

February 18, 2020
Annalee Sanborn
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2800 Jefferson Street
Napa, CA 94558

**RE: Biological Resources Reconnaissance Survey for Vineyard ECP at 4285 E. 3rd Avenue,
Napa County, California (APN: 052-460-020)**

Ms. Sanborn,

The following letter report is intended to summarize the background, methods, and results of a biological resources reconnaissance survey (BRRS) conducted at 4285 E. 3rd Avenue, Napa County (APN: 052-460-020) in support of a vineyard ECP permit application to be submitted to Napa County Planning, Building, & Environmental Services.

BACKGROUND AND PROJECT DESCRIPTION

It is the understanding of WRA that the property owners of the subject property are proposing to develop approximately 0.88 net acre (1.03 gross acres) of new vineyards, and therefore must conform to the standards outlined in the Napa County Code and General Plan. As part of the Erosion Control Permit (ECP) application, the County of Napa requires a Biological Resources Reconnaissance Survey, the results of which are included herein.

STUDY AREA SETTING

The Study Area is located within the County of Napa, approximately one aerial mile east of downtown Napa (Attachment A).

Soils and Topography

The overall topography of the Study Area is gently to sloped with a southeasterly aspect, and elevations ranging from approximately 210 to 250 feet above sea level. According to the *Soil Survey of Napa County* (USDA 1978), the Study Area is underlain by two soil mapping units: Forward silt loam, 5 to 39 percent and Sobrante loam, 5 to 30 percent slopes. The parent soil series of all the Study Area's mapping units are summarized below.

Forward Series: This series consists of moderately deep sandy loam soils of residuum weathered from rhyolitic tuff on hillslopes at elevations ranging from 400 to 4,500 feet (CSRL 2019, USDA 1978). These soils are not considered hydric, and are well drained, with medium runoff and moderately rapid permeability above the tuff bedrock (USDA 2014, USDA 1978). Native vegetation consists of coniferous forest composed of ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), incense cedar (*Calocedrus decurrens*), California black oak (*Quercus kelloggii*), manzanitas (*Arctostaphylos* spp.), and pine mat (*Ceanothus prostratus*). Typical land uses include timbering, watershed protection, and open space (USDA 1978).

Sobranite Series: This series consists of moderately deep to shallow fine loam soils formed from residuum weathered from igneous and metamorphic rock situated on upland hillslopes at elevations ranging from 125 to 3,500 feet (USDA 1972, CSRL 2019). This series is not considered hydric in Sonoma County, and well drained, with moderate permeability, and low to very high runoff (USDA 2014, USDA 1972). Native and naturalized vegetation is oak (*Quercus* spp.) savannah and woodland dominated by annual grasses and forbs, and predominant land uses are rangeland, irrigated hay and pasture, and dry land crops (USDA 1972).

Climate and Hydrology

The Study Area is located within the valley fog incursion zone of Napa County. The average monthly maximum temperature at Napa State Hospital is 82.8 degrees Fahrenheit, while the average monthly minimum temperature is 48.1 degrees Fahrenheit. Predominantly, precipitation falls as rainfall with an annual average of 26.5 inches. Precipitation-bearing weather systems are predominantly from the west and south with the majority of rain falls between November and March, with a combined average of 22.08 inches (USDA 2019).

The local watershed is Tulucay Creek (HUC 12: 180500020402) and the regional watershed is Frontal San Pablo Bay Estuaries (HUC 8: 18050002). The Study Area is situated in the Napa County Planning Watershed of Spencer Creek. There are no mapped blue-line streams or other aquatic features in the Study Area (USGS 2015, NWI 2019a, SFEI 2019). Precipitation in the majority of the Study Area infiltrates quickly due to coarse textured soils.

Land Use and Vegetation

The subject parcel is a single-family residence with landscaping, access road, small vineyard, open field, and row of trees fronting on E. 3rd Avenue (Google Earth 2019, Historic Aerials 2019). Detailed land cover descriptions are included below, and all observed plants are included in Attachment B. Regional land uses include rural residential, wineries, livestock grazing, and vineyards (Google Earth 2019). Historically, the region was open rangeland of larger ranches and vineyards. There is no history of quarrying, mining, or timbering in the Study Area (Historic Aerials 2019).

METHODS

Prior to the site visit, a review of the following literature and database searches was conducted to determine the potential for sensitive biological communities (e.g., wetlands) and special-status species (e.g., rare plants):

- *Soil Survey of Napa County, California* (USDA 1978)
- Mount George 7.5-minute quadrangle (USGS 2015)
- Contemporary aerial photographs (Google Earth 2019)
- Historical aerial photographs (Historical Aerials 2019)
- National Wetlands Inventory (NWI, USFWS 2019a)
- California Aquatic Resources Inventory (SFEI 2019)
- California Natural Diversity Database (CNDDDB, CDFW 2019a)
- California Native Plant Society Electronic Inventory (CNPS 2019a)
- Consortium of California Herbaria (CCH 2019)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2019b)
- *eBird* Online Database (eBird 2019)
- CDFW Publication, *California Bird Species of Special Concern in California* (Shuford and Gardali 2008)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)
- *Breeding Birds of Napa County, California* (Smith 2003)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)
- *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009)
- *A Manual of California Vegetation Online* (CNPS 2019b)
- *Preliminary Descriptions of the Terrestrial Natural Communities* (Holland 1986)
- Napa County Land Cover (NCLC) map (Thorne et al. 2004)
- *California Natural Community List* (CDFW 2019b)

Database searches (i.e., CNDDDB, CNPS) focused on the Yountville, Capell Valley, Mount Vaca, Napa, Mount George, Fairfield North, Cuttings Wharf, Cordelia, and Fairfield South USGS 7.5-minute quadrangles for special-status plants. The special-status wildlife evaluation was based on database searches for the entirety of Napa County. Attachment A contains observations of special-status species documented within a five-mile radius of the Study Area.

