VESCO BIOLOGICAL ASSESSMENT
Egan Ranch
Proposed New Vineyard Blocks
1276 Jensen Lane
Windsor, CA

Prepared
By
Kjeldsen Biological Consulting
For

Cort Munselle

April 2017

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PROJECT NAME: Egan Ranch
1276 Jensen Lane
Windsor, CA

APN 162-080-007

PROJECT ENGINEER: Cort Munselle, PE
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EXECUTIVE SUMMARY

This study was conducted at the request of Cort Munselle, PE, Munselle Civil Engineering, as background information for a permit from the Sonoma County Agricultural Commissioner's Office to plant new vineyards.

The application proposes to plant five new vineyard blocks that total 6.82-net acres and 9.31-gross-acres. The property contains existing vineyards that have been removed this summer, access road, pastoral grasslands, oak woodlands, wetland and seasonal drainages with riparian cover. The property is within the USGS Healdsburg Quadrangle. The property is located northeast of Windsor at 1276 Jensen Lane off of Chalk Hill Road.

Our biological review was conducted to identify the need for any State or Federal permits, compliance with the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA), the U.S. Army Corps of Engineers (ACOE) Jurisdictional Wetlands as defined by Section 404 of the Clean Water Act, and local regulatory requirements.

The findings presented are the result of field studies conducted on July 12th, 2017 by Kjeldsen Biological Consulting:

- The project proposes to plant five separate vineyard blocks within ruderal annual pastoral grasslands (Semi-natural stands with Herbaceous layer). Buildings have been removed within proposed Vineyard Block E prior to our survey;
- There are no seasonal wetlands, vernal pools or creeks within the footprint of the proposed project;
- No sensitive plant or animal habitat, or special-status plant or animal species were identified or would be expected within the footprint of the proposed vineyard. It is unlikely that the proposed vineyard would impact any of the special-status plant or animal species known for the Quadrangle or the region based on the habitat present;
- The property is <u>not</u> located within the current U.S. Fish and Wildlife Service Critical Habitat for the Sonoma County Population of the California Tiger Salamander, or California Red-legged Frog. The property is within the watershed of the Russian River which is designated Critical Habitat for Chinook salmon (*Oncorhynchus (=Salmo) tshawytscha*), and Steelhead *(Oncorhyncus (=Salmo) mykiss)*.
- The proposed planting areas will not significantly reduce the habitat for any State orFederally listed plants or animals;
- The project will not impact any Sensitive Natural Communities regulated by the California Department of Fish and Wildlife;
- The project will remove a small amount of native live oaks and a few planted landscape trees. No Valley or heritage oaks will be removed;

- Approximately 20% of the property will be retained in a natural state outside of the footprint of the proposed project and existing vineyards;
- The proposed planting area will not interfere with native wildlife species, wildlife corridors, or native wildlife nursery sites;
- The footprint of the planting will not significantly contribute to habitat loss or habitat fragmentation; and
- The flora and fauna observed on and near the proposed vineyard blocks is included as an Appendix.

It is concluded, based on our site visit and available information that no State or Federal permits are required and that the project will be in compliance with the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). The habitat is such that there is no need for seasonal floristic surveys or seasonal wildlife surveys.

The proposed project footprint is not associated with Seasonal Wetlands or "Waters of the U.S." that would be under the jurisdiction of U.S. Army Corps of Engineers (ACOE), California Department of Fish and Wildlife (CDFW), and or Regional Water Quality Control Board (RWQCB).

Recommendations

The vineyard planting must follow Best Management Practices for Agricultural Erosion and Sediment Control and setbacks as per Sonoma County Agricultural Commissioner's Office, December 2013. All construction activities must be limited to the proposed project footprint or existing roads.

The proposed vineyard is within the Russian River Watershed which is designated as critical habitat for Chinook salmon (*Oncorhynchus* (=Salmo) *tshawytscha*), and Steelhead *(Oncorhyncus (=Salmo) mykiss)*. It is recommended that the project applicant review the PRESCRIBE Online Database. The PRESCRIBE online database application was developed to help pesticide applicators find out if they have any endangered species in the vicinity of their application site, and the use limitations applicable to the pesticide product(s) they intend to use. This site provides information consistent with the U.S. Environmental Protection Agency Interim Measures Bulletins for Protection of Endangered Species for user-selected sites and pesticides. This program is implemented by the Department of Pesticide Regulation on behalf of U.S. EPA under Section 7(a)(1) of the Endangered Species Act.

