareFind 5, 2020
- California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants of California* (2020 edition)
- California Department of Fish and Wildlife, *California Wildlife Habitat Relationships System (CWHR)*, Version 9.0
- Napa County *Baseline Data Report (2005)*

The **CNDDB** and **RareFind 5** databases consist of maps and records of all known populations of sensitive plants and wildlife in California. This data is continually updated by the CDFW with new sensitive species population data.

The **CNPS** database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself eliminate the need for an in-season botanical survey, it can, when used in

conjunction with other information, provide a very good indication of the suitability of a site as habitat for sensitive plant species.

The **CWHR database** operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and special features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

2.1 Botanical Survey Methods: A full, in-season floristic-level survey was conducted for the project in 2020. CNDDB information and maps for the St. Helena quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer et al. 2009) as modified by the California Native Plant Society (CNPS) and mapped on a 1"=65' aerial photo. Vegetation community names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using *The Jepson Manual of Higher Plants of California*. Where necessary, species names were updated based on the *CNPS Inventory of Rare and Endangered Plants of California*. A map of the vegetation types is provided in **Figure 2.**

2.2 Bat Habitat Survey Methods: Mature trees within woodland within the vineyard block were assessed for their potential as habitat for sensitive bat species. These included searching for hollow trees, trees with open cavities, and trees with exfoliating bark.

2.3 Woodland Assessment Methods: The property contains two woodland or forest types which are discussed in Section 3.3, Vegetation Types. These woodland types – Mixed Oak Woodland and Douglas Fir Forest – cover the wooded or forested areas of the proposed development areas and extend into other parts of the property not proposed for development. Within each of these woodland types, one study plot was analyzed for species makeup, diameter and distribution and the results scaled to the total area present within the impacted areas. The methodology is discussed in detail in **Section 6.0** of this report.

2.4 Survey Dates: Site visits for botanical surveys, habitat assessments, and mapping were made by Northwest Biosurvey staff on April 16 and July 16, 2020. Parts of the property were previously surveyed on April 26 and July 12, 2018. Post Glass Fire site visits were conducted on November 20, 2020 and February 5, 2021.

2.5 Biological Assessment Staff: Field surveys and plant taxonomy were conducted by Steve Zalusky, Northwest Biosurvey principal biologist. Mr. Zalusky has a Master of Science Degree in Biology from the California State University at Northridge and

a Bachelor of Science Degree in Zoology from the University of California at Santa Barbara. Mr. Zalusky has over 35 years of experience as a biologist in the government and private sectors.

Mr. Zalusky was assisted in the field and with mapping and the woodland analysis by Leigh Zalusky. Leigh Zalusky has a Bachelor of Science Degree in Engineering from the University of California, Davis. He has also developed extensive skills in plant taxonomy and ecology while managing and assisting in the development of the Seigler Valley Wetland Mitigation Bank and while assisting Northwest Biosurvey staff in field surveys and vegetation mapping over the past four years.

Database review and report preparation were conducted by Danielle Zalusky, Northwest Biosurvey principal planner. Ms. Zalusky has 15 years of experience as a planner in local government and the private sector and over 17 years as a field biologist. She has a Bachelor of Arts Degree all course work toward an M.A. Degree in Rural and Town Planning from Chico State University.

3.0 SITE CHARACTERISTICS

3.1 <u>Topography and Drainage:</u> The Vida Valiente Winery property occupies the east slope of a ridge which extends westward and then south into the Napa Valley from the western toe of the Howell Mountain Range. As it extends south, it is separated from the rest of the Howell Mountains by the Pratt Valley, a narrow extension of the adjacent Napa Valley. Bell Creek drains through this narrow valley from its headwaters to the north before entering the Napa Valley and its confluence with the Napa River. The bulk of the vineyard property occupies the steep eastern slope of the ridge. The property levels out onto the Pratt Valley, ending along the course of Bell Creek to the east. The topography is shown in **Figure 1**.

3.2 <u>Soils:</u> The parcel contains the following soil types:

- **Cortina very stony loam, 0-5% slopes (soil unit 125):**
  The assessment area contains this soil type. This nearly level to gently sloping soil is on alluvial fans. Included with this soil in mapping were small areas of Bale and Yolo soils and Riverwash. The Cortina series consists of excessively drained soils on flood plains and alluvial fans. Slope is 0 to 5 percent. These soils formed from recent stratified alluvium. The vegetation consists of willows and water grasses. Runoff is slow. The hazard of erosion is slight. Permeability is rapid. Effective rooting depth is 60" or more.

- **Forward gravelly loam, 30-75% slopes: (soil unit 140):**

  This soil type is on the steep slopes above the survey area. This very steep soil is on uplands. Included with this soil in mapping were small areas of Aiken, Boomer, Kidd, and Sobrante soils. Also included were areas of soils that are similar to this Forward soil but that have a clay loam subsoil and areas of clayey, less sloping soils. The Forward series consists of well drained soils on uplands. These soils formed in material weathered from rhyolite. The plant cover is Douglas fir, madrone, scrub oak, pepper, and bay trees. Runoff is very rapid. The hazard of erosion is high to very high. Permeability is moderately rapid. Effective rooting depth is 20-40".

3.3 <u>Vegetation Types:</u> This project contains five plant communities or vegetation types based on or derived from the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of California Vegetation*. These vegetation types and other cover types are listed below in **Table 1.** They are described below and shown in the vegetation map provided in **Figure 2.**

- **Douglas Fir Forest:**

  This is a mature Douglas fir (*Pseudotsuga menziesii var. menziesii*) forest with canopy cover approaching 100 percent. It supports a dense subcanopy of California black oak (*Quercus kelloggii*), California bay (*Umbellularia californica*), and big-leaf maple (*Acer macrophyllum*). The canopy is generally too dense to support a developed shrub layer although scattered shrubby interior live oak (*Quercus wislizeni var. frutescens*) is present, along with poison oak (*Toxicodendron diversilobum*).

  The ground cover within the forest supports a dense population of littlefoot baby blue eyes (*Nemophila pedunculata*), Robert's geranium (*Geranium robertianum*), woodland star (*Lithophragma heterophyllum*), coastal wood fern (*Dryopteris arguta*), licorice fern (*Polypodium glycyrrhiza*), gold-back fern (*Pentagramma triangularis ssp. triangularis*), goose grass (*Galium aparine*), and western sweet cicely (*Osmorhiza occidentalis*). Grasses including California brome (*Bromus carinatus var. carinatus*). Geyer's onion grass (*Melica geyeri*), and blue wildrye (*Elymus glaucus ssp. glaucus*) also occur in the ground cover layer.

- **Mixed Oak Woodland:**

  This woodland transitions from black oak-Douglas fir forest on the hillslope into a mix of black oak and coast live oak (*Quercus agrifolia*) on the valley floor and in the southwest corner of the property near the ridgetop. Within the valley floor, coast live oak gains in dominance with distance from the hillslope. This woodland

includes sub-dominant California bay, scattered ghost pine (*Pinus sabiniana*), blue oak (*Quercus douglasii*), and California buckeye (*Aesculus californica*). California valley oak (*Quercus lobata*) is added to the mix of trees at the western edge of the property.

Portions of the community within the valley have assumed a park-like appearance due to human use of the valley floor. Ground cover consists of Wild Oat Grassland, described below.

- **Red Willow Thicket:**

  The northeast corner of the parcel extends into adjacent Bell Creek. The canopy consists of dense red willow (*Salix laevigata*) thicket. Community edges support a shrub layer of brown dogwood (*Cornus glabrata*) and areas dominated by a mix of Himalayan blackberry (*Rubus armeniacus*), snowberry (*Symphoricarpos albus*) and California wild grape (*Vitis californica*).

- **Blackberry Bramble:**

  This dense, impenetrable bramble occupies an area of mesic (moist soil) habitat along the creek bank at the northeast corner of the property. The community is too dense to support a ground cover layer.

- **Wild Oat Grassland:**

  This grassland consists of a heterogenous mix of ripgut grass (*Bromus diandrus*), which is the dominant species beneath the shaded canopy, along with field hedge parsley (*Torilis arvensis*), American vetch (*Vicia americana var. americana*), Robert's geranium, and bull thistle (*Cirsium vulgare*). It is limited to a small exposed area adjacent to the roadway in the northeast corner of the property. It occurs elsewhere as the standard ground cover layer along roadways and on the edges of the mixed oak woodland.

- **Vineyard:**

  A newly established vineyard occupies the northern valley portions of the property. It has replaced an abandoned walnut orchard.

- **Ruderal:**

  Residential development, including structures, driveways, and landscaping, occur along the edge of the forest beyond the orchard.

TABLE 1. PLANT COMMUNITIES AND OTHER COVER TYPES PRESENT

COVER TYPE	Total Acres of Cover Type	Percent of Property in Cover Type	Acres of Cover Type in Project Feature					Acres of Cover Type in Project Footprint	Percent of Cover Type in Project Footprint
			Driveways & Parking	Landscape	Structures	Caves* tree root zone	Waste-water		
Douglas Fir Forest	9.82	55.20	0.05	0.24	0.37	0.02	1.80	2.48	25.25
Mixed Oak Woodland	2.28	12.82	0.06	0.00	0.01	0.00	0.02	0.09	3.95
Red Willow Thicket	0.03	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blackberry bramble	0.03	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wild Oat Grassland	0.02	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vineyard	4.11	23.10	0.23	0.13	0.02	0.00	0.00	0.38	5.46
Ruderal	1.50	8.43	0.36	0.39	0.06	0.00	0.00	0.81	54.00
Total Acres of Cover Type	17.79	100.00%	0.70	0.76	0.46	0.02	1.82	3.76	21.14**

*11-foot root zone only

**Bottom Right Cell: Percent of Property occupied by both vineyard blocks

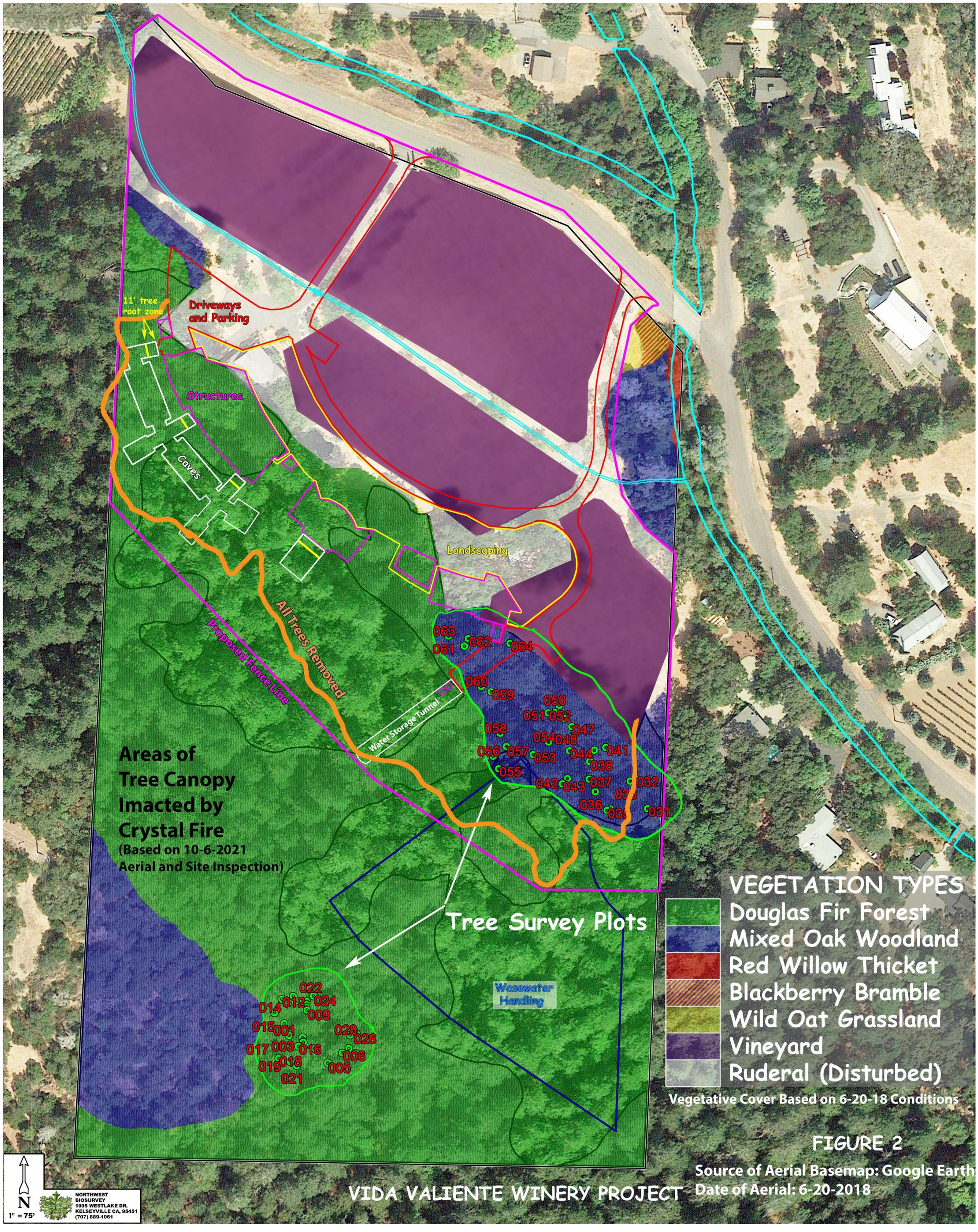

11' tree root zone
Driveways and Parking
Structures
Caves
Landscaping
All Trees Removed
Proposed Fence Line
Water Storage Tunnel
Areas of Tree Canopy Imacted by Crystal Fire
(Based on 10-6-2021 Aerial and Site Inspection)
Tree Survey Plots
Wastewater Handling
VEGETATION TYPES
Douglas Fir Forest
Mixed Oak Woodland
Red Willow Thicket
Blackberry Bramble
Wild Oat Grassland
Vineyard
Ruderal (Disturbed)
Vegetative Cover Based on 6-20-18 Conditions
N
1" = 75'
NORTHWEST BIOSURVEY
1905 WESTLAKE DR.
KELSEYVILLE CA, 95451
(707) 889-1061
VIDA VALIENTE WINERY PROJECT
Source of Aerial Basemap: Google Earth
Date of Aerial: 6-20-2018

FIGURE 2

4.0 PRE-SURVEY RESEARCH RESULTS

4.1 <u>CNPS Electronic Inventory Analysis</u>: A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status, and all non-status plants on the CNPS Rare Plant Ranks 1B through 4. The query included all plants within this area of Napa County occurring within the plant communities identified on the project site. The inventory lists species potentially occurring at the site; these are listed in **Table 2**. These species were included in the list of potentially sensitive species specifically searched for during field surveys.

<u>Note</u>: *The CNPS list is used to broaden the list of sensitive species considered during the subsequent field surveys; however, it must be used with discretion because the database search does not allow fine-tuning for specific soil types or for many specific habitats required by sensitive plant taxa (e.g. serpentine and vernal pools). Consequently, the CNPS list generated for a site may include several taxa for which the required habitat is not present.*

4.2 <u>California Natural Diversity Database</u>: The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the St. Helena 7½' quadrangle were reviewed for this project. **Table 3** presents a list of sensitive plant and wildlife species known to occur within the quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species. **Appendix A** at the end of this report lists the species within the nine quadrangles in the vicinity of this property.