Following a review of the literature, a site visit was conducted on May 10, 2019. The entire Study Area was traversed on foot, and all plant species observed were documented along with direct (e.g., sighting, bird song) and indirect (e.g., tracks, scat) evidence of wildlife species. Land cover types present in the Study Area were classified based on existing plant community descriptions described by NatureServe Comprehensive Ecological Reports (Faber-Langendoen 2012) and *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). However, in some cases it may be necessary to identify variants of communities or to describe non-vegetated areas that are not described in the literature. Land Cover types were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

The potential for sensitive land cover types (e.g., wetlands) and special-status species to occur in the Study Area was evaluated from direct observations of suitable habitat and/or evidence of wetland indicators, assessing the regional context of documented occurrences (i.e., background

literature searches), presence or absence of on-site habitat, on-site and regional land use history, and the degree of ambient disturbance and human visitation within and immediately adjacent to the Study Area.

RESULTS

Land Cover Types

Developed & Landscaped (no vegetation alliance). CDFW Rank: None. Within the Study Area, developed portions are composed of a residence, landscaping, paved road and parking areas, and a small vineyard. Vegetation is minimal in built areas, but consists of wine grape (*Vitis vinifera*), ornamentals, and common weedy plants such as bristly ox-tongue (*Helminthotheca echioides*), mouse barley (*Hordeum murinum*), and red sand-spurry (*Spergularia rubra*). Developed areas total 0.77 acre in the Study Area and 0.01 acre in the Project Area (one percent of the total land cover type in the Study Area). This land cover type is synonymous with the Urban/Built-up biotic community in the NCLC (Thorne et al. 2004), which is not considered sensitive by Napa County, CDFW, or any other regulatory entity.

Ruderal Annual Grassland – Wild Oat Grassland (*Avena barbata* Semi-Natural Herbaceous Stands). CDFW Rank: None. Non-native grasslands occur throughout cismontane California, particularly in the Sierra Foothills, Coast Range, Transverse Range, and Peninsular Ranges (Sawyer et al. 2009, CNPS 2019b). These grasslands are typically situated on a variety of landscapes including coastal terraces, valley bottoms, and foothills underlain by a variety of soil types. The Study Area contains 1.08 acres of which 0.94 acres is situated in the Project Area (87 percent of the total land cover type in the subject parcel).

The grassland is entirely composed of herbaceous species with no trees or shrubs present. Dominant and characteristic plants include wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*B. hordeaceus*), Italian rye grass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum*), and mouse barley (*H. murinum*). This land cover type is synonymous with the California Annual Grasslands Alliance biotic community in the NCLC (Thorne et al. 2004), which is not considered sensitive by the CDFW or Napa County.

Coyote Brush Scrub (*Baccharis pilularis* Shrubland Alliance). CDFW Rank: G5 S5. Coyote brush scrub typically occurs at river mouths, stream sides, terraces, stabilized dunes, coastal bluffs, open slopes and ridges on sandy to relatively heavy clay (CNPS 2019b). The Study Area contains 0.08 acre of which the entirety is within the Project Area.

This scrub is composed of a mix of coyote brush (*Baccharis pilularis*) and herbaceous species including common soap plant (*Chlorogalum pomeridianum*), wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), wild radish (*Raphanus sativus*), and scarlet pimpernel (*Lysimachia arvensis*). This land cover type is synonymous with the Coyote Brush-California Sagebrush NFD Super Alliance biotic community in the NCLC (Thorne et al. 2004), which is not considered sensitive by the CDFW, Napa County, or any other regulatory entity.

Special-status Plant and Wildlife Species

According to the CNPS and CNDDB database searches, 75 special-status plants have been documented in the nine adjoining quadrangles and 58 special-status wildlife have been documented from Napa County (CDFW 2019a, CNPS 2019a). Additionally, according to the USFWS database search there are 16 plant and 20 wildlife species that are federally endangered or threatened known to occur in Napa County (USFWS 2019b). And finally, there are numerous special-status bird species documented from Napa County (Shuford and Garidali 2008, Smith 2003, eBird 2019).

Of the special-status plants documented from the greater vicinity, none have the potential to occur within the Study Area because of one or more of the following reasons:

- The Study Area has been degraded, and repeatedly and/or intensively altered from a natural state thereby eliminating the seedbank or other vegetative propagules (e.g., bulb), and/or diminishing establishment/re-establishment of the special-status plant(s)
- The Study Area does not contain hydrologic conditions (e.g., vernal pool, tidal marsh) necessary to support the special-status plant(s)
- The Study Area does not contain edaphic (soil) conditions (e.g., serpentine, volcanic) necessary to support the special-status plant(s)
- The Study Area does not contain vegetation conditions (e.g., riparian woodland, chaparral) associated with the special-status plant(s)
- The Study Area does not contain topographic conditions (e.g., montane setting, south-facing slopes) necessary to support the special-status plant(s)
- The Study Area is outside of the documented range (e.g. elevation, longitudinal) necessary to support the special-status plant(s)

Of the special-status wildlife species documented from the greater vicinity, one has the potential to occur within the Study Area. Non-special-status birds protected under the Migratory Bird Treaty Act (MBTA) have the potential to nest and rear young within the coyote brush scrub within the Study Area. The remaining special-status wildlife species are unlikely or have no potential to occur within the Study Area due to one or more of the following reasons:

- The Study Area does not contain aquatic habitat (e.g., perennial marsh, vernal pool) necessary to support the special-status wildlife species;
- The Study Area does not contain terrestrial habitat (e.g., chaparral, coniferous forest) necessary to support the special-status wildlife species;
- The Study Area does not contain prey species or host plant species necessary to support the special-status wildlife species;
- The Study Area does not contain structures necessary for nesting or roosting to support the special-status wildlife (e.g., trees, caves)
- The Study Area has been fragmented from intact habitat necessary to support the special-status wildlife species;
- The Study Area has been repeatedly and/or intensively altered and/or contains human visitation to such a degree as to diminish the quality of habitation by the special-status wildlife species.