Deer fencing, if installed, should be designed with exit gates and limited to vineyard blocks to allow wildlife movement around the project. Any new fencing should use a design that has 6-inch square gaps at the base instead of the typical 3" by 6" rectangular openings to allow small mammals to move through the fence.

Whenever possible Integrated Pest Management practices should be employed with minimally toxic pest control methods. Trapping or raptors should be used for rodent control. Sustainable Farming Practices should be used to insure that use of herbicides toxic to amphibians should be minimized.

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1276 Jensen Lane

A. PROJECT DESCRIPTION

A.1 Introduction

This study was conducted at the request of Cort Munselle, PE, Munselle Civil Engineering, as background information for permits from the Sonoma County Agricultural Commissioner's Office. The property consists of vineyards with infrastructure, access roads, annual ruderal pastoral grasslands, wetland, drainages and open space oak woodlands. The property is located northeast of Windsor within the USGS Healdsburg Quadrangle.

The application proposes to plant five new vineyard blocks that total 6.82-net acres and 9.31-gross-acres. The property contains existing vineyards that have been removed this summer, access road, pastoral grasslands, oak woodlands, wetland and seasonal drainages with riparian cover. The property is within the USGS Healdsburg Quadrangle. The property is located northeast of Windsor at 1276 Jensen Lane off of Chalk Hill Road.

A.2 Purpose

Our biological review was conducted to identify the need for any State or Federal permits, compliance with the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA).

This report addresses the presence of or potential for Threatened or Endangered species listed by the California Department of Fish and Wildlife (CDFW) and or U.S. Fish and Wildlife Service (USFWS) which may be present on or associated with the project sites.

Our study also addresses the presence of or potential for sensitive plant communities listed by CDFW, Critical Habitat listed by the USFWS, Seasonal Wetlands (including creeks, drainage swales, vernal pools) regulated by ACOE, CDFW or California Regional Water Quality Control Board (RWQCB) and setbacks required by Sonoma County Best Management Practices for Agricultural Erosion and Sediment Control (December 2013) associated with the proposed project footprint.

This biological assessment provides general information on the potential presence of sensitive species and habitats. The biological assessment is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit.

B. SURVEY METHODOLOGY

B.1 Project Scoping

The scoping for the study area considered location and type of habitat and or vegetation types present on the property or associated with potential special-status plant species known for the Quadrangle, surrounding Quadrangles, the County or the region. Our scoping also considered records in the most recent version of the Department of Fish and Wildlife California Natural Diversity Data Base (CDFW CNDDB Rare Find), and U.S. Fish and Wildlife species list for the property. "Target" special-status species are those listed by the State or Federal government as endangered or threatened in the region. Our scoping is also a function of our familiarity with the local flora and fauna as well as previous projects on other properties in the area.

Google historic aerial photographs were reviewed to provide a context for biological analysis of the study sites.

Special-status Species

Special-status Species are plants or animals that have been designated by Federal or State agencies as rare, threatened, or endangered. Species under VESCO review are organisms that are listed threatened or endangered by State or Federal agencies.

The California Endangered Species Act (CESA)

Fish and Wildlife Code Sections 2050-2098 establishes State policy to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat. The Fish and Wildlife Commission is charged with establishing a list of endangered and threatened species. State agencies must consult with the CDFW to determine if a proposed project has the potential to jeopardize the continued existence of listed endangered, threatened, or candidate species.

California Department of Fish and Game Code Section 1602

An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Critical Habitat

Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery.

Sensitive Communities

CDFW Natural Diversity Data Base uses environmentally sensitive plant communities for plant populations that are rare or threatened in nature. Sensitive habitat is defined as any area which meets one of the following criteria: (1) habitats containing or supporting "rare and endangered" species as defined by the State Fish and Wildlife Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing

breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.