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED PLANTS

Selected CNPS Plants by Scientific Name

Vida Valiente Property

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	1B.2	None	None	Apr-Jul	Broadleafed upland forest (openings), Chaparral, Cismontane woodland
Astragalus breweri	Brewer's milk-vetch	Fabaceae	annual herb	4.2	None	None	Apr-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland (open, often gravelly)
Astragalus claranus	Clara Hunt's milk-vetch	Fabaceae	annual herb	1B.1	**CT**	**FE**	Mar-May	Chaparral (openings), Cismontane woodland, Valley and foothill grassland
Astragalus clevelandii	Cleveland's milk-vetch	Fabaceae	perennial herb	4.3	None	None	Jun-Sep	Chaparral, Cismontane woodland, Riparian forest
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	1B.2	None	None	May-Jul	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland
Calamagrostis ophitidis	serpentine reed grass	Poaceae	perennial herb	4.3	None	None	Apr-Jul	Chaparral (open, often north-facing slopes), Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	4.2	None	None	Mar-Aug	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins
Ceanothus confusus	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	1B.1	None	None	Feb-Jun	Closed-cone coniferous forest, Chaparral, Cismontane woodland

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Ceanothus divergens	Calistoga ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2	None	None	Feb-Apr	Chaparral (serpentinite or volcanic, rocky)
Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2	None	None	Feb-Jun	Chaparral, Cismontane woodland
Ceanothus sonomensis	Sonoma ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2	None	None	Feb-Apr	Chaparral (sandy, serpentinite or volcanic)
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Onagraceae	annual herb	4.2	None	None	Apr-Jul	Chaparral (openings, usually serpentinite)
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	4.3	None	None	May-Jun	Chaparral, Cismontane woodland
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	4.3	None	None	Jul-Aug	Closed-cone coniferous forest, Chaparral, Cismontane woodland
Delphinium uliginosum	swamp larkspur	Ranunculaceae	perennial herb	4.2	None	None	May-Jun	Chaparral, Valley and foothill grassland
Erigeron biolettii	streamside daisy	Asteraceae	perennial herb	3	None	None	Jun-Oct	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest
Erigeron greenei	Greene's narrow-leaved daisy	Asteraceae	perennial herb	1B.2	None	None	May-Sep	Chaparral (serpentinite or volcanic)
Harmonia nutans	nodding harmonia	Asteraceae	annual herb	4.3	None	None	Mar-May	Chaparral, Cismontane woodland
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	1B.2	None	None	May-Jul	Chaparral (serpentinite)
Hesperolinon sharsmithiae	Sharsmith's western flax	Linaceae	annual herb	1B.2	None	None	May-Jul	Chaparral
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	1B.2	None	None	Apr-May	Chaparral, Cismontane woodland, Valley and foothill grassland
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	1B.2	None	None	Mar-May	Chaparral, Cismontane woodland, Valley and foothill grassland
Lomatium repostum	Napa lomatium	Apiaceae	perennial herb	4.3	None	None	Mar-Jun	Chaparral, Cismontane woodland

Scientific Name	Common Name	Family	Lifeform	CRPR	CESA	FESA	Blooming Period	Habitat
Lupinus sericatus	Cobb Mountain lupine	Fabaceae	perennial herb	1B.2	None	None	Mar-Jun	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	3.2	None	None	Mar-May	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland
Navarretia cotulifolia	cotula navarretia	Polemoniaceae	annual herb	4.2	None	None	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	1B.1	None	None	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	4.2	None	None	Feb-May	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools
Senecio clevelandii var. clevelandii	Cleveland's ragwort	Asteraceae	perennial herb	4.3	None	None	Jun-Jul	Chaparral (serpentinite seeps)
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Malvaceae	perennial herb	1B.2	None	None	(Jun)Jul-Aug	Meadows and seeps, Riparian forest
Streptanthus hesperidis	green jewelflower	Brassicaceae	annual herb	1B.2	None	None	May-Jul	Chaparral (openings), Cismontane woodland
Toxicoscordion fontanum	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	4.2	None	None	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	1B.2	None	None	Jun-Oct	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland, Vernal pools

KEY FOR TABLE 2:

CNPS Rare Plant-Threat Rank Definitions:

CRPR = California Rare Plant Rank
1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A = Presumed extinct in California, but extant elsewhere
2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.
2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.
2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.
3 = Plants about which we need more information (Review List)
3.1 = Plants about which we need more information (Review List); seriously threatened in California
3.2 = Plants about which we need more information (Review List); fairly threatened in California
3.3 = Plants about which we need more information (Review List); not very threatened in California
4.1 = Plants of limited distribution (watch list); seriously threatened in California
4.2 = Plants of limited distribution (watch list); fairly threatened in California
4.3 = Plants of limited distribution (watch list); not very threatened in California

State and Federal Status:

CESA = California Endangered Species Act
FESA = Federal Endangered Species Act
CR = State Rare
CE = State Endangered.
CT = State Threatened
CD = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List
FE = Federal Endangered
FT = Federal Threatened
FD = Federal Delisted

TABLE 3. CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE ST. HELENA, CALIF. 7½' QUAD.

Habitat Type	Habitat Present
Northern Vernal Pool	No

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS* Status	Blooming Season	Habitat Present
Amorpha californica var. napensis	Napa false indigo	Broadleaved upland forest, chaparral, cismontane woodland/openings; --/--/1B.2	April-July decid. shrub	Good habitat present
Astragalus breweri	Brewer's milk-vetch	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland (open, often gravelly)/often serpentinite, volcanic; --/--/4.2	April-June ann. herb	Poor habitat present
Astragalus claranus	Clara Hunt's milk-vetch	Chaparral, cismontane woodland, valley & foothill grassland/serpentinite or volcanic, rocky, clay; FE/ST/1B.1	March-May ann. herb	Moderate habitat present
Astragalus clevelandii	Cleveland's milk-vetch	Chaparral, cismontane woodland, riparian forest/serpentinite seeps; --/--/4.3	June-Sept. per. herb	Poor habitat present
Brodiaea leptandra	narrow-anthered brodiaea	Broadleaved upland forest, chaparral, lower montane conif. forest, valley & foothill grassland/volcanic; --/--/1B.2	May-July per. herb	Good habitat present
Calamagrostis ophitidis	serpentine reed grass	Chaparral (open, often north-facing slopes), lower montane coniferous forest, meadows and seeps, valley and foothill grassland /serpentinite, rocky; --/--/4.3	April-July per. herb	Poor habitat present
Castilleja ambigua var. ambigua	johnny-nip	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools (margins); --/--/4.2	March-Aug. ann. herb	Habitat is not present
Ceanothus confusus	Rincon ridge ceanothus	Closed cone conif. forest, chaparral, cismontane woodland; volcanic; --/--/1B.1	Feb.-April everg. shrub	Poor habitat present
Ceanothus divergens	Calistoga ceanothus	Chaparral, cismontane woodland/serpentine, volcanic, rocky; --/--/1B.2	Feb.-March ever. shrub	Poor habitat present

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS* Status	Blooming Season	Habitat Present
Ceanothus pinetorum	Kern ceanothus	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest/rocky, granitic; --/--/4.3	May-July everg. shrub	Habitat is not present
Ceanothus purpureus	holly-leaved ceanothus	Chaparral, cismontane woodland/volcanic, rocky; --/--/1B.2	Feb.-June everg. shrub	Poor habitat present
Ceanothus sonomensis	Sonoma ceanothus	Chaparral; sandy, serpentine, volcanic; --/--/1B.2	Feb.-April everg. shrub	Habitat is not present
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Chaparral (openings, usually serpentinite); --/--/4.2	April-June ann. herb	Habitat is not present
Collomia diversifolia	serpentine collomia	Chaparral, cismontane woodland/serpentinite, rocky or gravelly; --/--/4.3	May-June ann. herb	Habitat is not present
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Closed-cone coniferous forest, chaparral, cismontane woodland/usually serpentinite; --/ --/4.3	July-Aug. ann. herb	Habitat is not present
Delphinium uliginosum	swamp larkspur	Chaparral, valley and foothill grassland /serpentinite seeps; --/--/4.2	May-June per. herb	Habitat is not present
Erigeron biolettii	streamside daisy	Broadleaved upland forest, cismontane woodland, North Coast coniferous forest /rocky, mesic; --/--/3	June-Oct. per. herb	Habitat is not present
Erigeron greenei	Greene's narrow-leaved daisy	Chaparral/serpentine and volcanic, generally in shrubby vegetation; --/--/1B.2	May-Sept. per. herb	Habitat is not present
Eryngium jepsonii	Jepson's coyote-thistle	Valley & foothill grassland, vernal pools/clay; --/--/1B.2	April-August per herb	Habitat is not present
Erythronium helenae	St. Helena Fawn lily	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/ volcanic or serpentinite; --/--/4.2	Mar-May bulb. herb	Potential habitat present
Harmonia nutans	nodding harmonia	Chaparral, cismontane woodland/rocky or gravelly, volcanic; --/--/4.3	March-May ann. herb	Potential habitat present
Helianthus exilis	serpentine sunflower	Chaparral, cismontane woodland/serpentinite seeps; --/--/4.2	April-Nov. ann. herb	Habitat is not present
Hesperolinon sharsmithiae	Sharsmith's western flax	Chaparral, serpentinite; --/--/1B.2	May-July ann. herb	Habitat is not present

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS* Status	Blooming Season	Habitat Present
Layia septentrionalis	Colusa layia	Chaparral, cismontane woodland, valley & foothill grassland/sandy, serpentinite; --/--/1B.2	April-May ann. herb	Habitat is not present
Leptosiphon jepsonii	Jepson's leptosiphon	Chaparral, cismontane woodland, grassy slopes/ volcanic or serpentine edge; --/--/1B.2	May-July ann. herb	Habitat is not present
Leptosiphon latisectus	broad-lobed leptosiphon	Broad-leaved upland forest, cismontane woodland; --/--/4.3	April-June ann. herb	Potential habitat present
Lomatium repostum	Napa lomatium	Chaparral, cismontane woodland/serpentinite; --/--/4.3	March-July per. herb	Habitat is not present
Lupinus sericatus	Cobb Mountain lupine	Broadleaved upland forest, chaparral, cismontane woodland, lower montane conif. forest/gravelly soils, sometimes serpentine; --/--/1B.2	March-June per. herb	Poor habitat present
Navarretia cotulifolia	cotula navarretia	Chaparral, cismontane woodland, valley and foothill grassland/adobe; --/--/4.2	May-June ann. herb	Habitat is not present
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Cismontane woodland, lower montane conif. forest, meadows & seeps, valley & foothill grassland, vernal pools/mesic, adobe or alkaline soils; --/--/1B.1	May-July ann. herb	Habitat is not present
Penstemon newberryi var. sonomensis	Sonoma beardtongue	Chaparral, rocky; --/--/1B.3	April-Aug. per. herb	Habitat is not present
Ranunculus lobbii	Lobb's aquatic buttercup	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools/mesic--/--/4.2	Feb.-May ann. herb (aquatic)	Habitat is not present
Sagittaria sanfordii	Sanford's arrowhead	Marshes & swamps; standing or slow-moving freshwater ponds, marshes, ditches; --/--/1B.2	May-Oct. rhizom. herb	Habitat is not present
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Marshes & seeps, riparian forest/wet soil of streambanks, meadows; --/--1B.2	July-Aug. per. herb	Moderate habitat present
Streptanthus hesperidis	green jewel flower	Chaparral or cismontane woodland (openings)/serpentine, rocky; --/--/1B.2	May-July ann. herb	Habitat is not present
Toxicoscordion fontanum	marsh zigadenus	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps/vernally mesic, often serpentinite; --/--/4.2	April-July bulb. herb	Habitat is not present

Plant Species	Common Name	Habitat Requirements, Fed/State/CNPS* Status	Blooming Season	Habitat Present
Trichostema ruygtii	Napa bluecurls	Chaparral, cismontane woodland, lower montane conif. forest, valley & foothill grassland, vernal pools; --/--/1B.2	June-Oct. ann. herb	Moderate habitat present
Triteleia lugens	dark-mouthed triteleia	Broadleaved upland forest, chaparral, coastal scrub, lower montane coniferous forest; --/--/4.3	April-June bulb. herb	Potential habitat present

*See CNPS list for key

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Bombus caliginosus	obscure bumble bee	A black and yellow bee found in California, Oregon, Washington. Food plant genera: Baccharis, Cirsium, Lupinus, Lotus, Grindelia, Phacelia; G3G4/CA-SNR	year-round	Poor habitat present
Margaritifera falcata	western pearlshell	Freshwater mussel: prefers cold clean creeks and rivers that support salmonid populations. Sand, gravel, and cobble are preferred substrates; G5/S1S2	year-round	Habitat not present
Lavinia exilicauda exilicauda	Sacramento hitch	Scattered populations are found in freshwater streams, lakes, and reservoirs in the Sacramento Valley. Spawns over gravel riffles; SSC/T3/S2S4	year-round	Habitat not present
Oncorhynchus mykiss irideus pop. 8	steelhead-Central California Coast DPS	Small cool fast-flowing tributary streams with gravel beds. Steelhead are anadromous species that require streams that are contiguous with the ocean. Russian River so. to Soquel Creek and to no. of Pajaro River, San Francisco and San Pablo bay basins; FT/G5/S2S3	migratory	Habitat not present
Dicamptodon ensatus	California giant salamander	Cool, moist forest habitats associated with rocky streams; SSC/G3/SNR	year-round	Potential habitat present due to lack of cool temperatures
Rana boylii	foothill yellow-legged frog	Riparian/aquatic: partly-shaded, shallow streams & riffles with a rocky substrate in variety of habitats; SSC/SCT/G3/S2S3	year-round	Potential habitat present

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Rana draytonii	California red-legged frog	Generally slow or ponded water, riparian; FT/SSC/G2G3/S2S3	year-round	Poor habitat present
Emys marmorata	western pond turtle	Aquatic turtle found in ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; In woodland, forest, & grasslands; SSC/G3G4/S3	year-round	Potential seasonal habitat present
Haliaeetus leucocephalus	bald eagle	Large bodies of water with adjacent snags. Nests in large old-growth or dominant live tree (often ponderosa pine) with open branches; FD/SE/SFP/G5/S2	year-round	Habitat not present
Progne subis	purple martin	Open woodland near water. Nests in old woodpecker cavities in isolated trees, sometimes in human-made structures; SSC/G5/S3	migratory in winter	Possible habitat present
Ardea herodias	great blue heron	Shallow ponds and estuaries, & salt and fresh emergent wetlands; G5/S4	sometimes migratory	Habitat not present
Athene cunicularia	burrowing owl	Valley & foothill grassland, coastal prairie and scrub: Nests are in abandoned burrows dug by ground squirrels, foxes, etc. in open short grasslands; SSC/G4/S3	sometimes migratory in winter	Habitat not present
Setophaga petechia	yellow warbler	Riparian plant associations; prefers willows, cottonwoods, aspens, sycamores & alders for nesting & foraging; SSC/G5/S2	nesting migratory	Possible habitat present
Strix occidentalis caurina	northern spotted owl	Old-growth forests or mixed stands of old-growth & mature trees; occasionally in younger forests with patches of big trees; FT/ST	year-round	Possible habitat present
Antrozous pallidus	pallid bat	Open, dry habitats, forest habitats, in caves, tunnels, buildings, bridges; sensitive to human disturbance; SSC/G5/S3	local migrant	Possible habitat present
Corynorhinus townsendii	Townsend's big-eared bat	Roosts in open near relatively mesic sites, mainly montane forest habitats; SSC/G3G4/S2	year-round	Poor habitat present due to lack of water
Myotis evotis	long-eared myotis	Hollow trees in mixed hardwood/conifer forest and montane conifer forest, sometimes caves, mines, buildings; G5/S3	year-round	Possible habitat present in forest

Wildlife Species	Common Name	Habitat Requirements, Status	Season Present	Habitat Present
Myotis thysanodes	fringed myotis	Caves, mines, buildings; valley foothill hardwood or hardwood-conifer, sometimes redwood forests; G4/S3	local migrant	Possible habitat present in forest
Myotis yumanensis	Yuma myotis	Open conifer forests and riparian woodlands with nearby water. Roosts may be found in caves, mines, under bridges, and buildings; G5/S4	year-round	Poor habitat present
Erethizon dorsatum	North American porcupine	Occurs in a wide variety of coniferous and mixed woodland habitats in Sierra Nevada, Cascade, and Coast Ranges; G5/S3	year-round	Poor habitat present

KEY FOR TABLE 3:

SE/ST/SD=State Endangered/Threatened/Delisted
SC/SCT/SCD=State Candidate for Listing/Threatened/Delisting
SSC=CDFW Species of Special Concern
SFP=CDFW Fully Protected
WL=CDFW Watch List
FE/FT/FD=Federal Endangered/Threatened/Delisted
FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting
FC=Federal Candidate

NatureServe Conservation Status:
G1/S1 = Global/State Critically Imperiled
G2/S2 = Global/State Imperiled
G3/S3 = Global/State Vulnerable
G4/S4 = Global/State Apparently Secure
G5/S5 = Global/State Secure
SNR = Not yet assessed

4.3 Wildlife Habitat Analysis Results: The California Wildlife Habitat Relationships analysis listed a large number of sensitive and non-sensitive native wildlife species as potentially occurring on the site based on the geographic location and wildlife habitats present. This list is included as **Appendix B**.

4.4 Wildlife Assessment: Based on the pre-survey research conducted for this study, a total of 20 sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present within the St. Helena quadrangle by the CNDDB and listed in Table 3. Sharp-sinned hawk, yellow warbler, and yellow-breasted chat are added based on potential on-site habitat or inclusion in the Napa County BDR. Accepted protocol requires that all CNDDB species in the surrounding U.S.G.S. quadrangle be discussed even through suitable habitat may not occur on the site.

The following listed species would not or are not likely to occur in their sensitive status on the property due to lack of habitat:

- Obscure bumble bee
- Western pearlshell
- Sacramento hitch
- California giant salamander
- California red-legged frog
- Western pond turtle
- Purple martin
- Yellow warbler
- Northern spotted owl
- Long-eared myotis
- Fringed myotis

Habitat for the following species is moderate to good:

- **Steelhead-Central California Coast DPS (*Oncorhynchus mykiss irideus*):**
  Steelhead are present in the Napa River and many of its tributaries. Several surveys conducted up to 1987 identified young steelhead in Bell Creek below the Bell Canyon Reservoir[2]. Bell Creek, however, is intermittent depending on rain year and possibly on amount of draw-down for residential and agricultural use and releases from Bell

[2] "*Central Napa River Watershed Project Salmonid Habitat Form and Function*"; October 2005; Napa County Resource Conservation District.