Along with non-status birds protected under the MBTA, white-tailed kite (*Elanus leucurus*) has the potential to nest in the coyote brush scrub.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential (Presence Unknown). White-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. The Study Area provides suitable year-round habitat for white-tailed kites, including stands of oaks for nesting and open areas in close proximity for foraging. This species was not observed; however, a bird survey was not performed during this assessment.

ANALYSIS AND RECOMMENDATIONS

The project will not impact the following sensitive biological resources:

There are no sensitive terrestrial land cover types within the Project Area; therefore, there are no further actions recommended.

There are no aquatic resources within the Project Area; therefore, there are no further actions recommended.

There are no special-status plants within the Project Area; therefore, there are no further actions recommended.

There is no Critical Habitat, Essential Fish Habitat, or regional migratory corridors within the Project Area; therefore, there are no further actions recommended.

The project will not impact nesting birds if the following the recommendation is conducted:

WRA recommends that tree/shrub removal and initial ground disturbance occur from August 16 to January 31, outside of the general bird nesting season. If tree/vegetation removal during this time is not feasible, a pre-construction nesting bird survey should be performed by a qualified biologist no more than 14 days prior to the initiation of tree removal or ground disturbance is recommended. The survey should cover the Project Area (including tree removal areas) and surrounding areas within 500 feet. If active bird nests are found during the survey, an appropriate no-disturbance buffer should be established by the qualified biologist. Once it is determined that the young have fledged (left the nest) or the nest otherwise becomes inactive (e.g., due to predation), the buffer may be lifted and work may be initiated within the buffer.

There are no further recommendations for biological resources. Should you have questions or require additional information, please do not hesitate to contact me. Sincerely,

A handwritten signature in black ink, appearing to read 'Aaron Arthur', positioned above a horizontal line.

Aaron Arthur
Associate Plant Biologist
arthur@wra-ca.com

STATEMENT OF QUALIFICATIONS

WRA is an environmental consulting firm with over 30 years of experience conducting biological resources assessments, wetland delineations, protocol-level rare plant surveys, special-status wildlife assessments and species-specific surveys, as well as preparing applications with state and federal natural resource agencies for avoiding, minimizing, and mitigating impacts to sensitive natural resources. Other services and products with which WRA has expertise include preparation of CEQA/NEPA documents, habitat mitigation and monitoring plans, natural resource management plans, mitigation and conservation bank enabling instruments, grazing management plans, and wetland and other natural resources restoration plans.

Aaron Arthur, MS, Associate Plant Biologist with WRA, has over ten years performing vegetation & habitat mapping, rare plant surveys, botanical assessments, vegetation change analysis, and wetland delineations. His project focus is in vineyard development, timber resources, coastal development permits, habitat mitigation and monitoring plans, conservation and mitigation banking, and long-term management plans. Mr. Arthur regularly coordinates and implements vegetation mapping, protocol-level rare plant surveys, biological resource assessments, wetland delineations, and management plans with specialization in the vegetation and flora of Sonoma, Marin, Napa, and Mendocino counties. Mr. Arthur's technical training includes the flora of Northern California, the flora of the Pacific Northwest, agrostology, aquatic botany, plant ecology, forest ecology, and soil science; additionally he has completed the 40-hour Corps wetland delineation course. Mr. Arthur received his Bachelor of Arts in Geography and received his Master of Science in Physical Geography from Oregon State University, where his research focused on forest floristics and vegetation change.

Jason Yakich, MS, Associate Wildlife Biologist with WRA, has over eleven years of experience performing wildlife habitat assessments, biological monitoring for special-status wildlife species, breeding bird and other avian surveys, and protocol-level surveys for several special-status wildlife species. He prepares and oversees a variety of biological assessments and technical reports, and assures permit compliance for a wide array of public and private projects. Mr. Yakich has respective permit authorizations from the USFWS and CDFW to conduct active (call-playback) surveys for California clapper rail and California black rail. Mr. Yakich received his Bachelor of Arts in Biology from U.C. Santa Cruz, and received his Master of Science in Biology from San Francisco State University with a focus in marine biology.

Mr. Arthur performed the site visit and evaluated the Study Area for sensitive biological communities including but not limited to wetlands, non-wetland waters, rare natural communities, and riparian areas, and assessed its potential to support special-status plant species. Through a remote assessment supplemented by photographs and descriptions provided by Mr. Arthur, Mr. Yakich performed the special-status wildlife assessment and recommendations.