B.2 Field Survey Methodology

Our fieldwork was conducted by walking the proposed vineyard blocks with two personnel. Our fieldwork analyzed the proposed planting sites and surrounding habitat for special-status organisms or the presence of suitable habitat, which would support special-status organisms. The findings presented below are the results of fieldwork conducted on July 12th, 2017 by Kjeldsen Biological Consulting.

Plants

Field surveys were conducted identifying and recording all species on the site and along the edges of the proposed vineyard blocks. Plants unidentifiable in the field were collected for identification with reference sources and a binocular microscope. Plant materials collected and identified in the laboratory are noted in the attached appendix. The open nature of the site, historic agricultural practices, on-going maintenance, and size of the project footprint facilitated our field studies. Typically, blooming examples are required for identification however it is not the only method for identifying the presence of or excluding the possibility of rare plants. Vegetative morphology and dried flower or fruit morphology, which may persist long after the blooming period, may also be used. Skeletal remains from previous season's growth can also be used for identification. Some species do not flower each year or only flower at maturity and therefore must be identified from vegetative characteristics.

Habitat is a key characteristic for consideration of special-status species in the region. Many special-status species are rare in nature because of their specific and often very narrow habitat or environmental requirements. A site evaluation based on habitat or environmental conditions is therefore a reliable method for including or excluding the possibility of special-status species in an area.

The site visit does not constitute a protocol-level survey. All plants living or remains from previous years growth were identified and are listed in Appendix A.

Animals

Animals and wildlife were identified in the field by their sight, sign, or call. Our field techniques consisted of surveying the area with binoculars and walking the perimeter and transects of the proposed vineyard blocks. Existing site conditions were used to identify habitat which could potentially support special-status species.

Trees near the project sites were surveyed to determine whether occupied raptor nests were present within the proximity of the property (i.e., within a minimum 500 feet of the areas to be disturbed). Surveys consisted of scanning the trees on the property (500 ft +) with binoculars searching for nest or bird activity.

Potential bat breeding habitat was surveyed for within 200 feet of the proposed project blocks, by looking for roosting habitat, rock outcrops and tree crevasses. All animal life observed was recorded and is presented in Appendix A.

Wildlife Movement

Aerial photos were reviewed to evaluate the habitat surrounding the sites and the potential for wildlife movement, or wildlife corridors from adjoining properties onto or through the property. Our field methodology for identifying corridors searched for game trails or habitat that would favor movement of wildlife or potential gene flow. We also looked for barriers that would prevent movement or direct movement to particular areas. No game cameras, trackplates, or other field equipment were used.

Wetlands

The property was reviewed to determine from existing environmental conditions with a combination of vegetation, soils, and hydrologic information if seasonal wetlands were present. Wetlands were evaluated using the ACOE's three-parameter approach: Vegetation, Hydrology, and Soils.

Waters of the U. S. (WOTUS)

Waters of the U.S. are defined as wetlands, ponds, lakes, creeks, streams, rivers, ephemeral drainages, ditches and seasonally ponded areas (EPA and ACOE rule August 28, 2015). Seasonal stream channels with a definable bed and bank fall within the jurisdiction of (EPA, ACOE and CDFW). "Waters of the State" are determined by the evaluation of continuity, "ordinary high water mark," a definable bed and bank, evidence of or ability to transport sediment and/or a blue line on USGS Quadrangle Map.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act.

The Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The MBTA also prohibits disturbance or harassment of nesting migratory birds at any time during their breeding season.

C. RESULTS / FINDINGS

Our results and findings are based on our fieldwork, literature search, and the background material available for the proposed plantings. The project proposes to plant a five new vineyard blocks that total approximately 9.31-gross acres with ruderal grassland with surrounding oaks. Buildings have been removed within block E prior to our survey and existing vineyards have been removed. Oak trees surrounding the perimeter of some of the blocks will be trimmed or removed. There is existing deer fencing surrounding portions of the sites.

C.1 Biological Setting

The property and project sites are within the Coast Range. The vegetation present on the proposed vineyard sites consists of ruderal annual grassland that has been seeded for erosion control. Figures 1 to 4 below illustrate the present conditions of the study areas.

Figure 1 View of proposed Block E.