Canyon Reservoir. Therefore, presence of steelhead within a stream segment depends on season, presence of shaded pools, and prior rainfall year.

- **Foothill yellow-legged frog (*Rana boylii*):**

  Based on previous surveys conducted by Northwest Biosurvey, the species is relatively common in shaded pool/riffle headwater streams in Lake and Napa Counties. The frogs are heavily dependent on the presence of perennial water and are seldom far from pools where they can seek shelter from predation. Breeding begins between mid-March and May and lasts about two weeks. The larvae require three to four months to mature, making most ephemeral streams unsuitable as breeding sites. The short segment of creek along the east side of the may provide potentially suitable seasonal habitat for this species.

- **Western pond turtle (*Emys marmorata*):**

  These turtles prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. Eggs are laid on land in sheltered nests. Young overwinter in the nest and emerge the following spring in Northern California. Food includes aquatic insects, crustaceans, fish, and riparian vegetation. When present, pond turtles are readily observed basking along shorelines or on logs in shallow water. Stream channels are often used as movement corridors between waterways or ponds. These turtles are likely to be present within Bell Creek and may include it as a movement corridor and, when ponded or slow and deep water is present, may use it as habitat.

- **Purple martin (*Progne subis*):**

  These migratory passerines prefer open, old growth, multilayered woodland with nearby water. They are commonly found in riparian habitat, or valley foothill with montane hardwood or montane-hardwood-conifer habitats near water. Up to 70-percent of nests are in fire-killed firs and pines. These birds may nest as pairs in old woodpecker cavities or in colonies in large hollow snags; nests are also sometimes found in residential areas or in manmade structures. Most tree nest sites are located in the upper slope's mountainous terrain. The forest above the valley may provide suitable habitat for this species.

- **Sharp-shinned hawk (*Accipiter striatus*):**

  This species has been included because it is listed in Table 4-7 of the Napa County BDR. It breeds in the following habitats: ponderosa pine, black oak, riparian deciduous woodland, mixed conifer, and Jeffrey pine. This species roosts in dense mid- to high-canopy forest near open areas, and nests in dense, even-aged forest canopy near water. It prefers riparian habitats and requires north-facing slopes with plucking

perches; it often forages in openings at edges. The forested slopes along the western two-thirds of the property provide excellent potential habitat for this species.

The California Department of Fish and Wildlife has removed this species from the list of California Bird Species of Special Concern and it is now on the Watch List; however, it remains on the Napa County Baseline Data Report Table 4-7 as a sensitive species. As with all sensitive and non-sensitive raptors, it remains protected under the Migratory Bird Treaty Act and California Fish and Game Code.

- **Yellow-breasted chat (*Icteria virens)*;**
- **Yellow warbler (*Dendroica petechia brewsteri*):**

  These passerines require riparian woodland with a dense shrubby understory for nesting and cover. They arrive in these areas in April and are typically gone by October. Fledging is usually completed by August. Nests are constructed in shrubs and small trees in the lower canopy of the woodland, and they forage for insects in the upper canopy. The small red willow thicket community provides good potential habitat for these species.

- **Northern spotted owl (*Strix caurina occidentalis*):**

  These medium-sized owls are usually found in dense, multi-layered old-growth conifer, redwood, and fir forests, although they may also be found in otherwise-suitable newer-growth forests in California. They are intolerant of high temperatures and inhabit cool, moist, well-shaded habitats. In summer the owls roost in north-facing slopes in dense overhead canopy, while in winter they may roost in oak habitats. They nest in tree or snag cavities, or in broken tops of large trees. Mature multi-layered forests are required for breeding. Territories for this owl are very large. This species is very sensitive to habitat disturbance and destruction, predation by other birds, and low reproductive success.

  Habitat requirements for this species are met on the shaded north- or east-facing slopes in dense Douglas fir/hardwood forest on the western two-thirds of the property. A survey for this species is being conducted by the project forester and will be available for the CEQA review process.

- **Pallid bat (*Antrozous pallidus*):**

  Optimal habitat for these bats consists of open, dry habitats with rocky areas, but the bats are also found in oak savanna grasslands, and in open forest and woodlands with access to riparian and open water for feeding and drinking in northern California. Foraging occurs over open country. These bats prefer the cool summer temperatures of caves, crevices, and mines as roosting sites where they are known to wedge themselves into small spaces; they will also roost in buildings, bridges, and hollow trees.

Preferred roosts are high above the ground and inaccessible to terrestrial predators, although they are occasionally found roosting on the ground underneath sacks and other items left by humans. This species may be present in the forest above the valley.

Note: *Even when lacking sensitive status, migratory passerines and birds of prey are protected under the Migratory Bird Treaty Act and California Fish and Wildlife Code. Removal or trimming of trees has a potential to result in an incidental take of eggs, or nestlings if clearing of tree habitat occurs during the nesting season (February 1 through August 31).*

5.0 FIELD SURVEY RESULTS

5.1 Botanical Field Survey Results: Table 4 presents the results of the floristic-level botanical survey of the entire parcel. Each of the sensitive plant taxa potentially occurring at within the property and listed in Tables 2 and 3 was specifically searched for during the surveys including non-vascular plants. A total of 105 native and introduced plant taxa were identified.

One plant taxon with sensitive regulatory status, **Northern California black walnut (*Juglans hindsii*)**, is present on the property in the abandoned orchard. Due to the widespread loss of these natural populations throughout Northern California, Northern California black walnut is listed as a CNPS List 1B species. However, the walnut trees on this property were cultivated as part of a former walnut orchard. Northern California black walnut was commonly used as a graft for English walnut trees in these orchards because their roots are largely immune to attack by native root parasites. The black walnut trees on the property, including naturalized trees from the orchard, do not qualify as sensitive and no special review or mitigation is required for them.

Note: *Even when a site meets the generalized habitat description for a sensitive plant taxon, this is not a guarantee that it is present. The precise habitat requirements for any species cannot be known in most cases. Plants with sensitive regulatory status are rare because they have a narrow band of habitat criteria that must be met. These may include a wide range factors including microclimate, seasonal soil moisture, soil chemistry and texture, and presence or absence of specific pests or competitors.*

At present the specifics of these factors are not known for the vast majority of plant taxa. This issue is understood by regulatory biologists and is dealt with through the requirement that a floristic-level botanical survey be conducted which lists all plants occurring at a site throughout the full range of blooming seasons. Ultimately, the botanical survey determines whether a taxon is present or not present.

5.2 Bat Habitat Survey Results: A survey for bat habitat was included in this assessment. Mature trees within the proposed winery footprint were inspected for potential roosting sites for sensitive bat species. These potential bat habitat sites include hollow trees, trees with open cavities, and trees with exfoliating bark.

Results of bat habitat survey: The winery area is primarily in Douglas fir forest but includes a very small segment of mixed oak woodland at its southeastern end. Other than for dead or decadent trees, Douglas firs provide relatively poor potential for bat roosting compared to oaks which often have hollows and/or peeling bark. Trees within the winery footprint provided poor potential for bat roosting sites. Following the Glass Fire, there are no trees within the winery footprint.

TABLE 4. FLORA OF THE VIDA VALIENTE WINERY PROPERTY

Habit	Species	Common Name	Family	Origin
fern	*Dryopteris arguta*	coastal wood fern	Dryopteridaceae	N
fern	*Polypodium glycyrrhiza*	licorice fern	Polypodiaceae	N
fern	*Adiantum jordanii*	California maiden-hair fern	Pteridaceae	N
fern	*Pentagramma triangularis ssp. triangularis*	gold-back fern	Pteridaceae	N
forb	*Osmorhiza occidentalis*	western sweet cicely	Apiaceae	N
forb	*Pimpinella anisum*	anise	Apiaceae	A
forb	*Sanicula crassicaulis*	Pacific sanicle, Pacific blacksnakeroot	Apiaceae	N
forb	*Torilis arvensis*	field hedge parsley	Apiaceae	A
forb	*Agoseris heterophylla var. heterophylla*	annual agoseris, annual mountain dandelion	Asteraceae	N
forb	*Anisocarpus madioides*	woodland madia	Asteraceae	N
forb	*Cirsium occidentale*	cobweb thistle	Asteraceae	N
forb	*Cirsium vulgare*	bull thistle	Asteraceae	A
forb	*Helminthotheca echoides*	bristly ox-tongue	Asteraceae	A
forb	*Hieracium bolanderi*	Bolander's hawkweed	Asteraceae	N
forb	*Lactuca seriola*	prickly lettuce	Asteraceae	A
forb	*Senecio vulgaris*	common butterweed, common groundsel	Asteraceae	A
forb	*Sonchus asper*	spiny sow thistle, prickly sow thistle	Asteraceae	A
forb	*Achlys californica*	vanilla leaf	Berberidaceae	N
forb	*Amsinckia menziesii*	small-flowered fiddleneck, rancher's fireweed	Boraginaceae	N
forb	*Myosotis latifolia*	broadleaf forget-me-not	Boraginaceae	A
forb	*Brassica nigra*	black mustard	Brassicaceae	A
forb	*Cardamine oligosperma*	bittercress, toothwort	Brassicaceae	N
forb	*Cerastium glomeratum*	mouse-ear chickweed, sticky mouse-ear	Caryophyllaceae	A
forb	*Carex multicaulis*	forest sedge, many-stem sedge	Cyperaceae	N
forb	*Eleocharis macrostachya*	creeping spikerush, pale spikerush	Cyperaceae	N
forb	*Croton setigerus*	turkey mullein	Euphorbiaceae	N
forb	*Acmispon americanus var. americanus*	Spanish lotus	Fabaceae	N
forb	*Lathyrus jepsonii var. californicus*	California tule pea	Fabaceae	N
forb	*Lathyrus vestitus var. vestitus*	perennial sweet pea	Fabaceae	N

Habit	Species	Common Name	Family	Origin
forb	*Lupinus nanus*	sky lupine	Fabaceae	N
forb	*Trifolium hirtum*	rose clover	Fabaceae	A
forb	*Trifolium subterraneum*	subterranean clover	Fabaceae	A
forb	*Trifolium willdenovii*	tomcat clover	Fabaceae	N
forb	*Vicia americana var. americana*	American vetch	Fabaceae	N
forb	*Vicia sativa ssp. sativa*	spring vetch	Fabaceae	A
forb	*Vicia villosa ssp. villosa*	winter vetch, hairy vetch	Fabaceae	A
forb	*Erodium cicutarium*	red-stem storksbill	Geraniaceae	A
forb	*Geranium dissectum*	cut-leaved geranium	Geraniaceae	A
forb	*Geranium robertianum*	Robert's geranium	Geraniaceae	A
forb	*Nemophila menziesii*	baby blue eyes	Hydrophyllaceae	N
forb	*Nemophila pedunculata*	littlefoot nemophila	Hydrophyllaceae	N
forb	*Iris macrosiphon*	bowl-tubed iris	Iridaceae	N
forb	*Salvia sonomensis*	Sonoma creeping sage	Lamiaceae	N
forb	*Stachys albens*	cobwebby hedge nettle, white-stem hedge nettle	Lamiaceae	N
forb	*Calochortus amabilis*	Diogenes lantern, golden fairy lantern	Liliaceae	N
forb	*Chlorogalum pomeridianum*	wavyleaf soap plant	Liliaceae	N
forb	*Dichelostemma capitatum ssp. capitatum*	blue dicks	Liliaceae	N
forb	*Prosartes hookeri*	Hooker's fairy bell	Liliaceae	N
forb	*Claytonia perfoliata ssp. perfoliata*	miner's lettuce	Montiaceae	N
forb	*Trientalis latifolia*	Pacific starflower	Myrsinaceae	N
forb	*Eschscholzia californica*	California poppy	Papaveraceae	N
forb	*Plantago lanceolata*	English plantain	Plantaginaceae	A
forb	*Delphinium nudicaule*	red larkspur	Ranunculaceae	N
forb	*Ranunculus occidentalis*	western buttercup	Ranunculaceae	N
forb	*Galium aparine*	goose grass, common bedstraw	Rubiaceae	N
forb	*Galium porrigens var. porrigens*	climbing bedstraw, graceful bedstraw	Rubiaceae	N
forb	*Maianthemum racemosum*	feathery false lily of the valley, false Solomon's seal	Ruscaceae	N
forb	*Lithophragma heterophyllum*	hill star, woodland star	Saxifragaceae	N
forb	*Lithophragma parviflorum*	woodland star	Saxifragaceae	N

Habit	Species	Common Name	Family	Origin
forb	*Verbascum thapsus*	woolly mullein	Scrophulariaceae	A
forb	*Typha angustifolia*	narrow-leaf cattail	Typhaceae	N
forb	*Viola lobata ssp. integrifolia*	pine violet, delta leaved forest violet	Violaceae	N
forb	*Tribulus terrestris*	puncture vine, goathead	Zygophyllaceae	A
grass	*Avena barbata*	slender wild oat	Poaceae	A
grass	*Briza maxima*	big quaking grass	Poaceae	A
grass	*Bromus carinatus var. carinatus*	California brome	Poaceae	N
grass	*Bromus diandrus*	ripgut grass, ripgut brome	Poaceae	A
grass	*Bromus hordeaceus*	soft chess	Poaceae	A
grass	*Cynosurus echinatus*	hedgehog dogtail, annual dogtail	Poaceae	A
grass	*Elymus glaucus ssp. glaucus*	blue wildrye	Poaceae	N
grass	*Festuca californica*	California fescue	Poaceae	N
grass	*Festuca myuros*	rattail sixweeks grass	Poaceae	A
grass	*Festuca perennis*	perennial ryegrass, Italian rye grass	Poaceae	A
grass	*Hordeum marinum ssp. gussoneanum*	Mediterranean barley	Poaceae	A
grass	*Melica geyeri*	Geyer's onion grass	Poaceae	N
grass	*Melica torreyana*	torrey melic	Poaceae	N
grass	*Triticum aestivum*	common wheat, winter wheat	Poaceae	A
shrub	*Toxicodendron diversilobum*	poison oak	Anacardiaceae	N
shrub	*Corylus cornuta var. californica*	California hazel	Betulaceae	N
shrub	*Symphoricarpos albus var. laevigatus*	common snowberry	Caryophyllaceae	N
shrub	*Cercis occidentalis*	western redbud	Fabaceae	N
shrub	*Cytisus scoparius*	Scotch broom	Fabaceae	A
shrub	*Quercus wislizeni var. frutescens*	interior live oak	Fagaceae	N
shrub	*Mimulus aurantiacus ssp. aurantiacus*	bush monkeyflower, sticky monkeyflower	Phrymaceae	N
shrub	*Crataegus monogyna*	hawthorn	Rosaceae	A
shrub	*Heteromeles arbutifolia*	toyon	Rosaceae	N
shrub	*Rosa californica*	California wild rose	Rosaceae	N
shrub	*Rubus armeniacus*	Himalayan blackberry	Rosaceae	A
shrub	*Rubus ursinus*	California blackberry	Rosaceae	N
tree	*Cornus glabrata*	smooth-leaf dogwood, brown dogwood	Cornaceae	N
tree	*Arbutus menziesii*	Pacific madrone	Ericaceae	N

Habit	Species	Common Name	Family	Origin
tree	*Quercus agrifolia*	coast live oak	Fagaceae	N
tree	*Quercus douglasii*	blue oak	Fagaceae	N
tree	*Quercus kelloggii*	California black oak	Fagaceae	N
tree	*Aesculus californica*	California buckeye	Hippocastanaceae	N
tree	***Juglans hindsii***	**Northern California black walnut; CNPS Rank 1B.1 (orchard)**	**Juglandaceae**	**N**
tree	*Umbellularia californica*	California bay	Lauraceae	N
tree	*Fraxinus latifolia*	Oregon ash	Oleaceae	N
tree	*Pinus ponderosa*	ponderosa pine	Pinaceae	N
tree	*Pinus sabiniana*	ghost pine, foothill pine	Pinaceae	N
tree	*Pseudotsuga menziesii var. menziesii*	Douglas fir	Pinaceae	N
tree	*Salix laevigata*	red willow	Salicaceae	N
tree	*Acer macrophyllum*	big-leaf maple	Sapindaceae	N
vine	*Symphoricarpos mollis*	tripvine, creeping snowberry	Caprifoliaceae	N
vine	*Vitis californica*	California wild grape	Vitaceae	N

Origin: N = Native, A = Alien

6.0 NAPA COUNTY WOODLAND ASSESSMENT

This woodland analysis follows a protocol reviewed and approved by Napa County planning staff in January of 2008.

6.1 Procedure: The Vida Valiente winery site and accessory facilities are proposed mostly within the woodlands and forest, with small areas of development within the ruderal areas near the road. The makeup of these plant communities is described in detail in section 3.3.