REFERENCES

- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California, 2nd Edition. University of California Press, Berkeley, CA. 1568 pp.
- California Department of Fish and Wildlife (CDFW). 2019a. California Natural Diversity Database (CNDDB), Wildlife and Habitat Data Analysis Branch. Sacramento, CA. Accessed: May 2019.
- California Department of Fish and Wildlife (CDFW). 2019b. California Natural Community List. Vegetation Classification and Mapping Program, California Department of Fish and Game, Sacramento, CA. January 24, 2018. Accessed: May 2019.
- Californica Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory: Cal-IPC Publication 2006-2. California Invasive Plant Council, Berkeley, CA. Available online: <http://www.cal-ipc.org/ip/inventory/index.php>. Accessed: May 2019.
- California Native Plant Society (CNPS). 2019a. Online Inventory of Rare, Threatened, and Endangered Plants of California. Available at: <http://www.rareplants.cnps.org/>. Accessed: May 2019.
- California Native Plant Society (CNPS). 2019b. A Manual of California Vegetation Online. Available at: <http://vegetation.cnps.org/>. Accessed: May 2019.
- Consortium of California Herbaria (CCH). 2019. Data provided by the participants of the Consortium of California Herbaria. Available at: <http://ucjeps.berkeley.edu/consortium>. Accessed: May 2019.
- eBird. 2019. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available at: <http://www.ebird.org>. Accessed: May 2019.
- Faber-Langendoen, D., J. Nichols, L. Master, K. Snow, A. Tomaino, R. Bittman, G. Hammerson, B. Heidel, L. Ramsay, A. Teucher, and B. Young. 2012. NatureServe Conservation Status Assessments: Methodology for Assigning Ranks. NatureServe, Arlington, VA.
- Google Earth. 2019. Napa area: 38.2965°, -122.2260°. Image dates: 1993-2018. Accessed: May 2019.
- Historical Aerials. 2019. Available at: <http://historicalaerials.com>. Accessed: May 2019.
- Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Sacramento, CA. 156 pp.
- Jennings, MR and MP Hayes. 1995. Amphibian and Reptile Species of Special Concern in California. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California. Contract No. 8023. November.
- Jepson Herbarium. Jepson Flora Project (eFlora). 2019. Jepson eFlora Online at: <http://ucjeps.berkeley.edu/IJM.html>. Accessed: May 2019.

- Lichvar, R.W. 2016. The National Wetland Plant List. Cold Regions Research and Engineering Laboratory. U.S. Army Corps of Engineers Research and Development Center. Hanover, NH..