Figure 2. Proposed Block D. Typical habitat found on the site.

Figure 3. Typical habitat found on the site.

Figure 4. Ruderal grasslands within proposed Block A.

C.2 Habitat Types Present

The CNPS Inventory of Rare and Endangered Plants of California associates the rare and endangered species with "Habitat Types." The Habitat Type for the project sites would be considered Valley and Foothill Grassland. CDFW also uses this classification for their CNDDB records.

A Manual of California Vegetation Second Edition (Sawyer,2009) classifies the vegetation on the property as Grassland - Semi-natural Herbaceous Stands with Herbaceous Layer.

Grassland Semi-natural Herbaceous Stands with Herbaceous Layer

Semi-Natural Herbaceous Grasslands are a result of historic disturbance and the introduction of non-native grasses and herbs. Sawyer uses the term "Semi-natural Stands" to refer to non-native introduced plants that have become established. Semi-natural stands are those dominated by non-native species that have become naturalized primarily as a result of fire suppression and historic management practices. This includes what can be termed weeds, aliens, exotics or invasive plants in agricultural and nonagricultural settings.

Ruderal Grassland

The ruderal grasslands have been termed California Annual Grassland Alliance. This extensive series is composed of many introduced non-native species with relict native annual species within the stands.

Wildlife Associated with Ruderal Annual Grassland

The grassland field of the study area provides habitat for a variety of birds and small mammals. The vegetation present provides browse for deer as well as cover and foraging habitat for mice and voles. Numerous bird species forage for insects and seeds in these grasslands. Bats will forage for insects over this area and raptors will feed on reptiles and mammals in this type of vegetation cover. In general, however, the habitat found on the sites is not optimum habitat for wildlife.

C.3 Special-Status Species

Tables I and II below list the "target" special-status plants and animals known from the near vicinity of the project sites. The tables provide the habitat associated with the taxon, seasonality of plant species and analysis of habitat on the project sites.

Plants

A map from the CDFW CNDDB Rare Find Plate I show known special-status plant species in the proximity of the project. Species known to occur within close proximity and State and Federal Listed species shown in Appendix B were considered and reviewed as part of our scoping for the project sites and property. These species are shown in the Table below.

The CDFW CNDDB does not record any special-status plants adjacent to the study sites.

Table I. Analysis of CDFW and USFWS target plant species. Columns are arranged alphabetically by scientific name.

Scientific Name Common Name	Habitat Type or Plant Alliance	Habitat Present on Sites	Flower Period	Species Present	Analysis of habitat on project sites for presence or absence
Alopercus aequalis var. *sonomensis* Sonoma Alopercus	Marshes and Swamps	No	May-July	No	Absence of requisite mesic habitat or substrate on project sites.
Arctostaphylos bakeri ssp. *bakeri* Baker's Manzanita	Chaparral, Serpentinite	No	March -May	No	Requisite edaphic conditions precludes presence.
Arctostaphylos bakeri ssp. *sublaevis* The Cedars Manzanita	Chaparral, Serpentinite	No	Feb.-April	No	Requisite edaphic conditions precludes presence.
Arctostaphylos densiflora Vine Hill Manzanita	Chaparral, Acid Marine Sand	No	Feb.-April	No	Requisite habitat and vegetation associates absent on the sites or in the immediate vicinity.