Within each of the woodlands/forest one study plot was selected and analyzed, with the representative species makeup scaled to account for the total mapped area present within the survey area using statistical tools. This is the only practical method of estimating the number and species of trees over large survey areas. The tree sample plots, including waypoints for trees used in the analysis, are mapped on **Figure 2**, with specific instance information presented in **Appendix C.**

Tables 5 and 6 provide an estimate of the species and number of trees that will be impacted by the proposed development based on the mapping methods outlined above.

TABLE 5. TREE SURVEY DATA SUMMARY – MIXED OAK WOODLAND

SPECIES	NUMBER IN SURVEY AREA	AVERAGE DBH (INCHES)	AVERAGE # OF TRUNKS PER ACRE[4]
BAY	5	15.8	5.82
BLAK	2	18.5	2.33
BLM	6	8.2	6.98
CLO	1	60.0	1.16
DF	1	42.0	1.16
OASH	1	15.0	1.16
OWO	15	16.4	17.46
PP	3	17.0	3.49
TOTAL	**34**	**17.0**	**39.57**
Total area of sample plot		37431ft^2	
Average canopy size[1]		881ft^2	
Average distance between trunks[2]		33ft	
Canopy closure[3]		80%	

TABLE 6. TREE SURVEY DATA SUMMARY – DOUGLAS FIR FOREST

SPECIES	NUMBER IN SURVEY AREA	AVERAGE DBH (INCHES)	AVERAGE # OF TRUNKS PER ACRE[4]
BAY	3	12.0	8.60
BLM	1	8.0	2.87
DF	26	17.6	74.57
TOTAL	**30**	**16.7**	**86.05**
Total area of sample plot		15,187ft^2	
Average canopy size[1]		481ft^2	
Average distance between trunks[2]		22ft	
Canopy closure[3]		95%	

Key:

BAY = California Bay ***BLAK = California Black Oak*** ***BLM = Bigleaf Maple***
CLO = Coast Live Oak ***DF = Douglas Fir*** ***OASH = Oregon Ash***
OWO = Oregon White Oak ***PP = Ponderosa Pine***

GPS waypoint for each tree is indicated on the vegetation map provided in Figure 2.

1. Average canopy size per tree/trunk = (area of test plot X percent canopy closure)/combined # of trees in test plots
2. Average distance between trunks = square root of (sample area/total number of trunks)
3. Total area of canopy in community/total area of community
4. Total number of trunks per acre = ((ft^2/acre)/area of test plot)) X number of trunks in test plot

Table 7 provides an estimate of the species and number of trees that will be impacted by vineyard development in each of the proposed vineyard blocks based on the analysis provided above.

TABLE 7. ESTIMATED NUMBERS & SPECIES OF TREES WITHIN THE WINERY FOOTPRINT PRIOR TO THE GLASS FIRE (2021 Note - *No trees remain within the winery footprint*)

Feature	Number and Species of Trees								Total # of Trees per Block
	BAY	BLAK	BLM	CLO	DF	OASH	OWO	PP	
Driveways & Parking	4	0	0	0	4	0	0	0	**4**
Landscaping	2	0	1	0	20	0	1	0	**44**
Structures	3	0	1	0	33	0	0	0	**34**
Cave Root zone	0	0	0	0	0	0	0	0	**0**
Total # Each Species	9	0	2	0	57	0	1	0	**Total estimated trees in winery footprint = 82**

Note 1: The architect has provided what appears to be a surveyed map of trees within the project footprint showing trees to be removed (Vida Valiente Plans Sheet C2). This map should be considered a more accurate estimate of pre-Glass Fire trees within the winery footprint than the statistical estimates we provide in **Table 7**. **Tables 5 and 6** in conjunction with **Table 1** provide forest and woodland acreage estimates required for determining preservation ratios and in defining the species makeup and dominance of these communities.

Note 2: The areas in **Figure 2** designated for wastewater treatment are not included in the tree loss estimates. Based on the limited available research we were able to obtain on this subject[3], the effect of slow-rate infiltration in established western Douglas fir forests may result in increased growth rate of young trees but does not have a measurable effect on established trees. However, the application rate should be adjusted to avoid phosphate overloading. It is assumed that this issue will be addressed in required Regional Water Quality Control District wastewater discharge permit requirements.

Note 3: The adverse effects of cave boring beneath forested habitat should be limited to surface areas within 60 vertical inches of cave ceilings. Northwest Biosurvey conducted a literature search and written review for the City of St. Helena on this subject for a cave project applied for in 2006. That response (with specific project information redacted) is provided in **Appendix D**. Based on the Natural Resources Conservation Service soil descriptions for the project area soils (*Cortina Very Gravelly Loam 0-5 percent* and *Forward Gravelly Loam 30-70 percent),* the rooting depths of these soils are 60 inches and 40 inches respectively. The Service defines rooting depth as "*the depth to which a soil is readily penetrated by roots and utilized for extraction of water and plant nutrients*".

Based on the elevation drawings of the cave complex provided on page A4.01 of the Signum Architecture *Vida Valiente* Plans dated 2-28-20, the hill slope above the cave entrance is 24-degrees or 45.45-percent. At this slope, a soil depth above the cave roof of 60-inches is reached at a horizontal distance of ~11 feet up-slope from the cave entrance. Trees above and less than 11 feet from the cave entrance would potentially suffer root damage and possible loss. These areas are included in **Table 7** and shown in **Figure 2**. Based on the very small cumulative area in this category, the tree loss calculations indicate that trees are "unlikely" to be present within the potential root damage zone.

6.2 Regional Setting and Continuity with Surrounding Woodlands and Other Habitat: The Vida Valiente Winery property occupies the east slope of a ridge which

[3] H.L. McKim et al. 1982: *Wastewater Application in Forest Ecosystems; U.S. Army Corps of Engineers CRREL Report 82-19.*

extends westward and then south into the Napa Valley from the western toe of the Howell Mountain Range. As it extends south, it is separated from the rest of the Howell Mountains by the Pratt Valley, a narrow extension of the adjacent Napa Valley. Bell Creek drains through this narrow valley from its headwaters to the north before entering the Napa Valley and its confluence with the Napa River. The bulk of the vineyard property occupies the steep eastern slope of the ridge. The property levels out onto the Pratt Valley, ending along the course of Bell Creek to the east.

Along much of the length of the Napa Valley, the western slopes of the Howell Mountain Range support dense residential and vineyard development. This development occupies all of the surrounding valley terrain and extends up adjacent slopes, ending only where the steepness of the terrain prevents it. Wildlife use and movement here is generally limited to the patchwork of remaining natural habitat on the region's steeper slopes and to narrow riparian corridors preserved through riparian setbacks. These areas are shown in the map of regional context and wildlife corridors provided in **Figure 3**.

Natural habitats along the western slope consist of blue oak woodlands and grasslands on west- and south-facing slopes. Shaded north- and east-facing slopes support mixed oak woodland and Douglas fir forest. Wider remaining riparian corridors support riparian woodland with a mix of red willow, Fremont cottonwood, and, in more shaded areas, white alder.

Effects of the Glass Fire (2021 review):

Based on a large number of post-fire woodland surveys and monitoring conducted by Northwest Biosurvey staff within this region during the past six years, it is likely that Douglas fir forest with surviving crown will recover. Most oaks will recover while shrub species in all but the hottest fire zones will recover through stump sprouting. Heavily burned areas will recover through seral regeneration beginning with development of a native shrub cover among any surviving oaks. Within conifer forest, cleared areas will generally be colonized by shrub cover and oaks which will eventually provide shade for the development of Douglas fir forest. This will be a decades-long process that will include the gradual recovery of small native wildlife species such as reptiles, amphibians, rodents, and other small mammals. This will include recolonization from surrounding, unaffected populations.

The Glass Fire has had a significant adverse impact on each of the wildlife habitat values discussed below through loss of tree and shrub canopy cover; however, there may be an increase in mammalian herbivores such as deer and rabbits, etc., due to increased productivity of the ground cover layer and gradual regrowth of woody vegetation. Woodland burning was a wildlife management tool used by Native Americans to increase deer populations (fires were generally less severe due to more frequent burning).

6.3 Wildlife Value of Woodlands in the Survey Area:

- **Core Habitat Value:** Core habitat is habitat provided by a plant community in its pure form without the direct influence of surrounding plant communities and intermediate, overlapping edge habitat (edge effect). While many wildlife species can use a wide range of habitats and may even need a mix of habitats to meet their needs, some species are limited to core habitat within a plant community or at least require the presence of core habitat within their home range. This typically requires that the patch size (overall aerial extent) of the habitat be large enough to exclude the edge effect from the surrounding habitats.
-

  Wildlife dependent on core woodland and forest habitat consist primarily of species using trees as shelter or whose food sources are associated with trees. This includes amphibians and reptiles using downed woody debris for cover and whose food consists of insects associated with woody debris. Woodpeckers are obviously associated with woodlands but many other passerines (perching birds) also depend on woodland insects and plant material or are dependent on dense woodland for nesting sites and cover. Larger mammals such as deer and their predators typically require sites providing dense cover not provided by more open woodlands and grasslands.

  The upper north-facing slopes in the southern two-thirds of the property provide excellent core woodland and forest habitat that is contiguous with similar surrounding natural habitat. As with other preserved habitats in the area, the slope here is steep. The habitat is excellent for species requiring cool shaded core forest habitats such as northern spotted owls.

- **Cover and Edge Habitat for Surrounding Communities:** Edge habitat consists of boundaries between structurally different vegetation types with particular emphasis on boundaries between woodland or forest and open habitats such as grasslands or shrublands. Edge areas often support an increased density and diversity of wildlife species due to the overlap of two different plant communities and the unique assemblages of wildlife they support. Many species such as raptors require edge. Raptors use tree canopies as perches from which they can scan adjacent grasslands for prey. Deer will feed in open grassland if nearby tree cover is available.

  Edge habitat on the Vida Valiente property is limited to the relatively abrupt interface between the dense Doulas fir and mixed oak woodlands and the developed residential and vineyard habitat along the northern, valley portion of the

property. This edge would provide suitable nesting and perching habitat for raptors using the open valley habitats for hunting.

- **Value as a Wildlife Corridor:** The project area does not occur within any of the wildlife corridors identified as a *CalWild Linkage* shown in Map 4-2 of the Napa County BDR. It is important to note, however, that these linkage maps pertain to large-scale regional movement of wildlife (typically within valleys).

  For local diurnal movement (daily movement between sources of food, cover, and water), wildlife generally follows stream courses when moving up and down slopes and use adjacent habitats (often preferring woodlands) for cover, browse, or hunting. **Figure 3** shows the most likely diurnal movement corridors through the region. These are mapped as green zones along the principal stream courses. The actual width of usable corridors would continually change based on the density of vegetation, steepness of adjacent slopes or presence of unsuitable habitat such as fenced vineyards and residential areas.

  Bell Creek and its riparian corridor provides a significant potential movement corridor for large and medium sized mammals, aquatic herptiles and fish. The creek intersects the northeastern corner of the Vida Valiente parcel, flowing within a narrow riparian corridor. While it lacks direct continuity with the remaining natural habitat occupied by the northern portion of the Vida Valiente property, the residential use on the adjacent parcel to the east is relatively open and contiguous with the narrow open areas east of the Vida Valiente vineyard block in that location. Wildlife movement from the creek channel to woodland and forest habitat to the south is likely to occur here. Use of fencing or other obstacles to wildlife movement should be avoided here.

- **Presence of Critical Plant Community or Wildlife Resources:**

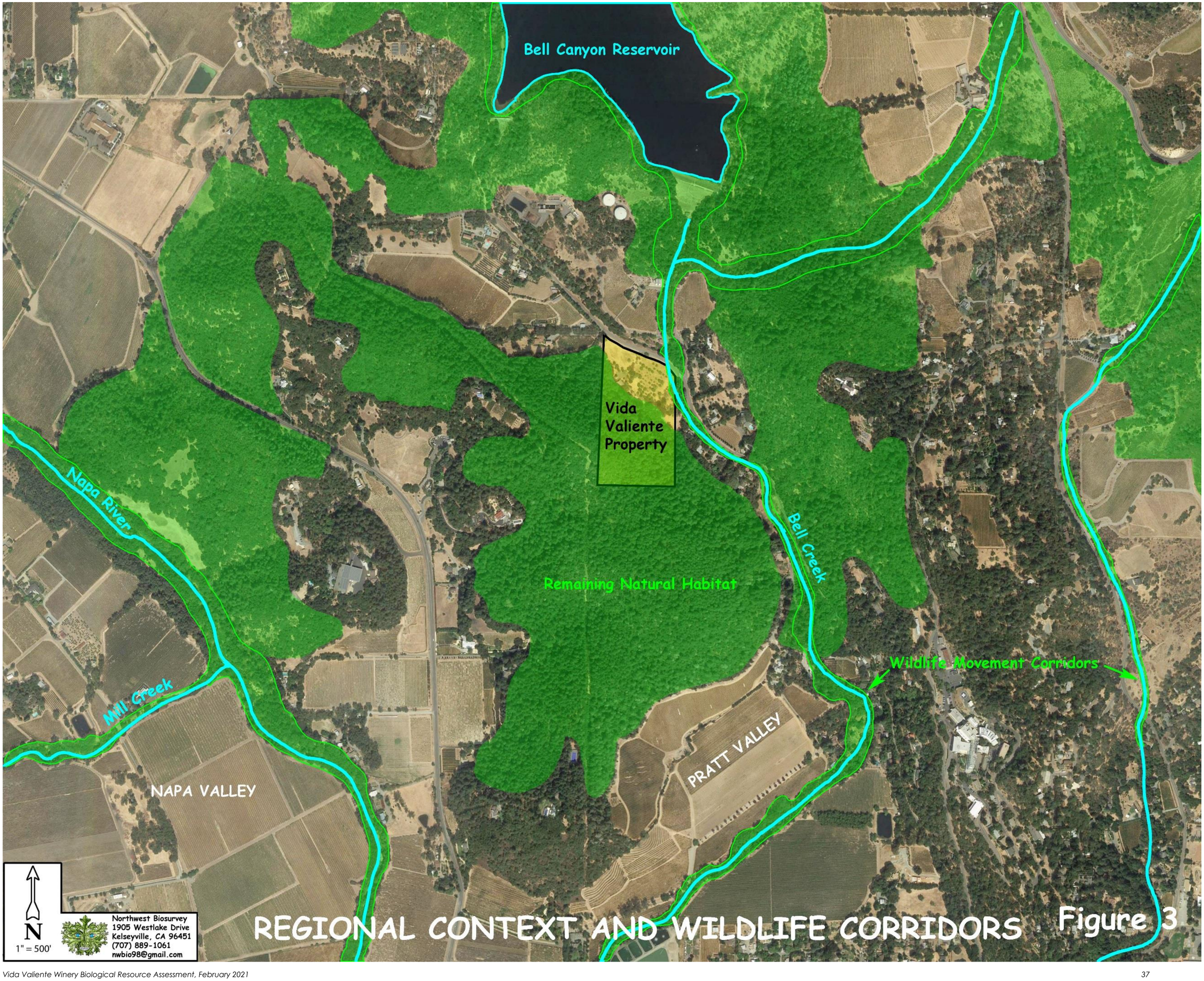
  Critical Plant Communities: Both Red Willow Riparian Forest and Old Growth Douglas Fir-Ponderosa Pine Forest are included in the list of 23 sensitive biotic communities on page 4-41 of the Napa County Baseline Data Report (BDR). Neither of the red willow or Douglas fir communities on the Vida Valiente property would meet the definitions of these communities in the BDR.

  The red willow thicket along Bell Creek is a shrubby component of the riparian habitat and lacks the patch size (aerial extent) and age (mature, established trees) required to qualify as red willow riparian forest. The Douglas fir forest is relatively young based on average trunk diameters. Few forests in this area would qualify as old growth due to the intensive logging and fire history of the Napa Valley.

Critical Wildlife Resources: Bell Creek and its riparian corridor serve as a critical wildlife resource connecting natural habitats in the region and providing an important wildlife movement corridor. A bat habitat survey conducted for trees within the project impact area indicates that these trees (primarily Douglas fir) lack the necessary hollows and peeling bark to serve as bat roosting sites.

- **Woodland Age Class and Size:** A woodland assessment was conducted for this project (Section 7.0). Based on this assessment, the woodland communities contain a mix of age classes and seral stages. This mix indicates that these forests and woodlands are healthy and regenerating.

- **Trees with Unique Wildlife Value:** Woodlands on the property provide significant wildlife value as discussed above in this section; however, trees providing unique habitat such as bat habitat or acorn woodpecker storage trees were not identified within the proposed winery development area.



REGIONAL CONTEXT AND WILDLIFE CORRIDORS Figure 3

7.0 CONFORMANCE WITH NAPA COUNTY BASELINE DATA REPORT (BDR)

Each of the pertinent sections of the Napa Count Baseline Data Report was reviewed to determine whether the issues and biological resources with special status in Napa County have been addressed in this biological assessment.