- San Francisco Estuary Institute (SFEI). 2019. California Aquatic Resource Inventory (CARI). Available at: <http://www.sfei.org/cari#sthash.Mzz93W9i.dpbs>. Accessed: May 2019.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, 2nd Edition. California Native Plant Society in collaboration with California Department of Fish and Game. Sacramento, CA. 1300 pp.
- Shuford, W. D. and Gardali, T., eds. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Smith, A., ed. 2003. Breeding Birds of Napa County, California. Napa-Solano Audubon Society, Vallejo, California. 199 pp.
- Stebbins, RC. 2003. A Field Guide to Western Reptiles and Amphibians, Third Edition. Houghton Mifflin Company, Boston, MA and New York, NY.
- Thomson, R.C., A.N. Wright, and H.B. Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. Co-published by the California Department of Fish and Wildlife and University of California Press. Oakland, California.
- Thorne, J., Kennedy, J., Quinn, J., McCoy, M., Keeler-Wolfe, T. A Vegetation Map of Napa County Using the Manual of California Vegetation Classification and its Comparison to Other Digital Vegetation Maps. Information Center for the Environment (ICE). University of California, Davis. 2004.
- U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS). 1978. Soil Survey of Napa County, California. In cooperation with the University of California Agricultural Experiment Station.
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2019. Climate Information for Napa County in the State of California. Available at: <http://www.wcc.nrcs.usda.gov/>. Accessed: May 2019.
- U.S. Fish and Wildlife Service (USFWS). 2019a. National Wetlands Inventory. Available at: <http://www.fws.gov/wetlands/index.html>. Accessed: May 2019.
- U.S. Fish and Wildlife Service (USFWS). 2019b. List of Federal Endangered and Threatened Species that Occur in Napa County, California. Available at: <https://ecos.fws.gov/ipac/>. Accessed: May 2019.
- U.S. Geological Survey (USGS). 2015. Mount George, California. 7.5-minute quadrangle topographic map.

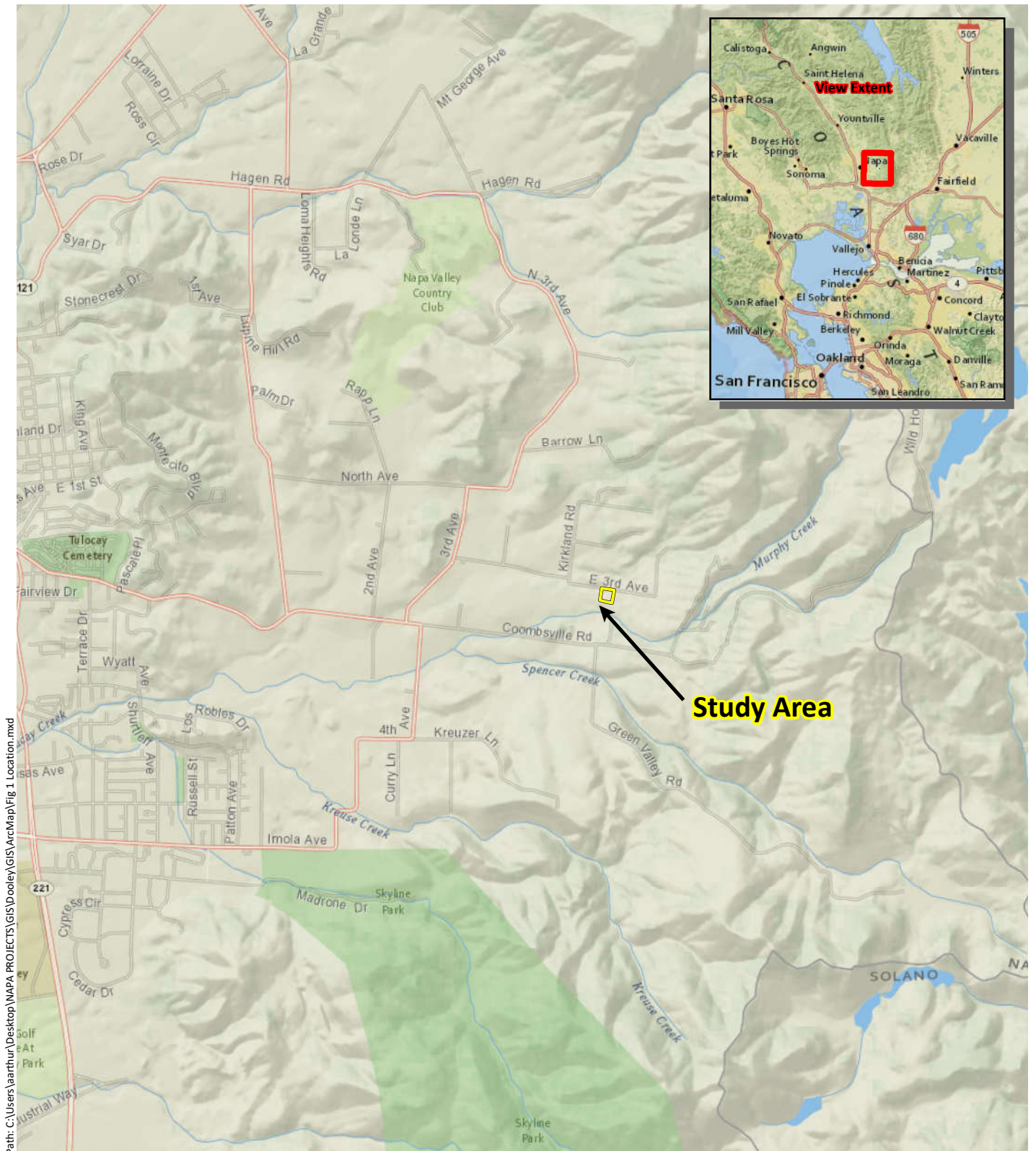
- U.S. Geological Survey (USGS). 2019. Breeding Bird Atlas Explorer. Available at: <http://www.pwrc.usgs.gov/bba>. Accessed: May 2019.
- Western Bat Working Group (WBWG). 2019. Species Accounts. Available at: <http://www.wbwg.org/>. Accessed: May 2019.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento.