Scientific Name Common Name	Habitat Type or Plant Alliance	Habitat Present on Sites	Flower Period	Species Present	Analysis of habitat on project sites for presence or absence
Astragalus claranus Clara Hunt's Milk-vetch	Chaparral, Cismontane Woodland, Valley and Foothill Grassland	No	March-May	No	Absence of requisite micro-habitat and vegetation associates.
Blennosperma bakeri Sonoma Sunshine	Valley and Foothill Grassland, Vernal Pools	No	March-May	No	Absence of requisite mesic habitat.
Castilleja uliginosa Pitkin Marsh Paintbrush	Marshes and Swamps	No	June-July	No	Requisite habitat and vegetation associates absent.
Chorizanthe valida, Sonoma Spineflower	Coastal Prairie (sandy)	No	June-August	No	Absence of requisite substrate on project sites precludes presence.
Clarkia imbricata Vine Hill Clarkia	Chaparral, Valley and Foothill Grassland	No	June-Aug.	No	Absence of requisite habitat and vegetation associates on the sites or in the immediate vicinity.
Cordylanthus tenuis ssp. *capillaris* Pennell's Bird's-beak	Chaparral Serpentinite	No	June-Oct.	No	No suitable habitat present on-site.
Delphinium bakeri Baker's Larkspur	Coastal Shrub, Low Brush	No	May-June	No	Absence of typical habitat and vegetation associates.
Delphinium luteum Golden Larkspur	Chaparral, Coastal Prairie	No	March-May	No	Absence of typical habitat and vegetation associates.
Gratiola heterosepala Boggs Lake Hedge-hyssop	Shallow Water, Margins of Vernal Pools	No	April-Sept.	No	Lack of aquatic habitat.
Lasthenia burkei Burke's Goldfields	Vernal Pools	No	April –June	No	Requisite aquatic habitat absent on the sites or in the immediate vicinity.
Lilium pardalinum ssp. *pitkinense* Pitken Marsh Lily	Marshes and Swamps, Valley Oak Scrub	No	May-Aug.	No	Absence of requisite mesic habitat.

Scientific Name Common Name	Habitat Type or Plant Alliance	Habitat Present on Sites	Flower Period	Species Present	Analysis of habitat on project sites for presence or absence
Navarretia leucocephala ssp. *plieantha* Many-flowered Navarretia	Vernal Pools, Volcanic Ash Flow	No	May-June	No	Absence of typical habitat and vegetation associates.
Pleuropogon hooverianus North Coast Semaphore Grass	Broadleaved Upland Forest, Meadows and Seeps, Marshes and Swamps	No	May-Aug.	No	Mesic habitat not present on project sites.
Sidalcea oregana ssp. *valida* Kenwood Marsh Checkerbloom	Meadows And Seeps, Riparian Scrub Mesic	No	June-Aug.	No	Requisite mesic habitat absent.
Trifolium amoenum Two-fork Clover	Coastal Bluff Scrub, Valley and Foothill Grassland Serpentinite	No	April-June	No	Disturbance on the sites precludes presence.

The planting areas do not contain habitat which would support special-status plant species. The historic use, absence of serpentine or serpentinite soils, lack of vernal pools, or wetlands, and vegetation associates reasonably precludes the presence of special-status species within the proposed planting area.

Based on existing habitat, it is unlikely that the proposed project would have a substantial impact or result in any take of special-status plant species listed by CDFW and/or USFWS.

Animals

A map from the CDFW CNDDB Rare Find Plate II shows known special-status animal species in the proximity of the project. Species known to occur within close proximity and State and Federal Listed species shown in Appendix B were considered and reviewed as part of our scoping for the project sites and property.

The CDFW CNDDB does not show any records of special-status species of animals for the study sites.

Table II. Analysis of CDFW and USFWS target animal species. Columns are arranged alphabetically by scientific name.

Scientific Name Common Name	**Habitat**	**Potential for Project Sites**	**Obs. on or Near Project Sites**	**Analysis of habitat on project sites for presence or absence**
Agelaius tricolor Tricolored Blackbird	Tule Marshes	No	No	Lack of habitat.
Ambystoma californiense California Tiger Salamander	Ephemeral Breeding pools with Upland oak Woodlands for estivation	NA	No	No breeding or Upland habitat. Not within current range.
Emys marmorata Western Pond Turtle	Slow moving water or ponds	No	No	Property does not contain habitat to support species.
Geothlypis trichas sinuosa Saltmarsh Common Yellowthroat	Salt Marsh Tule Habitat	No	No	Lack of habitat.
Oncorhynchus mykiss irideus Steelhead	Aquatic	No	No	Lack of aquatic habitat.
Oncorhynchus kisutch Coho Salmon	Aquatic	No	No	Lack of suitable habitat.
Pekania pennanti Fisher-West Coast	Conifer and Mixed woodlands	No	No	Lack of suitable habitat.
Rana boylii Foothill Yellow-legged Frog	Streams with pools	No	No	Lack of aquatic habitat within drainage.
Rana draytonii California Red-legged Frog	Creeks, Rivers, Permanent flowing water.	No	No	Lack of aquatic habitat.
Strix occidentalis caurina Northern Spotted Owl	Old growth, Forested deep canyons.	No	No	Requisite habitat absent. Not associated with project.
Syncaris pacifica California Freshwater Shrimp	Creeks and Estuaries below 300 ft.	No	No	Requisite aquatic habitat required for presence lacking.