7.1 Sensitive Biotic Communities: The survey area does not contain plant communities that would qualify as sensitive in the Napa County Baseline Data Report (See Section 6.3-Critical Plant Communities above).

7.2 Special Status Plants and Wildlife: As noted in Section 2 (Assessment Methodology), the pre-survey research conducted for this project included systematic reviews of the California Natural Diversity Database (CNDDB), California Native Plant Society Electronic Inventory, and California Department of Fish and Wildlife's California Wildlife Habitat Relations Program. The list of special status plants and wildlife used in the BDR is derived from the CNDDB. Additionally, Tables 4-6 and 4-7 of the Special Status Plants and Wildlife sections of the BDR were reviewed to assure consistency between the lists. Most species listed in the CNDDB are subject to CEQA review pursuant to Section 15380 (d) of the CEQA Guidelines.

- Plants: No special status plants were identified within the survey area (the Northern California black walnut present was part of an orchard).

- Wildlife: The property may provide habitat for the following wildlife species with sensitive regulatory status:

Steel head trout-Central California Coast DPS	Foothill yellow-legged frogs
Western pond turtle	Purple martin
Sharp-shinned hawk	Yellow-breasted chat
Yellow warbler	Northern spotted owl
Pallid bat	

7.3 Potential Wildlife Movement Corridors: The CalWild Linkage Map presented in Map 4-2 of the BDR was reviewed with respect to this project. The project area is not within a movement area as defined by the CalWild database. Bell Creek, an important regional wildlife movement corridor passes through the northeastern corner of the property.

7.4 Fisheries Resources: Bell Creek seasonally supports steelhead trout-Central California Coast DPS (distinct population segment).

8.0 SUMMARY, IMPACT ANALYSIS, AND RECOMMENDATIONS

8.1 Summary: This biological resource assessment involved the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity of the project:

- Review of current California Natural Diversity Database (CNDDB) mapping of known sensitive plant and wildlife populations within the region.
- An analysis of the suitability of the site for sensitive plants and wildlife using the California Native Plant Society *Electronic Inventory of Rare and Endangered Vascular Plants of California,* and the California Department of Fish and Wildlife's *California Wildlife Habitat Relations System*.
- A California Department of Fish and Wildlife protocol, floristic-level field survey of the plants occurring within and in the immediate vicinity of the project.
- Review of the Napa County Baseline Data Report (BDR), 2005.

Sensitive Plants: A total of 105 native and introduced plant taxa were identified on the parcel during the in-season, floristic-level botanical surveys. One plant taxon with sensitive regulatory status, **Northern California black walnut (*Juglans hindsii*)**, is present on the property in the abandoned orchard. As part of an orchard, it is not considered to have sensitive status. As used here, the term sensitive includes species having state or federal regulatory status, defined as Rare Plant Ranks 1B through 4 by the California Native Plant Society, or otherwise listed in the California Natural Diversity Database.

Sensitive Wildlife: A total of 20 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDB database for the St. Helena quadrangle. Based on the habitat assessment, the following wildlife species with sensitive regulatory status may occur on the property:

- Steelhead-Central California Coast DPS
- Foothill yellow-legged frog
- Western pond turtle
- Purple martin
- Sharp-shinned hawk
- Yellow warbler
- Yellow-breasted chat
- Northern spotted owl
- Pallid bat

8.2 Potential Impacts and Proposed Mitigation for Biological Resources:

(For all recommended mitigation measures accepted as conditions of approval, the text should be modified to use declarative language, i.e. "should" should become "shall", etc.)

A. Habitat Fragmentation

Potential Impacts:

The Napa County Baseline Data Report emphasizes preservation of wildlife corridors and prevention of habitat fragmentation. The Bell Creek riparian corridor provides the principal movement corridor through the Pratt Valley connecting the Howell Mountain Range in this area to the Napa Valley. Additionally, Bell Creek contains steelhead which move through the channel segment on the Vida Valiente property. Impacts to this riparian corridor have the potential to result in habitat fragmentation and disrupt fish and wildlife movement.

The Douglas fir forest and mixed oak woodlands in the northern two-thirds of the property are part of a continuous area of remaining natural habitat occupying the ridge separating the Pratt Valley and Bell Creek corridor from the Napa Valley. The presence of this dense forest and woodland surrounded by similar, continuous natural habitat provides this site with core forest value for local wildlife. Any project features that would restrict wildlife movement between Bell Creek and woodland and forest habitat to the south has the potential to result in habitat fragmentation.

Proposed Mitigation:

Measure 1: In order to avoid habitat fragmentation and impacts to fisheries, it is recommended that vineyard fencing should be restricted to the vineyard blocks and developed winery site west of Bell Creek as shown in the proposed fence location in **Figure 2**. No fencing should be installed south of the fence location shown in **Figure 2**.

B. Woodland and Forest Resources

Potential Impacts:

As shown in **Table 1**, the project would result in the loss of 0.72 acres (7.33-percent) of Douglas fir forest and 0.13 acres (5.70-percent) of mixed oak woodland on the property. Based on the sample plot analysis conducted in this assessment, this would result in a loss of approximately 82 trees in a mix of species and age classes (including trees down to 6 inches DBH). The project architect has provided a map of trees to be removed on Sheet C.2 of the Vida Valiente Plans. The plan shows 15 trees marked for removal. No definition is provided for the age class and size

criteria used. Based on a review of the selection criteria used, the Architect's mapped tree loss estimate should be considered more accurate than the sample plot and statistical methods used here.

No research could be found on the effects of wastewater disposal on the ecology of natural forest and woodland habitat. Available research[4] addresses the effects of wastewater from a forestry standpoint (tree growth and harvesting). As noted in **Section 6.1,** this use does not have an apparent effect on established trees and may result in an increase growth rate of young trees. However, it is likely that surface irrigation during the summer and fall months will result in a shift in species dominance and makeup to more mesic (moist soil) species. The effect on wildlife is not determined but the species mix of small mammals, herptiles (reptiles and amphibians), and birds may gradually shift to resemble more closely those of shaded stream canyons. The patch size of this site is too small to result in a significant shift in the presence of medium and large mammals.

The Douglas fir forest is likely to eventually resemble forest in deep canyons near the splash zones of perennial creeks, i.e. an increase in ferns and more mesic forbs such as vanilla leaf, baby blue eyes, and false Solomon's seal and shrubs such as California hazel, common snowberry, California blackberry, and California wild grape. More xeric (dry soil) species would be outcompeted. These would include bush monkeyflower, western redbud, interior live oak, and toyon.

The timing and duration of wastewater spraying will be important in determining the possible shift in forest ecology. It should be consistent seasonally and annually in order assure that species shifts are maintained, i.e. a newly established mesic ecology would become dependent on the hydrologic regime that established it.

Proposed Mitigation:

Measure 2: The significance of this loss of woodland habitat must be determined by County staff to be in conformance with *Napa County General Plan policy CON-22*. Standard mitigation within the County of Napa calls for preservation of 70-percent of the existing woodland and forest canopy. The current winery plan would remove approximately 0.68 acres (6.92-percent) of Douglas fir forest and 0.68 acres (3.07-percent) of mixed oak woodland[5]. The proposed loss would conform to County woodland preservation policies.

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[4] ibid footnote 3.

[5] *Douglas fir forest and mixed oak woodland acreage within the proposed wastewater disposal area are not counted as a loss of acreage (See Section 8.2 (B) for an explanation.*

Measure 3: Consistent timing, duration, and volume of effluent spraying and its effect on the ecology of the Douglas fir and mixed oak woodland should be considered and addressed in the Regional Water Quality Control Board waste discharge requirements. The avoidance of excessive phosphate loading should also be addressed.

C. Sensitive Plants and Wildlife

Potential Impacts:

A full floristic-level botanical survey was conducted within the proposed winery development area and vineyard blocks. No plants with sensitive regulatory status were found.

Bell Creek contains a population of steelhead (*Oncorhynchus mykiss irideus*), a Distinct Population Segment (DPS). Impacts to Bell Creek have a potential to result in incidental take of this species and/or to result in disruption of movement or loss of habitat. Additionally, this population has been impacted by seasonal reduction in stream flows due to low rainfall possibly combined with over-drafting for residential and agricultural use. Fluctuation in releases from Bell Canyon Reservoir may also be a factor but this has not been verified. Napa County Policy CON-13 requires that impacts to habitats supporting special status species be avoided to the maximum extent feasible.

Impacts to Bell Creek or its riparian buffer has the potential to result in an incidental take of foothill yellow-legged frog and western pond turtles or to result in loss of habitat.

The property contains mature oak and Douglas fir trees that may provide nesting habitat for birds. Loss of trees during the breeding season (February 1 through August 31 has a potential to result in incidental take of birds with sensitive regulatory status and/or birds protected under the Migratory Bird Act and California Fish and Wildlife Code.

Proposed Mitigation:

Measure 4: Steelhead, Foothill yellow-legged frogs, Western pond turtles

Implementation of the fish and wildlife buffer recommended in Measure 1 above would significantly reduce the potential for direct impacts to steelhead, foothill yellow-legged frogs and western pond turtles.

In order to avoid cumulative impacts due to reduced stream flows, it is recommended that vineyard irrigation be via a well, placed far enough from Bell Creek and deep enough to avoid drawdown of summer and fall stream flows.

Measure 5: Birds

Under the Migratory Bird Treaty Act and California Fish and Game Code, nesting birds are protected from incidental take. Removal of trees during the nesting season (February 1 to August 31) must be preceded by a survey for nesting birds conducted by a qualified biologist. In the event that nesting birds are found, a suitable construction buffer will be established around the nest site until either the end of the nesting or roosting season or upon determination by a qualified biologist that fledging has been completed or that the nest or roost has been abandoned.

If the recommended fish and wildlife buffer is implemented, surveys would not be required for yellow-breasted chat or yellow warbler, which are riparian species using red willow thicket as nesting habitat.

D. Waters of the U.S.

A delineation of waters of the U.S. was conducted for this property by Northwest Biosurvey in 2019. The document is titled: *Delineation of Waters of the U.S. for Crystal Vines Winery, Napa County, California, September 17, 2019*. That delineation identified 0.0826 acres of possible waters of the U.S. as ephemeral drainage (on-site ditch) and perennial stream channel (Bell Creek).

Potential Impacts:

Any project activities that would result in the fill of waters of the U.S. would be subject to permit requirements under the Clean Water Act.

Proposed Mitigation:

Measure 6: Implementation of the fish and wildlife buffer recommended in Measure 1 above would avoid the potential for fill or grading within Bell Creek. Placement of fill within the on-site ditch may require a Nationwide permit by the Corps of Engineers (possibly a non-reporting permit under the Nationwide Permit Program), along with a 401 Water Quality Certification from the Regional Water Quality Control Board, and 1604 Stream Alteration Agreement from the California Department of Fish and Wildlife. The County of Napa may require stream setbacks.

E. Erosion Control

Potential Impacts:

Vegetation clearing and grading activities have a potential to result in increased sediment runoff to the Bell Creek and the Napa River.

Proposed Mitigation for impacts due to Erosion and Sedimentation:

***Measure 7*:** All work in or near the delineated ephemeral drainages should include extensive erosion control measures consistent with Napa County Grading Regulations in order to avoid erosion and the potential for transport of sediments the Napa River. Coverage under the National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges associated with a Construction Activity (General Permit) and a Storm Water Pollution Prevention Plan (SWPPP) may be required.

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APPENDIX A

CNDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE SURROUNDING CALIF. 7½' QUADS.