ATTACHMENTS

Attachment A: Study Area Figure

Attachment B: List of Observed Plant Species

Attachment C: Representative Photographs



Sources: National Geographic, WRA | Prepared By: aarthur, 9/18/2019

Figure A-1. Study Area Location

4285 E. 3rd Avenue
Napa County, California

0 0.5 1
Miles

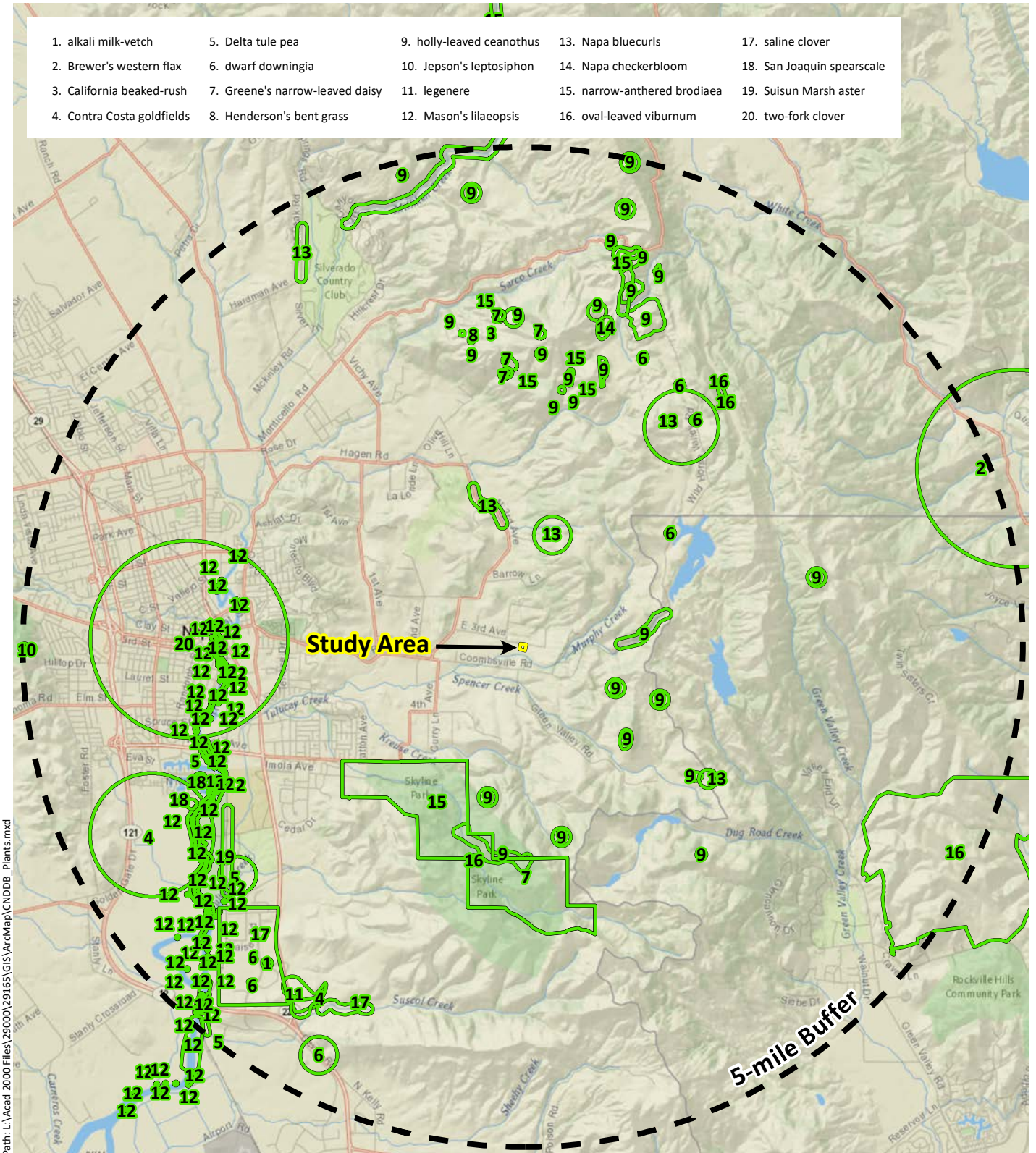
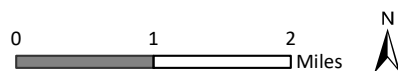


Figure A-2. CNDDb Special-Status Plants Documented within 5-miles of the Study Area

4285 E. 3rd Avenue
 Napa County, California



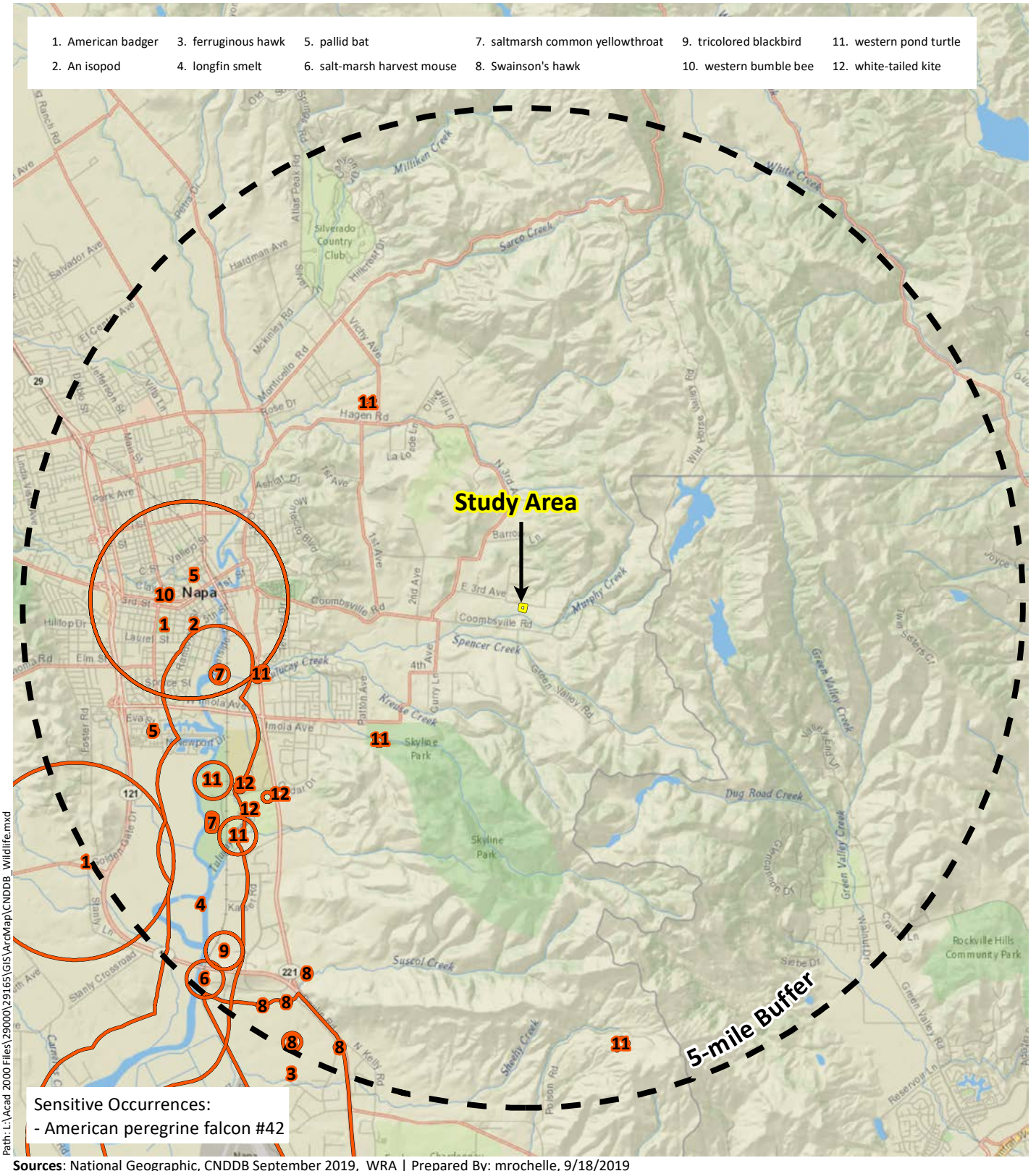
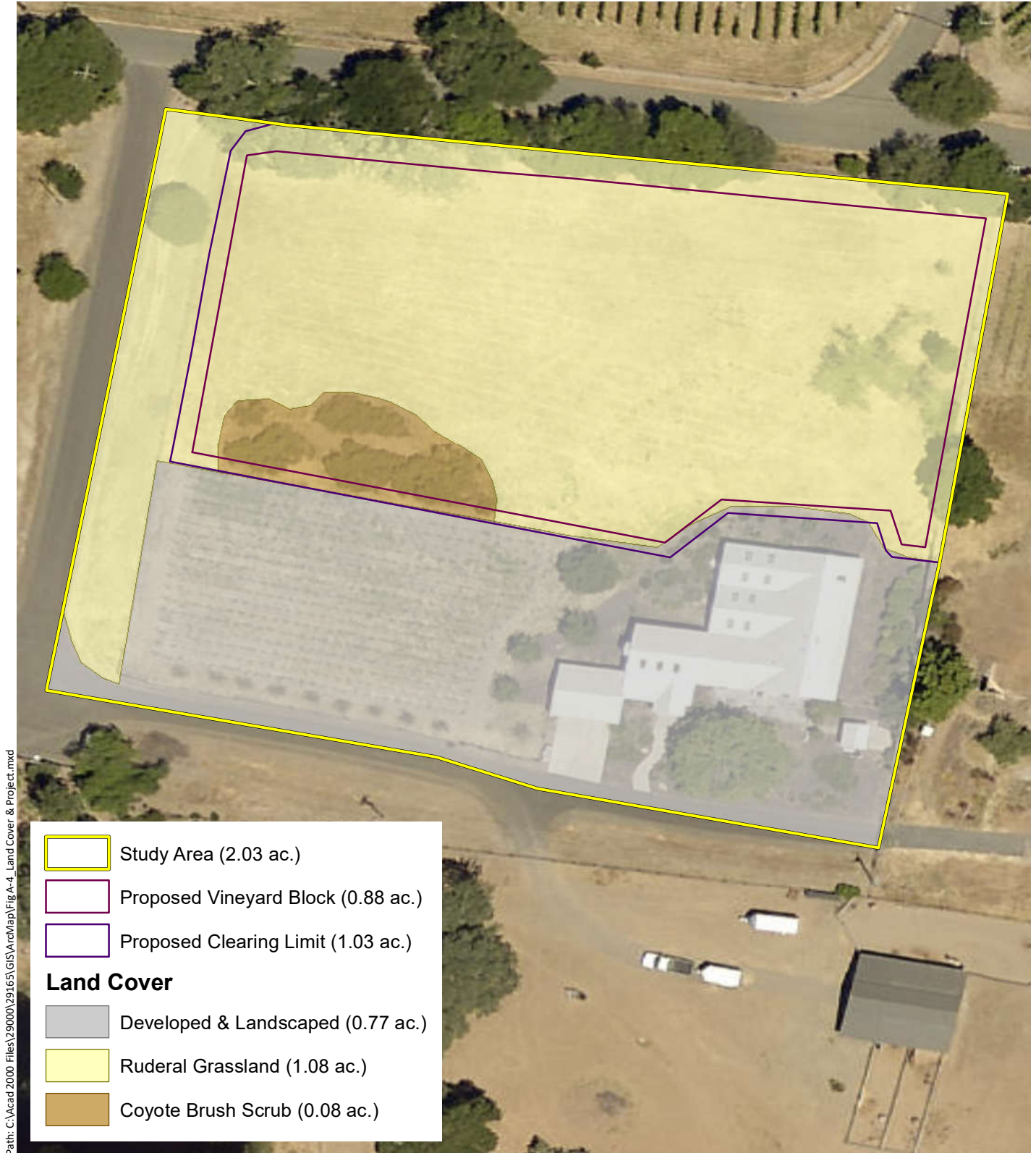