Surrounding 9-Quad List: St. Helena Quadrangle

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Aetna Springs	Dicamptodon ensatus	California giant salamander	None	None	SSC	-
Aetna Springs	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
Aetna Springs	Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Aetna Springs	Agelaius tricolor	tricolored blackbird	None	Threatened	SSC	-
Aetna Springs	Ardea herodias	great blue heron	None	None	-	-
Aetna Springs	Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-
Aetna Springs	Bombus caliginosus	obscure bumble bee	None	None	-	-
Aetna Springs	Vandykea tuberculata	serpentine cypress long-horned beetle	None	None	-	-
Aetna Springs	Antrozous pallidus	pallid bat	None	None	SSC	-
Aetna Springs	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
Aetna Springs	Lasionycteris noctivagans	silver-haired bat	None	None	-	-
Aetna Springs	Lasiurus blossevillii	western red bat	None	None	SSC	-
Aetna Springs	Lasiurus cinereus	hoary bat	None	None	-	-
Aetna Springs	Myotis ciliolabrum	western small-footed myotis	None	None	-	-
Aetna Springs	Myotis evotis	long-eared myotis	None	None	-	-
Aetna Springs	Myotis thysanodes	fringed myotis	None	None	-	-
Aetna Springs	Myotis volans	long-legged myotis	None	None	-	-
Aetna Springs	Myotis yumanensis	Yuma myotis	None	None	-	-
Aetna Springs	Emys marmorata	western pond turtle	None	None	SSC	-
Aetna Springs	Serpentine Bunchgrass	Serpentine Bunchgrass	None	None	-	-
Aetna Springs	Wildflower Field	Wildflower Field	None	None	-	-
Aetna Springs	Amorpha californica var. napensis	Napa false indigo	None	None	-	1B.2
Aetna Springs	Amsinckia lunaris	bent-flowered fiddleneck	None	None	-	1B.2
Aetna Springs	Antirrhinum virga	twig-like snapdragon	None	None	-	4.3
Aetna Springs	Astragalus breweri	Brewer's milk-vetch	None	None	-	4.2
Aetna Springs	Astragalus clevelandii	Cleveland's milk-vetch	None	None	-	4.3
Aetna Springs	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	None	None	-	4.2
Aetna Springs	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
Aetna Springs	Centromadia parryi ssp. parryi	pappose tarplant	None	None	-	1B.2
Aetna Springs	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None	None	-	4.2
Aetna Springs	Collomia diversifolia	serpentine collomia	None	None	-	4.3
Aetna Springs	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Aetna Springs	Cypripedium montanum	mountain lady's-slipper	None	None	-	4.2
Aetna Springs	Delphinium uliginosum	swamp larkspur	None	None	-	4.2
Aetna Springs	Eryngium jepsonii	Jepson's coyote-thistle	None	None	-	1B.2
Aetna Springs	Erythranthe nudata	bare monkeyflower	None	None	-	4.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Aetna Springs	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
Aetna Springs	Fritillaria pluriflora	adobe-lily	None	None	-	1B.2
Aetna Springs	Fritillaria purdyi	Purdy's fritillary	None	None	-	4.3
Aetna Springs	Harmonia hallii	Hall's harmonia	None	None	-	1B.2
Aetna Springs	Harmonia nutans	nodding harmonia	None	None	-	4.3
Aetna Springs	Helianthus exilis	serpentine sunflower	None	None	-	4.2
Aetna Springs	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	-	1B.2
Aetna Springs	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	-	1B.2
Aetna Springs	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Aetna Springs	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Aetna Springs	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
Aetna Springs	Lilium bolanderi	Bolander's lily	None	None	-	4.2
Aetna Springs	Lupinus sericatus	Cobb Mountain lupine	None	None	-	1B.2
Aetna Springs	Monardella viridis	green monardella	None	None	-	4.3
Aetna Springs	Navarretia cotulifolia	cotula navarretia	None	None	-	4.2
Aetna Springs	Navarretia jepsonii	Jepson's navarretia	None	None	-	4.3
Aetna Springs	Navarretia paradoxinota	Porter's navarretia	None	None	-	1B.3
Aetna Springs	Navarretia rosulata	Marin County navarretia	None	None	-	1B.2
Aetna Springs	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
Aetna Springs	Ranunculus lobbii	Lobb's aquatic buttercup	None	None	-	4.2
Aetna Springs	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
Aetna Springs	Streptanthus morrisonii ssp. elatus	Three Peaks jewelflower	None	None	-	1B.2
Aetna Springs	Toxicoscordion fontanum	marsh zigadenus	None	None	-	4.2
Calistoga	Dicamptodon ensatus	California giant salamander	None	None	SSC	-
Calistoga	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
Calistoga	Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Calistoga	Taricha rivularis	red-bellied newt	None	None	SSC	-
Calistoga	Accipiter striatus	sharp-shinned hawk	None	None	WL	-
Calistoga	Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-
Calistoga	Syncaris pacifica	California freshwater shrimp	Endangered	Endangered	-	-
Calistoga	Entosphenus tridentatus	Pacific lamprey	None	None	SSC	-
Calistoga	Hysterocarpus traskii pomo	Russian River tule perch	None	None	SSC	-
Calistoga	Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Endangered	Endangered	-	-
Calistoga	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threatened	None	-	-
Calistoga	Bombus occidentalis	western bumble bee	None	None	-	-
Calistoga	Antrozous pallidus	pallid bat	None	None	SSC	-
Calistoga	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
Calistoga	Myotis evotis	long-eared myotis	None	None	-	-
Calistoga	Myotis thysanodes	fringed myotis	None	None	-	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Calistoga	Myotis yumanensis	Yuma myotis	None	None	-	-
Calistoga	Emys marmorata	western pond turtle	None	None	SSC	-
Calistoga	Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	None	None	-	-
Calistoga	Amorpha californica var. napensis	Napa false indigo	None	None	-	1B.2
Calistoga	Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	None	None	-	1B.1
Calistoga	Astragalus breweri	Brewer's milk-vetch	None	None	-	4.2
Calistoga	Astragalus claranus	Clara Hunt's milk-vetch	Endangered	Threatened	-	1B.1
Calistoga	Brodiaea leptandra	narrow-anthered brodiaea	None	None	-	1B.2
Calistoga	Calamagrostis ophitidis	serpentine reed grass	None	None	-	4.3
Calistoga	Ceanothus confusus	Rincon Ridge ceanothus	None	None	-	1B.1
Calistoga	Ceanothus divergens	Calistoga ceanothus	None	None	-	1B.2
Calistoga	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
Calistoga	Centromadia parryi ssp. parryi	pappose tarplant	None	None	-	1B.2
Calistoga	Clarkia breweri	Brewer's clarkia	None	None	-	4.2
Calistoga	Erigeron biolettii	streamside daisy	None	None	-	3
Calistoga	Eryngium constancei	Loch Lomond button-celery	Endangered	Endangered	-	1B.1
Calistoga	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
Calistoga	Fritillaria purdyi	Purdy's fritillary	None	None	-	4.3
Calistoga	Harmonia nutans	nodding harmonia	None	None	-	4.3
Calistoga	Lasthenia burkei	Burke's goldfields	Endangered	Endangered	-	1B.1
Calistoga	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Calistoga	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Calistoga	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
Calistoga	Lessingia hololeuca	woolly-headed lessingia	None	None	-	3
Calistoga	Limnanthes vinculans	Sebastopol meadowfoam	Endangered	Endangered	-	1B.1
Calistoga	Lomatium repostum	Napa lomatium	None	None	-	4.3
Calistoga	Lupinus sericatus	Cobb Mountain lupine	None	None	-	1B.2
Calistoga	Monardella viridis	green monardella	None	None	-	4.3
Calistoga	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	-	1B.1
Calistoga	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
Calistoga	Plagiobothrys strictus	Calistoga popcornflower	Endangered	Threatened	-	1B.1
Calistoga	Poa napensis	Napa blue grass	Endangered	Endangered	-	1B.1
Calistoga	Puccinellia simplex	California alkali grass	None	None	-	1B.2
Calistoga	Ranunculus lobbii	Lobb's aquatic buttercup	None	None	-	4.2
Calistoga	Sidalcea hickmanii ssp. napensis	Napa checkerbloom	None	None	-	1B.1
Calistoga	Spergularia macrotheca var. longistyla	long-styled sand-spurrey	None	None	-	1B.2
Calistoga	Trifolium hydrophilum	saline clover	None	None	-	1B.2
Calistoga	Triteleia lugens	dark-mouthed triteleia	None	None	-	4.3
Chiles Valley	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Chiles Valley	Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Chiles Valley	Agelaius tricolor	tricolored blackbird	None	Threatened	SSC	-
Chiles Valley	Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Chiles Valley	Ardea herodias	great blue heron	None	None	-	-
Chiles Valley	Elanus leucurus	white-tailed kite	None	None	FP	-
Chiles Valley	Pandion haliaetus	osprey	None	None	WL	-
Chiles Valley	Bombus caliginosus	obscure bumble bee	None	None	-	-
Chiles Valley	Antrozous pallidus	pallid bat	None	None	SSC	-
Chiles Valley	Myotis evotis	long-eared myotis	None	None	-	-
Chiles Valley	Myotis yumanensis	Yuma myotis	None	None	-	-
Chiles Valley	Anodonta californiensis	California floater	None	None	-	-
Chiles Valley	Anodonta oregonensis	Oregon floater	None	None	-	-
Chiles Valley	Gonidea angulata	western ridged mussel	None	None	-	-
Chiles Valley	Emys marmorata	western pond turtle	None	None	SSC	-
Chiles Valley	Northern Vernal Pool	Northern Vernal Pool	None	None	-	-
Chiles Valley	Astragalus breweri	Brewer's milk-vetch	None	None	-	4.2
Chiles Valley	Brodiaea leptandra	narrow-anthered brodiaea	None	None	-	1B.2
Chiles Valley	Calamagrostis ophitidis	serpentine reed grass	None	None	-	4.3
Chiles Valley	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	None	None	-	4.2
Chiles Valley	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
Chiles Valley	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None	None	-	4.2
Chiles Valley	Collomia diversifolia	serpentine collomia	None	None	-	4.3
Chiles Valley	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Chiles Valley	Delphinium uliginosum	swamp larkspur	None	None	-	4.2
Chiles Valley	Erigeron greenei	Greene's narrow-leaved daisy	None	None	-	1B.2
Chiles Valley	Fritillaria purdyi	Purdy's fritillary	None	None	-	4.3
Chiles Valley	Helianthus exilis	serpentine sunflower	None	None	-	4.2
Chiles Valley	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	-	1B.2
Chiles Valley	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Chiles Valley	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Chiles Valley	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
Chiles Valley	Lomatium repostum	Napa lomatium	None	None	-	4.3
Chiles Valley	Navarretia rosulata	Marin County navarretia	None	None	-	1B.2
Chiles Valley	Ranunculus lobbii	Lobb's aquatic buttercup	None	None	-	4.2
Chiles Valley	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
Detert Reservoir	Dicamptodon ensatus	California giant salamander	None	None	SSC	-
Detert Reservoir	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
Detert Reservoir	Agelaius tricolor	tricolored blackbird	None	Threatened	SSC	-
Detert Reservoir	Falco mexicanus	prairie falcon	None	None	WL	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Detert Reservoir	Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-
Detert Reservoir	Progne subis	purple martin	None	None	SSC	-
Detert Reservoir	Strix occidentalis caurina	northern spotted owl	Threatened	Threatened	-	-
Detert Reservoir	Hysterocarpus traskii pomo	Russian River tule perch	None	None	SSC	-
Detert Reservoir	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threatened	None	-	-
Detert Reservoir	Bombus caliginosus	obscure bumble bee	None	None	-	-
Detert Reservoir	Hydrochara ricksecker i	Ricksecker's water scavenger beetle	None	None	-	-
Detert Reservoir	Trachykele hartmani	serpentine cypress wood-boring beetle	None	None	-	-
Detert Reservoir	Antrozous pallidus	pallid bat	None	None	SSC	-
Detert Reservoir	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
Detert Reservoir	Lasionycteris noctivagans	silver-haired bat	None	None	-	-
Detert Reservoir	Lasiurus blossevillii	western red bat	None	None	SSC	-
Detert Reservoir	Lasiurus cinereus	hoary bat	None	None	-	-
Detert Reservoir	Myotis ciliolabrum	western small-footed myotis	None	None	-	-
Detert Reservoir	Myotis evotis	long-eared myotis	None	None	-	-
Detert Reservoir	Myotis yumanensis	Yuma myotis	None	None	-	-
Detert Reservoir	Emys marmorata	western pond turtle	None	None	SSC	-
Detert Reservoir	Northern Vernal Pool	Northern Vernal Pool	None	None	-	-
Detert Reservoir	Amorpha californica var. napensis	Napa false indigo	None	None	-	1B.2
Detert Reservoir	Antirrhinum virga	twig-like snapdragon	None	None	-	4.3
Detert Reservoir	Arctostaphylos manzanita ssp. elegans	Konocti manzanita	None	None	-	1B.3
Detert Reservoir	Asclepias solanoana	serpentine milkweed	None	None	-	4.2
Detert Reservoir	Astragalus clevelandii	Cleveland's milk-vetch	None	None	-	4.3
Detert Reservoir	Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	None	None	-	1B.2
Detert Reservoir	Brodiaea leptandra	narrow-anthered brodiaea	None	None	-	1B.2
Detert Reservoir	Calochortus uniflorus	pink star-tulip	None	None	-	4.2
Detert Reservoir	Calyptridium quadripetalum	four-petaled pussypaws	None	None	-	4.3
Detert Reservoir	Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	None	None	-	4.2
Detert Reservoir	Calystegia collina ssp. venusta	South Coast Range morning-glory	None	None	-	4.3
Detert Reservoir	Ceanothus confusus	Rincon Ridge ceanothus	None	None	-	1B.1
Detert Reservoir	Ceanothus divergens	Calistoga ceanothus	None	None	-	1B.2
Detert Reservoir	Ceanothus purpureus	holly-leaved ceanothus	None	None	-	1B.2
Detert Reservoir	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
Detert Reservoir	Collomia diversifolia	serpentine collomia	None	None	-	4.3
Detert Reservoir	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Detert Reservoir	Cryptantha dissita	serpentine cryptantha	None	None	-	1B.2
Detert Reservoir	Delphinium uliginosum	swamp larkspur	None	None	-	4.2
Detert Reservoir	Erigeron biolettii	streamside daisy	None	None	-	3
Detert Reservoir	Erigeron greenei	Greene's narrow-leaved daisy	None	None	-	1B.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Detert Reservoir	Eriogonum umbellatum var. bahiiforme	bay buckwheat	None	None	-	4.2
Detert Reservoir	Erythranthe nudata	bare monkeyflower	None	None	-	4.3
Detert Reservoir	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
Detert Reservoir	Fritillaria purdyi	Purdy's fritillary	None	None	-	4.3
Detert Reservoir	Harmonia hallii	Hall's harmonia	None	None	-	1B.2
Detert Reservoir	Harmonia nutans	nodding harmonia	None	None	-	4.3
Detert Reservoir	Helianthus exilis	serpentine sunflower	None	None	-	4.2
Detert Reservoir	Hesperolinon bicarpellatum	two-carpellate western flax	None	None	-	1B.2
Detert Reservoir	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	-	1B.2
Detert Reservoir	Juncus luciensis	Santa Lucia dwarf rush	None	None	-	1B.2
Detert Reservoir	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Detert Reservoir	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Detert Reservoir	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Detert Reservoir	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
Detert Reservoir	Limnanthes floccosa ssp. floccosa	woolly meadowfoam	None	None	-	4.2
Detert Reservoir	Lomatium hooveri	Hoover's lomatium	None	None	-	4.3
Detert Reservoir	Lupinus sericatus	Cobb Mountain lupine	None	None	-	1B.2
Detert Reservoir	Navarretia myersii ssp. deminuta	small pincushion navarretia	None	None	-	1B.1
Detert Reservoir	Navarretia paradoxinota	Porter's navarretia	None	None	-	1B.3
Detert Reservoir	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
Detert Reservoir	Ribes victoris	Victor's gooseberry	None	None	-	4.3
Detert Reservoir	Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower	None	None	-	1B.2
Detert Reservoir	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
Detert Reservoir	Streptanthus morrisonii ssp. elatus	Three Peaks jewelflower	None	None	-	1B.2
Detert Reservoir	Streptanthus vernalis	early jewelflower	None	None	-	1B.2
Detert Reservoir	Trichostema ruygtii	Napa bluecurls	None	None	-	1B.2
Kenwood	Dicamptodon ensatus	California giant salamander	None	None	SSC	-
Kenwood	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
Kenwood	Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Kenwood	Taricha rivularis	red-bellied newt	None	None	SSC	-
Kenwood	Ardea herodias	great blue heron	None	None	-	-
Kenwood	Strix occidentalis caurina	northern spotted owl	Threatened	Threatened	-	-
Kenwood	Syncaris pacifica	California freshwater shrimp	Endangered	Endangered	-	-
Kenwood	Hysterocarpus traskii pomo	Russian River tule perch	None	None	SSC	-
Kenwood	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threatened	None	-	-
Kenwood	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	Threatened	None	-	-
Kenwood	Bombus occidentalis	western bumble bee	None	None	-	-
Kenwood	Hydroporus leechi	Leech's skyline diving beetle	None	None	-	-
Kenwood	Antrozous pallidus	pallid bat	None	None	SSC	-

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Kenwood	Emys marmorata	western pond turtle	None	None	SSC	-
Kenwood	Northern Vernal Pool	Northern Vernal Pool	None	None	-	-
Kenwood	Valley Needlegrass Grassland	Valley Needlegrass Grassland	None	None	-	-
Kenwood	Allium peninsulare var. franciscanum	Franciscan onion	None	None	-	1B.2
Kenwood	Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Endangered	None	-	1B.1
Kenwood	Amorpha californica var. napensis	Napa false indigo	None	None	-	1B.2
Kenwood	Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	None	None	-	1B.1
Kenwood	Brodiaea leptandra	narrow-anthered brodiaea	None	None	-	1B.2
Kenwood	Calamagrostis ophitidis	serpentine reed grass	None	None	-	4.3
Kenwood	Calandrinia breweri	Brewer's calandrinia	None	None	-	4.2
Kenwood	Calochortus uniflorus	pink star-tulip	None	None	-	4.2
Kenwood	Castilleja ambigua var. ambigua	johnny-nip	None	None	-	4.2
Kenwood	Ceanothus confusus	Rincon Ridge ceanothus	None	None	-	1B.1
Kenwood	Ceanothus divergens	Calistoga ceanothus	None	None	-	1B.2
Kenwood	Ceanothus gloriosus var. exaltatus	glory brush	None	None	-	4.3
Kenwood	Ceanothus purpureus	holly-leaved ceanothus	None	None	-	1B.2
Kenwood	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
Kenwood	Clarkia breweri	Brewer's clarkia	None	None	-	4.2
Kenwood	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
Kenwood	Downingia pusilla	dwarf downingia	None	None	-	2B.2
Kenwood	Erigeron biolettii	streamside daisy	None	None	-	3
Kenwood	Harmonia nutans	nodding harmonia	None	None	-	4.3
Kenwood	Hosackia gracilis	harlequin lotus	None	None	-	4.2
Kenwood	Iris longipetala	coast iris	None	None	-	4.2
Kenwood	Juglans hindsii	Northern California black walnut	None	None	-	1B.1
Kenwood	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Kenwood	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Kenwood	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Kenwood	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
Kenwood	Lomatium repostum	Napa lomatium	None	None	-	4.3
Kenwood	Monardella viridis	green monardella	None	None	-	4.3
Kenwood	Navarretia heterandra	Tehama navarretia	None	None	-	4.3
Kenwood	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	-	1B.1
Kenwood	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
Kenwood	Ranunculus lobbii	Lobb's aquatic buttercup	None	None	-	4.2
Kenwood	Sidalcea oregana ssp. valida	Kenwood Marsh checkerbloom	Endangered	Endangered	-	1B.1
Kenwood	Trichostema ruygtii	Napa bluecurls	None	None	-	1B.2
Kenwood	Trifolium amoenum	two-fork clover	Endangered	None	-	1B.1
Kenwood	Viburnum ellipticum	oval-leaved viburnum	None	None	-	2B.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Rutherford	Dicamptodon ensatus	California giant salamander	None	None	SSC	-
Rutherford	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
Rutherford	Taricha rivularis	red-bellied newt	None	None	SSC	-
Rutherford	Ardea herodias	great blue heron	None	None	-	-
Rutherford	Buteo swainsoni	Swainson's hawk	None	Threatened	-	-
Rutherford	Cypseloides niger	black swift	None	None	SSC	-
Rutherford	Elanus leucurus	white-tailed kite	None	None	FP	-
Rutherford	Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	-
Rutherford	Icteria virens	yellow-breasted chat	None	None	SSC	-
Rutherford	Nycticorax nycticorax	black-crowned night heron	None	None	-	-
Rutherford	Setophaga petechia	yellow warbler	None	None	SSC	-
Rutherford	Entosphenus tridentatus	Pacific lamprey	None	None	SSC	-
Rutherford	Hysterocarpus traskii pomo	Russian River tule perch	None	None	SSC	-
Rutherford	Lampetra ayresii	river lamprey	None	None	SSC	-
Rutherford	Mylopharodon conocephalus	hardhead	None	None	SSC	-
Rutherford	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threatened	None	-	-
Rutherford	Bombus caliginosus	obscure bumble bee	None	None	-	-
Rutherford	Antrozous pallidus	pallid bat	None	None	SSC	-
Rutherford	Erethizon dorsatum	North American porcupine	None	None	-	-
Rutherford	Gonidea angulata	western ridged mussel	None	None	-	-
Rutherford	Emys marmorata	western pond turtle	None	None	SSC	-
Rutherford	Amorpha californica var. napensis	Napa false indigo	None	None	-	1B.2
Rutherford	Amsinckia lunaris	bent-flowered fiddleneck	None	None	-	1B.2
Rutherford	Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	None	None	-	1B.1
Rutherford	Astragalus claranus	Clara Hunt's milk-vetch	Endangered	Threatened	-	1B.1
Rutherford	Brodiaea leptandra	narrow-anthered brodiaea	None	None	-	1B.2
Rutherford	Ceanothus confusus	Rincon Ridge ceanothus	None	None	-	1B.1
Rutherford	Ceanothus divergens	Calistoga ceanothus	None	None	-	1B.2
Rutherford	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
Rutherford	Clarkia breweri	Brewer's clarkia	None	None	-	4.2
Rutherford	Erigeron biolettii	streamside daisy	None	None	-	3
Rutherford	Erigeron greenei	Greene's narrow-leaved daisy	None	None	-	1B.2
Rutherford	Eryngium jepsonii	Jepson's coyote-thistle	None	None	-	1B.2
Rutherford	Harmonia nutans	nodding harmonia	None	None	-	4.3
Rutherford	Helianthus exilis	serpentine sunflower	None	None	-	4.2
Rutherford	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Rutherford	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Rutherford	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
Rutherford	Lomatium repostum	Napa lomatium	None	None	-	4.3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Rutherford	Lupinus sericatus	Cobb Mountain lupine	None	None	-	1B.2
Rutherford	Ranunculus lobbii	Lobb's aquatic buttercup	None	None	-	4.2
Rutherford	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
St. Helena	Dicamptodon ensatus	California giant salamander	None	None	SSC	-
St. Helena	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
St. Helena	Rana draytonii	California red-legged frog	Threatened	None	SSC	-
St. Helena	Ardea herodias	great blue heron	None	None	-	-
St. Helena	Athene cunicularia	burrowing owl	None	None	SSC	-
St. Helena	Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	-
St. Helena	Progne subis	purple martin	None	None	SSC	-
St. Helena	Setophaga petechia	yellow warbler	None	None	SSC	-
St. Helena	Strix occidentalis caurina	northern spotted owl	Threatened	Threatened	-	-
St. Helena	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threatened	None	-	-
St. Helena	Bombus caliginosus	obscure bumble bee	None	None	-	-
St. Helena	Antrozous pallidus	pallid bat	None	None	SSC	-
St. Helena	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
St. Helena	Erethizon dorsatum	North American porcupine	None	None	-	-
St. Helena	Myotis evotis	long-eared myotis	None	None	-	-
St. Helena	Myotis thysanodes	fringed myotis	None	None	-	-
St. Helena	Myotis yumanensis	Yuma myotis	None	None	-	-
St. Helena	Emys marmorata	western pond turtle	None	None	SSC	-
St. Helena	Northern Vernal Pool	Northern Vernal Pool	None	None	-	-
St. Helena	Amorpha californica var. napensis	Napa false indigo	None	None	-	1B.2
St. Helena	Astragalus breweri	Brewer's milk-vetch	None	None	-	4.2
St. Helena	Astragalus claranus	Clara Hunt's milk-vetch	Endangered	Threatened	-	1B.1
St. Helena	Astragalus clevelandii	Cleveland's milk-vetch	None	None	-	4.3
St. Helena	Brodiaea leptandra	narrow-anthered brodiaea	None	None	-	1B.2
St. Helena	Calamagrostis ophitidis	serpentine reed grass	None	None	-	4.3
St. Helena	Castilleja ambigua var. ambigua	johnny-nip	None	None	-	4.2
St. Helena	Ceanothus confusus	Rincon Ridge ceanothus	None	None	-	1B.1
St. Helena	Ceanothus divergens	Calistoga ceanothus	None	None	-	1B.2
St. Helena	Ceanothus pinetorum	Kern ceanothus	None	None	-	4.3
St. Helena	Ceanothus purpureus	holly-leaved ceanothus	None	None	-	1B.2
St. Helena	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
St. Helena	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None	None	-	4.2
St. Helena	Collomia diversifolia	serpentine collomia	None	None	-	4.3
St. Helena	Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	None	None	-	4.3
St. Helena	Delphinium uliginosum	swamp larkspur	None	None	-	4.2
St. Helena	Erigeron biolettii	streamside daisy	None	None	-	3