Figure A-3. Special-Status Wildlife Documented within 5-miles of the Study Area

4285 E. 3rd Avenue
Napa County, California

0 1 2 Miles





Sources: DigitalGlobe 2016 Aerial, WRA | Prepared By: aarthur, 2/18/2020

Figure A-4. Land Cover & Proposed Project

4285 E. 3rd Avenue
Napa County, California

0 50 100
Feet



Table B-1. Plants observed in the Study Area, May 10, 2019

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Agavaceae	<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	common soap plant	perennial forb	native	--	--	NL
Apiaceae	<i>Torilis arvensis</i>	hedge parsley	annual forb	non-native	--	moderate	NL
Asteraceae	<i>Baccharis pilularis</i>	coyote brush	evergreen shrub	native	--	--	NL
Asteraceae	<i>Carduus pycnocephalus</i>	Italian thistle	annual forb	non-native	--	moderate	NL
Asteraceae	<i>Helminthotheca echioides</i>	bristly ox-tongue	perennial forb	non-native	--	limited	FAC
Asteraceae	<i>Hypochaeris radicata</i>	rough cat's-ear	perennial forb	non-native	--	moderate	FACU
Asteraceae	<i>Lactuca serriola</i>	prickly lettuce	annual forb	non-native	--	assessed	FACU
Asteraceae	<i>Sonchus asper</i>	prickly sow thistle	annual forb	non-native	--	assessed	FAC
Brassicaceae	<i>Brassica rapa</i>	field mustard	annual forb	non-native	--	limited	FACU
Brassicaceae	<i>Raphanus sativus</i>	wild radish	perennial forb	non-native	--	limited	NL
Caryophyllaceae	<i>Spergularia rubra</i>	red sandspurry	perennial forb	non-native	--	--	FAC
Convolvulaceae	<i>Convolvulus arvensis</i>	field bindweed	perennial forb	non-native	--	assessed	NL
Fabaceae	<i>Medicago polymorpha</i>	bur medic	annual forb	non-native	--	limited	FACU
Fabaceae	<i>Trifolium dubium</i>	Shamrock clover	annual forb	non-native	--	--	UPL
Fabaceae	<i>Trifolium glomeratum</i>	clustered clover	annual forb	non-native	--	--	NL
Fabaceae	<i>Trifolium hirtum</i>	rose clover	annual forb	non-native	--	moderate	NL
Fabaceae	<i>Trifolium subterraneum</i>	subterranean clover	annual forb	non-native	--	--	NL
Fabaceae	<i>Trifolium tomentosum</i>	woolly clover	annual forb	non-native	--	--	NL
Fabaceae	<i>Vicia sativa</i>	garden vetch	annual forb	non-native	--	--	FACU
Fabaceae	<i>Vicia villosa</i>	woolly-pod vetch	annual forb	non-native	--	--	NL
Fagaceae	<i>Quercus agrifolia</i>	coast live oak	evergreen tree	native	--	--	NL
Fagaceae	<i>Quercus douglasii</i>	blue oak	deciduous tree	native	--	--	NL
Fagaceae	<i>Quercus lobata</i>	valley oak	deciduous tree	native	--	--	FACU
Geraniaceae	<i>Erodium brachycarpum</i>	foothill filaree	annual forb	non-native	--	limited	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Geraniaceae	<i>Geranium dissectum</i>	cutleaf geranium	annual forb	non-native	--	moderate	NL
Geraniaceae	<i>Geranium robertianum</i>	Robert's geranium	annual forb	non-native	--	assessed	NL
Iridaceae	<i>Sisyrinchium bellum</i>	blue-eyed grass	perennial forb	native	--	--	FACW
Juncaceae	<i>Juncus bufonius</i>	toad rush	annual graminoid	native	--	--	FACW
Lauraceae	<i>Umbellularia californica</i>	California bay	evergreen tree	native	--	--	FAC
Lythraceae	<i>Lythrum hyssopifolia</i>	hyssop loosestrife	annual forb	non-native	--	moderate	OBL
Montiaceae	<i>Claytonia perfoliata</i>	miner's lettuce	annual forb	native	--	--	FAC
Moraceae	<i>Ficus carica</i>	common fig	deciduous tree	non-native	--	moderate	FACU
Myrsinaceae	<i>Lysimachia arvensis</i>	scarlet pimpernel	annual forb	non-native	--	--	NL
Oleaceae	<i>Olea europaea</i>	olive	evergreen tree	non-native	--	limited	NL
Papaveraceae	<i>Eschscholzia californica</i>	California poppy	perennial forb	native	--	--	NL
Plantaginaceae	<i>Kickxia elatine</i>	sharp-leaf cancerwort	perennial forb	non-native	--	--	UPL
Plantaginaceae	<i>Plantago lanceolata</i>	English plantain	perennial forb	non-native	--	limited	FAC
Poaceae	<i>Avena barbata</i>	wild oat	annual graminoid	non-native	--	moderate	NL
Poaceae	<i>Avena fatua</i>	wild oat	annual graminoid	non-native	--	moderate	NL
Poaceae	<i>Briza maxima</i>	big rattlesnake grass	annual graminoid	non-native	--	limited	NL
Poaceae	<i>Briza minor</i>	little rattlesnake grass	annual graminoid	non-native	--	--	FAC
Poaceae	<i>Bromus carinatus</i>	California brome	perennial graminoid	native	--	--	NL
Poaceae	<i>Bromus catharticus</i>	Chilean brome	perennial graminoid	non-native	--	--	NL
Poaceae	<i>Bromus hordeaceus</i>	soft chess	annual graminoid	non-native	--	limited	FACU
Poaceae	<i>Cynodon dactylon</i>	Bermuda grass	perennial graminoid	non-native	--	moderate	FACU
Poaceae	<i>Festuca bromoides</i>	brome fescue	perennial graminoid	non-native	--	--	FACU
Poaceae	<i>Festuca perennis</i>	Italian rye grass	annual graminoid	non-native	--	moderate	FAC
Poaceae	<i>Hordeum marinum</i>	Mediterranean barley	annual graminoid	non-native	--	moderate	FAC
Poaceae	<i>Hordeum murinum</i>	mouse barley	annual graminoid	non-native	--	moderate	FACU
Poaceae	<i>Stipa pulchra</i>	purple needlegrass	perennial graminoid	native	--	--	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Poaceae	<i>Triticum aestivum</i>	bread wheat	annual graminoid	non-native	--	--	NL
Polygonaceae	<i>Rumex crispus</i>	curly dock	perennial forb	non-native	--	limited	FAC
Ranunculaceae	<i>Ranunculus muricatus</i>	spiny buttercup	perennial forb	non-native	--	--	FACW
Ranunculaceae	<i>Ranunculus occidentalis</i>	western buttercup	perennial forb	native	--	--	FAC
Rosaceae	<i>Heteromeles arbutifolia</i>	toyon	evergreen shrub	native	--	--	NL
Rosaceae	<i>Prunus cerasifera</i>	cherry plum	deciduous tree	non-native	--	limited	NL
Rubiaceae	<i>Galium aparine</i>	common bedstraw	annual forb	native	--	--	FACU
Salicaceae	<i>Salix lasiolepis</i>	arroyo willow	deciduous tree	native	--	--	FACW
Vitaceae	<i>Vitis vinifera</i>	wine grape	deciduous vine	non-native	--	--	NL

All species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012) and *A Flora of Sonoma County* (Best et al. 1996); nomenclature follows *The Jepson Flora Project* (eFlora 2019) unless otherwise noted

Sp.: “species”, intended to indicate that the observer was confident in the identity of the genus but uncertain which species
Cf.: intended to indicate a species appeared to the observer to be specific, but was not identified based on diagnostic characters

¹Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2019a)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2A:	Plants presumed extirpated in California, but more common elsewhere
Rank 2B:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 4:	Plants of limited distribution – a watch list

²Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

³Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Lichvar et al. 2016)

OBL:	Almost always a hydrophyte, rarely in uplands
FACW:	Usually a hydrophyte, but occasionally found in uplands
FAC:	Commonly either a hydrophyte or non-hydrophyte
FACU:	Occasionally a hydrophyte, but usually found in uplands
UPL:	Rarely a hydrophyte, almost always in uplands
NL:	Rarely a hydrophyte, almost always in uplands
NI:	No information; not factored during wetland delineation



Development (vineyard) in the southwest corner of the Study Area



Ruderal grassland (foreground) and development (residence) (background)



Ruderal grassland where the proposed vineyard block is situated



Coyote brush scrub between ruderal grassland and existing development (vineyard)