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
St. Helena	Erigeron greenei	Greene's narrow-leaved daisy	None	None	-	1B.2
St. Helena	Eryngium jepsonii	Jepson's coyote-thistle	None	None	-	1B.2
St. Helena	Erythronium helenae	St. Helena fawn lily	None	None	-	4.2
St. Helena	Harmonia nutans	nodding harmonia	None	None	-	4.3
St. Helena	Helianthus exilis	serpentine sunflower	None	None	-	4.2
St. Helena	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	-	1B.2
St. Helena	Layia septentrionalis	Colusa layia	None	None	-	1B.2
St. Helena	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
St. Helena	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
St. Helena	Lomatium repostum	Napa lomatium	None	None	-	4.3
St. Helena	Lupinus sericatus	Cobb Mountain lupine	None	None	-	1B.2
St. Helena	Navarretia cotulifolia	cotula navarretia	None	None	-	4.2
St. Helena	Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	-	1B.1
St. Helena	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
St. Helena	Ranunculus lobbii	Lobb's aquatic buttercup	None	None	-	4.2
St. Helena	Sidalcea oregana ssp. hydrophila	marsh checkerbloom	None	None	-	1B.2
St. Helena	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
St. Helena	Toxicoscordion fontanum	marsh zigadenus	None	None	-	4.2
St. Helena	Trichostema ruygtii	Napa bluecurls	None	None	-	1B.2
St. Helena	Triteleia lugens	dark-mouthed triteleia	None	None	-	4.3
Walter Springs	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
Walter Springs	Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Walter Springs	Ardea herodias	great blue heron	None	None	-	-
Walter Springs	Athene cunicularia	burrowing owl	None	None	SSC	-
Walter Springs	Falco mexicanus	prairie falcon	None	None	WL	-
Walter Springs	Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	-
Walter Springs	Pandion haliaetus	osprey	None	None	WL	-
Walter Springs	Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC	-
Walter Springs	Anodonta californiensis	California floater	None	None	-	-
Walter Springs	Anodonta oregonensis	Oregon floater	None	None	-	-
Walter Springs	Emys marmorata	western pond turtle	None	None	SSC	-
Walter Springs	Northern Vernal Pool	Northern Vernal Pool	None	None	-	-
Walter Springs	Astragalus breweri	Brewer's milk-vetch	None	None	-	4.2
Walter Springs	Astragalus clevelandii	Cleveland's milk-vetch	None	None	-	4.3
Walter Springs	Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	None	None	-	1B.2
Walter Springs	Ceanothus sonomensis	Sonoma ceanothus	None	None	-	1B.2
Walter Springs	Collomia diversifolia	serpentine collomia	None	None	-	4.3
Walter Springs	Cryptantha rostellata	red-stemmed cryptantha	None	None	-	4.2
Walter Springs	Delphinium uliginosum	swamp larkspur	None	None	-	4.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Walter Springs	Eryngium jepsonii	Jepson's coyote-thistle	None	None	-	1B.2
Walter Springs	Fritillaria pluriflora	adobe-lily	None	None	-	1B.2
Walter Springs	Fritillaria purdyi	Purdy's fritillary	None	None	-	4.3
Walter Springs	Helianthus exilis	serpentine sunflower	None	None	-	4.2
Walter Springs	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	-	1B.2
Walter Springs	Layia septentrionalis	Colusa layia	None	None	-	1B.2
Walter Springs	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Walter Springs	Lomatium hooveri	Hoover's lomatium	None	None	-	4.3
Walter Springs	Malacothamnus helleri	Heller's bush-mallow	None	None	-	3.3
Walter Springs	Monardella viridis	green monardella	None	None	-	4.3
Walter Springs	Navarretia cotulifolia	cotula navarretia	None	None	-	4.2
Walter Springs	Navarretia jepsonii	Jepson's navarretia	None	None	-	4.3
Walter Springs	Sidalcea keckii	Keck's checkerbloom	Endangered	None	-	1B.1
Walter Springs	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
Walter Springs	Toxicoscordion fontanum	marsh zigadenus	None	None	-	4.2
Yountville	Rana boylii	foothill yellow-legged frog	None	Cand. Thrt.	SSC	-
Yountville	Ardea alba	great egret	None	None	-	-
Yountville	Ardea herodias	great blue heron	None	None	-	-
Yountville	Elanus leucurus	white-tailed kite	None	None	FP	-
Yountville	Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	-
Yountville	Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	-
Yountville	Icteria virens	yellow-breasted chat	None	None	SSC	-
Yountville	Phalacrocorax auritus	double-crested cormorant	None	None	WL	-
Yountville	Setophaga petechia	yellow warbler	None	None	SSC	-
Yountville	Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Threatened	None	-	-
Yountville	Bombus caliginosus	obscure bumble bee	None	None	-	-
Yountville	Antrozous pallidus	pallid bat	None	None	SSC	-
Yountville	Emys marmorata	western pond turtle	None	None	SSC	-
Yountville	Astragalus clevelandii	Cleveland's milk-vetch	None	None	-	4.3
Yountville	Brodiaea leptandra	narrow-anthered brodiaea	None	None	-	1B.2
Yountville	Castilleja ambigua var. ambigua	johnny-nip	None	None	-	4.2
Yountville	Castilleja ambigua var. meadii	Mead's owls-clover	None	None	-	1B.1
Yountville	Ceanothus purpureus	holly-leaved ceanothus	None	None	-	1B.2
Yountville	Clarkia gracilis ssp. tracyi	Tracy's clarkia	None	None	-	4.2
Yountville	Downingia pusilla	dwarf downingia	None	None	-	2B.2
Yountville	Erigeron greenei	Greene's narrow-leaved daisy	None	None	-	1B.2
Yountville	Eryngium jepsonii	Jepson's coyote-thistle	None	None	-	1B.2
Yountville	Harmonia nutans	nodding harmonia	None	None	-	4.3
Yountville	Hesperolinon sharsmithiae	Sharsmith's western flax	None	None	-	1B.2

QUAD NAME	SCIENTIFIC NAME	COMMON NAME	FEDERAL	CALIF	CDFW	CNPS
Yountville	Leptosiphon acicularis	bristly leptosiphon	None	None	-	4.2
Yountville	Leptosiphon jepsonii	Jepson's leptosiphon	None	None	-	1B.2
Yountville	Leptosiphon latisectus	broad-lobed leptosiphon	None	None	-	4.3
Yountville	Limnanthes vinculans	Sebastopol meadowfoam	Endangered	Endangered	-	1B.1
Yountville	Lomatium repostum	Napa lomatium	None	None	-	4.3
Yountville	Micropus amphibolus	Mt. Diablo cottonweed	None	None	-	3.2
Yountville	Monardella viridis	green monardella	None	None	-	4.3
Yountville	Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Endangered	Threatened	-	1B.1
Yountville	Penstemon newberryi var. sonomensis	Sonoma beardtongue	None	None	-	1B.3
Yountville	Ranunculus lobbii	Lobb's aquatic buttercup	None	None	-	4.2
Yountville	Sagittaria sanfordii	Sanford's arrowhead	None	None	-	1B.2
Yountville	Streptanthus hesperidis	green jewelflower	None	None	-	1B.2
Yountville	Trichostema ruygtii	Napa bluecurls	None	None	-	

KEY FOR 9-QUAD LIST:

1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A = Presumed extinct in California, but extant elsewhere
2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.
2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; fairly threatened in Calif.
2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.
3 = Plants about which we need more information (Review List)
3.1 = Plants about which we need more information (Review List); seriously threatened in California
3.2 = Plants about which we need more information (Review List); fairly threatened in California
3.3 = Plants about which we need more information (Review List); not very threatened in California
4.2 = Plants of limited distribution (watch list); fairly threatened in California
4.3 = Plants of limited distribution (watch list); not very threatened in California

SE/ST/SD=State Endangered/Threatened/Delisted
SSC=CDFW Species of Special Concern
WL=CDFW Watch List
FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting
Threat=Threatened
Cand=Candidate
SC/SCD=State Candidate for Listing/Delisting
SFP=State Fully Protected
FE/FT/FD=Federal Endangered/Threatened/Delisted
FC=Federal Candidate
End=Endangered
Prop=Proposed

APPENDIX B

WILDLIFE HABITAT RELATIONSHIPS SYSTEM RESULTS

CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM
supported by the
CALIFORNIA INTERAGENCY WILDLIFE TASK GROUP
and maintained by the
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
Database Version: 9.0

SPECIES SUMMARY REPORT August 24, 2020

FE = Federal Endangered
FT = Federal Threatened
CE = California Endangered
CT = California Threatened
CF = California Fully Protected
CP = California Protected
SC = California Species of Special Concern
PE = Federally-Proposed Endangered
PT = Federally-Proposed Threatened
FC = Federal Candidate
BL = BLM Sensitive
FS = USFS Sensitive
CD = CDF Sensitive
HA = Harvest

Note: Any given status code for a species may apply to the full species or to only one or more subspecies or distinct population segments.

ID	Species Name	Status	Native/Introduced
A020	SPECKLED BLACK SALAMANDER		NATIVE
B051	GREAT BLUE HERON	CD	NATIVE
B053	SNOWY EGRET		NATIVE
B057	CATTLE EGRET		NATIVE
B058	GREEN HERON		NATIVE
B059	BLACK-CROWNED NIGHT HERON		NATIVE
B067	TUNDRA SWAN		NATIVE
B079	MALLARD	HA	NATIVE
B080	NORTHERN PINTAIL	HA	NATIVE
B082	BLUE-WINGED TEAL	HA	NATIVE
B086	EURASIAN WIGEON	HA	NATIVE
B107	RUDDY DUCK	HA	NATIVE
B111	WHITE-TAILED KITE	CF BL	NATIVE
B114	NORTHERN HARRIER	SC	NATIVE
B115	SHARP-SHINNED HAWK		NATIVE
B116	COOPER'S HAWK		NATIVE
B119	RED-SHOULDERED HAWK		NATIVE
B123	RED-TAILED HAWK		NATIVE
B124	FERRUGINOUS HAWK		NATIVE
B125	ROUGH-LEGGED HAWK		NATIVE
B127	AMERICAN KESTREL		NATIVE
B128	MERLIN		NATIVE
B131	PRAIRIE FALCON		NATIVE
B141	MOUNTAIN QUAIL	HA	NATIVE
B159	MOUNTAIN PLOVER	SC BL	NATIVE

ID	Species Name	Status	Native/Introduced
B165	GREATER YELLOWLEGS		NATIVE
B168	WILLET		NATIVE
B170	SPOTTED SANDPIPER		NATIVE
B172	WHIMBREL		NATIVE
B173	LONG-BILLED CURLEW		NATIVE
B200	WILSON'S PHALAROPE		NATIVE
B251	BAND-TAILED PIGEON	HA	NATIVE
B262	BARN OWL		NATIVE
B264	WESTERN SCREECH OWL		NATIVE
B265	GREAT HORNED OWL		NATIVE
B267	NORTHERN PYGMY OWL		NATIVE
B272	LONG-EARED OWL	SC	NATIVE
B273	SHORT-EARED OWL	SC	NATIVE
B274	NORTHERN SAW-WHET OWL		NATIVE
B277	COMMON POORWILL		NATIVE
B286	BLACK-CHINNED HUMMINGBIRD		NATIVE
B287	ANNA'S HUMMINGBIRD		NATIVE
B289	CALLIOPE HUMMINGBIRD		NATIVE
B291	RUFOUS HUMMINGBIRD		NATIVE
B292	ALLEN'S HUMMINGBIRD		NATIVE
B294	LEWIS' S WOODPECKER		NATIVE
B299	RED-BREASTED SAPSUCKER		NATIVE
B302	NUTTALL'S WOODPECKER		NATIVE
B303	DOWNY WOODPECKER		NATIVE
B304	HAIRY WOODPECKER		NATIVE
B307	NORTHERN FLICKER		NATIVE
B309	OLIVE-SIDED FLYCATCHER	SC	NATIVE
B311	WESTERN WOOD-PEWEE		NATIVE
B318	DUSKY FLYCATCHER		NATIVE
B320	PACIFIC-SLOPE FLYCATCHER		NATIVE
B321	BLACK PHOEBE		NATIVE
B323	SAY'S PHOEBE		NATIVE
B326	ASH-THROATED FLYCATCHER		NATIVE
B333	WESTERN KINGBIRD		NATIVE
B337	HORNED LARK		NATIVE
B338	PURPLE MARTIN	SC	NATIVE

ID	Species Name	Status	Native/Introduced
B339	TREE SWALLOW		NATIVE
B340	VIOLET-GREEN SWALLOW		NATIVE
B343	CLIFF SWALLOW		NATIVE
B346	STELLER'S JAY		NATIVE
B348	WESTERN SCRUB-JAY		NATIVE
B352	YELLOW-BILLED MAGPIE		NATIVE
B353	AMERICAN CROW	HA	NATIVE
B354	COMMON RAVEN		NATIVE
B357	CHESTNUT-BACKED CHICKADEE		NATIVE
B358	OAK TITMOUSE		NATIVE
B360	BUSHTIT		NATIVE
B361	RED-BREASTED NUTHATCH		NATIVE
B362	WHITE-BREASTED NUTHATCH		NATIVE
B364	BROWN CREEPER		NATIVE
B368	BEWICK'S WREN	SC	NATIVE
B369	HOUSE WREN		NATIVE
B370	WINTER WREN		NATIVE
B375	GOLDEN-CROWNED KINGLET		NATIVE
B376	RUBY-CROWNED KINGLET		NATIVE
B377	BLUE-GRAY GNATCATCHER		NATIVE
B381	MOUNTAIN BLUEBIRD		NATIVE
B385	SWAINSON'S THRUSH		NATIVE
B386	HERMIT THRUSH		NATIVE
B389	AMERICAN ROBIN		NATIVE
B390	VARIED THRUSH		NATIVE
B393	NORTHERN MOCKINGBIRD		NATIVE
B404	AMERICAN PIPIT		NATIVE
B407	CEDAR WAXWING		NATIVE
B408	PHAINOPEPLA		NATIVE
B410	LOGGERHEAD SHRIKE	FE SC	NATIVE
B415	CASSIN'S VIREO		NATIVE
B417	HUTTON'S VIREO	SC	NATIVE
B418	WARBLING VIREO		NATIVE
B425	ORANGE-CROWNED WARBLER		NATIVE
B426	NASHVILLE WARBLER		NATIVE
B430	YELLOW WARBLER	SC	NATIVE

ID	Species Name	Status	Native/Introduced
B435	YELLOW-RUMPED WARBLER		NATIVE
B436	BLACK-THROATED GRAY WARBLER		NATIVE
B437	TOWNSEND'S WARBLER		NATIVE
B438	HERMIT WARBLER		NATIVE
B460	MACGILLIVRAY'S WARBLER		NATIVE
B461	COMMON YELLOWTHROAT	SC	NATIVE
B463	WILSON'S WARBLER		NATIVE
B467	YELLOW-BREASTED CHAT	SC	NATIVE
B471	WESTERN TANAGER		NATIVE
B475	BLACK-HEADED GROSBEAK		NATIVE
B477	LAZULI BUNTING		NATIVE
B483	SPOTTED TOWHEE	SC	NATIVE
B484	CALIFORNIA TOWHEE	FT CE	NATIVE
B489	CHIPPING SPARROW		NATIVE
B494	VESPER SPARROW	SC	NATIVE
B495	LARK SPARROW		NATIVE
B499	SAVANNAH SPARROW	CE SC	NATIVE
B501	GRASSHOPPER SPARROW	SC	NATIVE
B506	LINCOLN'S SPARROW		NATIVE
B512	DARK-EYED JUNCO		NATIVE
B521	WESTERN MEADOWLARK		NATIVE
B522	YELLOW-HEADED BLACKBIRD	SC	NATIVE
B524	BREWER'S BLACKBIRD		NATIVE
B528	BROWN-HEADED COWBIRD		NATIVE
B530	HOODED ORIOLE		NATIVE
B532	BULLOCK'S ORIOLE		NATIVE
B536	PURPLE FINCH		NATIVE
B539	RED CROSSBILL		NATIVE
B542	PINE SISKIN		NATIVE
B543	LESSER GOLDFINCH		NATIVE
B544	LAWRENCE'S GOLDFINCH		NATIVE
B545	AMERICAN GOLDFINCH		NATIVE
B546	EVENING GROSBEAK		NATIVE
B554	PLUMBEOUS VIREO		NATIVE
B699	BARRED OWL		NATIVE
B773	AMERICAN REDSTART		NATIVE

ID	Species Name	Status	Native/Introduced
B799	HARRIS'S SPARROW		NATIVE
B809	INDIGO BUNTING		NATIVE
M006	ORNATE SHREW	FE SC	NATIVE
M033	WESTERN RED BAT	SC FS	NATIVE
M034	HOARY BAT		NATIVE
M037	TOWNSEND'S BIG-EARED BAT	SC BL FS	NATIVE
M038	PALLID BAT	SC BL FS	NATIVE
M039	BRAZILIAN FREE-TAILED BAT		NATIVE
M059	SONOMA CHIPMUNK		NATIVE
M077	WESTERN GRAY SQUIRREL	HA	NATIVE
M113	WESTERN HARVEST MOUSE		NATIVE
M116	CALIFORNIA MOUSE		NATIVE
M117	DEER MOUSE	SC	NATIVE
M120	PINYON MOUSE		NATIVE
M134	CALIFORNIA VOLE	FE CE SC BL	NATIVE
M146	COYOTE	HA	NATIVE
M149	GRAY FOX	HA	NATIVE
M151	BLACK BEAR	HA	NATIVE
M165	MOUNTAIN LION	SC	NATIVE
M177	ELK	HA	NATIVE
R046	NORTHERN RUBBER BOA	CT FS	NATIVE
R061	COMMON GARTERSNAKE	FE CE CF SC	NATIVE

Total Number of Species: 155

Query Parameters

Included Locations
Napa Co

Included Location Seasons
Migrant, Summer, Winter, Yearlong

Included Habitats & (Stages)
Annual Grassland, Douglas-fir, Evergreen Orchard, Vineyard, Montane Hardwood, Valley Foothill Riparian

Habitat Suitability Threshold
Reproduction - Low, Cover - Low, Feeding - Low

Included Habitat Seasons
Migrant, Summer, Winter, Yearlong

Excluded Elements
Algae, Bank, Barren, Bogs, Brush Pile, Burrow, Campground, Carrion, Cave, Cliff, Dump, Grain, Jetty, Kelp, Lakes, Layer - Shrub, Lithic, Mine, Mud Flats, Nest Box, Nest Island, Nest Platform, Pack Stations, Ponds, Rivers, Rock, Salt Ponds, Sand Dune, Shrub/agriculture, Shrub/grass, Shrub/water, Soil - Aerated, Soil - Friable, Soil - Gravelly, Soil - Organic, Soil - Saline, Soil - Sandy, Springs, Springs - Hot, Springs - Mineral, Steep Slope, Streams - Permanent, Talus, Tidepools, Tree/water, Vernal Pools, Water, Water - Created Body, Water - Fast, Water - Slow, Water/agriculture, Wharf

Included Species All Species Included

Included Special Statuses Native

APPENDIX C

TREE SURVEY DATA

TREE SURVEY DATA – MIXED OAK WOODLAND		
WAYPOINT	SPECIES	DIAMETER AT BREAST HEIGHT (DBH) (in.)
31	OWO	14
32	OWO	20
33	OWO	10
34	OWO	11
35	OWO	12
36	BAY (Cut)	16
37	PP (Cut)	13
38	OWO	22
39	PP	18
40	BAY (Cut)	10
41	BAY (Cut)	20
42	BAY (Cut)	16
43	BLAK	15
44	OWO	21
46	OWO	20
47	OWO	18
48	DF (Cut)	42
49	OWO	21
50	BAY (Cut)	17
51	OWO (Cut)	16
52	PP (Cut)	20
53	BLAK	22
54	BLM (Cut)	8
55	OWO	19
56	BLM	7
57	BLM	4
58	BLM	6
59	OASH	15
60	OWO	13
61	OWO	14
62	BLM	12

TREE SURVEY DATA – MIXED OAK WOODLAND			
63	BLM	12	
64	OWO	15	
65	CLO	60	
SPECIES	NUMBER IN SURVEY AREA	AVERAGE DBH (INCHES)	STD DEVIATION OF DBH (INCHES)
BAY	5	15.8	3.2
BLAK	2	18.5	3.5
BLM	6	8.2	3.0
CLO	1	60.0	NA
DF	1	42.0	NA
OASH	1	15.0	NA
OWO	15	16.4	3.9
PP	3	17.0	2.9
TOTAL	34	17.0	NA

TREE SURVEY DATA – DOUGLAS FIR FOREST		
WAYPOINT	SPECIES	DIAMETER AT BREAST HEIGHT (DBH) (in.)
1	DF	18
2	DF	15
3	DF	8
4	DF	30
5	DF	18
6	BAY	25
7	DF	17
8	DF	20
9	DF	11
10	DF	22
11	DF	21
12	DF	9
13	DF	13
14	DF	25

TREE SURVEY DATA – DOUGLAS FIR FOREST			
15	DF	20	
16	DF	18	
17	DF	14	
18	DF	17	
19	DF	23	
20	DF	10	
21	DF	6	
22	DF	19	
23	DF	16	
24	BAY	5	
25	DF	6	
26	BLM	8	
27	BAY	6	
28	DF	31	
29	DF	17	
30	DF	33	
SPECIES	NUMBER IN SURVEY AREA	AVERAGE DBH (INCHES)	STD DEVIATION OF DBH (INCHES)
BAY	3	12.0	9.2
BLM	1	8.0	NA
DF	26	17.6	7.0
TOTAL	30	16.7	NA

Key for Tree Tables:

BAY = California Bay
BLAK = California Black Oak
BLM = Bigleaf Maple
CLO = Coast Live Oak
DF = Douglas Fir
OASH = Oregon Ash
OWO = Oregon White Oak
PP = Ponderosa Pine

GPS waypoint for each tree is indicated on the vegetation map provided in Figure 2.

APPENDIX D

Effects of Cave Excavation on Forest and Woodland Trees

(Redacted Letter)

NORTHWEST BIOSURVEY
Environmental & Planning Services
15865 Rainbow Drive, P.O. Box 191, Cobb CA 95426

Phone (707) 928-1985 Fax (707) 928-1986
nwbio@jps.net

August 8, 2006

Ms. Carol Poole, Director
St. Helena Planning Department
1480 Main Street
St. Helena, CA 94574

RE: Revised Assessment of Potential Tree Root Damage Associated With the Proposed Schoendorf Cave Project

Dear Ms. Poole:

This letter, originally sent to you on July 17, 2006, has been revised at the request of the project architects in response to a redesign of the Schoendorf cave project. As you will note, the original text remains intact but the map of potential tree damage and table showing areas of potential root damage have been revised.

Northwest Biosurvey has conducted an assessment of potential tree root damage resulting from the proposed Schoendorf cave project. The assessment is in response to concerns of the St. Helena Planning Department that construction of the proposed caves on Assessor Parcel 025-070-046 may result in damage to the root systems of woodland trees growing above the proposed cave system.

This assessment consists of a review of available literature on rooting depth of mature oak and conifer trees and a comparison of rooting depth to cave ceiling depth obtained from the project architects, Sagan Piechota.

Available Research: As might be imagined, the available literature on the rooting depths of mature trees is sparse due to the difficulty of obtaining reliable data on a large enough population of mature trees to be statistically meaningful. Regardless, data does exist based on studies of windthrown trees[6],

[6] Crow, 2005

DNA identification of exposed roots invading natural caves of known depth[7], and on studies of root growth in planted seedlings used in the assessment of revegetation techniques[8].

Tree Species Potentially Impacted: In order to determine where mature trees may occur in relation to the proposed cave, we overlaid the home and cave plan prepared by the project architect on the vegetation map we prepared for the biological assessment in 2005. The result is shown in the attached C-format map titled: *Areas of Potential Tree Root Damage: Schoendorf Cave Project*.

As shown in the map, the entire cave system is overlain by coast live oak series woodland of the coast live oak-black oak association. Ninety percent of this woodland consists of mature coast live oak (*Quercus agrifolia*), while between 5 and 8 percent consists of Pacific madrone (*Arbutus menziesii*). The remaining 2 to 5 percent consists of a mix of California black oak (*Quercus kelloggii*) and Douglas fir (*Pseudotsuga douglasii*).

Rooting depth: No research could be found on the rooting depth of mature coast live oak; however, data is available on other oak species. Oaks are one of a minority of native tree genera that produce a distinct tap root that extends directly down from the base of the tree. This is an adaptation to the Mediterranean climate that provides a brief period for seedling establishment followed by a dry summer and fall during which surface soils become dry. However, as the tree matures, the growth of the lateral roots increases and the bulk of the root system consists of lateral roots nearer the soil surface.

Studies of mature windthrown trees in England[9] indicate that the English oak (*Quercus robur*) has roots as deep as 2.5 to 3 meters (8-9.75 feet). The study also provides data for Douglas fir (one of the species present at the Schoendorf site). Based on the research, the roots of Douglas fir have been measured at 9.75 feet. The primary purpose of the study was to determine the effect of soil characteristics on rooting depth for a number of tree species. The study showed a clear correlation between rooting depth and the texture, drainage, and depth of the soil. This same effect was found in Oregon white oaks growing in rocky soils in the Puget Sound area[10]. In these rocky soils, the majority of lateral roots of mature trees occurred within 16 inches of the soil surface and very few roots extended deeper than 5 feet.

Studies on cave systems in Central Texas[11] show that the evergreen oak (*Quercus fusiformis*) has roots extending 10 meters (32.5 feet) beneath the ground surface. However, of greater importance to this assessment, the researchers in the Texas study determined that the most important factor in determining root depth was the depth of a reliable source of water. While these oaks (and presumably other species) send small roots through all available cracks and voids in the substrate, the tree exploits the areas of its root system that contact rich sources of water and nutrients. Consequently, the bulk of a tree's root system develops where water and nutrients are most reliable. The presence of some roots at greater

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[7] Jackson et al, 1999
[8] Costello et al, 2001; Douglas et al, 2001
[9] ibid footnote 1
[10] Silviculture and Forest Models Team
[11] ibid footnote 2

depths does not necessarily imply that the tree is obtaining its primary source of water and nutrients from that location.

Applicability to the Schoendorf Property: While no rooting depth data could be found for coast live oaks (the species of primary importance at the Schoendorf site), it is probable that the rooting characteristics are similar to other oaks for which there is reliable data. The available research on rooting depth can be summarized to say that oaks are one of the more deeply rooted trees, but that actual rooting depth depends on the depth of a reliable source of water and nutrients and on whether the soil characteristics limit the trees' ability to reach these resources.

While we do not have data on the depth of year-round water and soil nutrients for the Schoendorf property, Soil Survey[12] maps for this site characterize the soil as "Forward gravelly loam on 30-70-percent slopes." These are described as well-drained soils on uplands formed in material weathered from rhyolite. The effective rooting depth is given as 40 inches. The Resource Conservation Service defines effective rooting depth as "*the depth to which a soil is readily penetrated by roots and utilized for extraction of water and plant nutrients".* While the woodland trees growing on these soils are very likely to send roots deeper than 40 inches by exploiting all available cracks and voids within the soil matrix, this effective rooting depth probably does represent the area of primary root development and the primary source of water and nutrients for the woodland trees growing there.

Conclusions and Recommendations: While some of the roots of the woodland trees on the Schoendorf property have the potential to extend as deep as 9 feet or more, the majority of roots providing water and nutrients to these trees are likely to occur within the first 40 inches of the soil surface. Excavation below a depth of 60 inches (5 feet) should have minimal potential impacts to the root system while leaving the soil structure and hydrology largely intact. These conclusions and the attending research were shared with licensed arborist John McCarthy, of Specialty Oaks of Lower Lake, California. Based on his experience raising and planting native oaks in Northern California, Mr. McCarthy concurs with the assessment that excavation below 5 feet should minimize adverse impacts to oaks on the property. Mr. McCarthy recommends that all roots larger than ½-inch in diameter that are encountered within the excavation be covered with a small plastic bag, taped in place in order to reduce exposure to pathogens and to promote the formation of callus over the cut area. These can be covered in-place by surfacing material during construction of the cave lining.

Woodland trees over portions of the cave system that are less than 5 feet below the soil surface may suffer adverse effects or death depending on the amount of root system removed. Portions of the woodland above the cave system, where excavation will be within 5 feet of the soil surface, are marked in red in the attached map and are defined as "Areas of potential tree root damage". It is assumed that these trees are at risk of damage or death. It should be emphasized that these conclusions are based on available research and that the actual structure of the root system of the woodland trees on the Schoendorf property is not known. **Table I** provides the total area of potential tree root damage at each location as determined in this analysis:

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[12] *Soil Survey for Napa County*

TABLE I. AREAS OF POTENTIAL TREE ROOT DAMAGE

Location	Area of Potential Root Damag in square feet
Energy Cave Electrical	250
Energy Cave Mechanical	621
Total	871

Sources Cited:

Costello, Laurence et al
2001 *Assessing the Influence of Irrigation and Tree shelters on Three California Native Oaks.* University of California Cooperative Extension, San Mateo and San Francisco Counties.

Crow, Peter
2005 *The Influence of Soils and Species on Tree Root Depth*. Forestry Commission Information Note (www.forestry.gov.uk).

Jackson, R.B. et al
1999 *Ecosystem rooting depth determined with caves and DNA*, Proceedings of the National Academy of Sciences, Vol. 96, Issue 20. 11387-11392, September 28, 1999.

McCarthy, John
7/17/2006 Personal communication; Licensed Arborist, Owner of Specialty Oaks, 16193 Main Street, Lower Lake, CA: Licensed Arborist 0956.

McCreary, Douglas et al
2001 *Irrigation and Tree shelter Effects on the Growth of Acorn Stock*. Integrated Hardwood and Range Management Program Sierra Foothill Research and Extension Center.

Silviculture and Forest Models Team
2003 *Oak Studies, Oak Root Research*, Olympia Forestry Sciences Laboratory.

U.S. Department of Agriculture, Natural Resources Conservation Service.
Soil Survey for Napa County, California.

Sincerely,

ORIGINAL SIGNED

Steve Zalusky
Principal Biologist