Scientific Name Common Name	Habitat	Potential for Project Sites	Obs. on or Near Project Sites	Analysis of habitat on project sites for presence or absence
Taxidea taxus American Badger	Hillsides with suitable food sources	Yes	No	No burrows observed.

Based on habitat associated with the proposed project sites we conclude that it is unlikely that any of the species shown in the table above, or others known for the region, would occur on the sites given the history of disturbance and lack of proper hydrology/topography. It is unlikely that the project would negatively impact special-status animals or have any significant habitat loss for special-status animal species.

C.4 Discussion of Sensitive Habitat Types

The sensitive habitat types identified by the CDFW CNDDB for the quadrangle and surrounding quadrangles are the following; Coastal and Valley Freshwater Marsh, Northern Hardpan Vernal Pool Northern Vernal Pool and Valley Needle Grass Grassland. The above referenced habitat types are not present on the project sites.

• Critical Habitat
The proposed planting area is not located within the designated critical habitat identified by the US Fish and Wildlife Service (USFWS) for the Sonoma California Tiger Salamander, or the California Red-legged Frog. The property is within the watershed of the Russian River which is listed as Critical Habitat for Chinook salmon (*Oncorhynchus* (=Salmo) *tshawytscha*), and Steelhead *(Oncorhyncus (=Salmo) mykiss)*.

• Native Grassland
Experts conclude that native grasslands in California are among the most endangered ecosystem in the United States. This is due to historical land use, the introduction and naturalization of non-native species of grasses and herbs and introduced disease. It is estimated that less than 1% of our state's original grasslands remain. Grasslands within the footprint of the project are not native grasslands. No native grasslands will be impacted by the proposed vineyard.

• Riparian Vegetation
Riparian habitat and vegetation are by all standards considered sensitive. Riparian Vegetation functions to control water temperature, regulate nutrient supply (biofilters), bank stabilization, rate of runoff, wildlife habitat (shelter and food), release of allochthonous material, release of woody debris which functions as habitat and slow nutrient release, and protection for aquatic organisms. Riparian vegetation is also a moderator of water temperature and has a cascade effect in that it relates to oxygen availability. Riparian vegetation exists within the drainages on the property. No riparian vegetation is proposed to be removed by the project.

• Seasonal Wetland

Seasonal wetland generally denotes areas where the soil is seasonally saturated and/or inundated by fresh water for a significant portion of the wet season, and then seasonally dries during the dry season. To be classified as "Wetland," the duration of saturation and/or inundation must be long enough to cause the soils and vegetation to become altered and adapted to the wetland conditions. Varying degrees of pooling or ponding, and saturation will produce different edaphic and vegetative responses. These soil and vegetative clues, as well as hydrological features, are used to define the wetland type. Seasonal wetlands typically take the form of shallow depressions and swales that may be intermixed with a variety of upland habitat types. Seasonal wetlands fall under the jurisdiction of the U.S. Army Corps of Engineers. One small wetland area was identified and has been avoided adjacent to Block C. There are no seasonal wetlands within the footprint of the proposed project.

• Vernal Pools

Vernal pools are a type of seasonal wetland distinct for California and the western US. Typically they are associated with seasonal rainfall or "Mediterranean climate" and have a distinct flora and fauna, an impermeable or slowly permeable substrate and contain standing water for a portion of the year. They are characterized by a variable aquatic and dry regime with standing water during the spring plant growth regime. They have a high degree of endemism of flora and fauna. The project is not associated with any vernal pools.

• "Waters of the State"

The project footprint drains by sheet flow into unnamed tributaries of Windsor Creek thence the Russian River. Best Management Practices and erosion control methods will prevent any downslope impacts to the aquatic resources of this watershed. There area several drainages on the property that would be considered "waters of the U.S." All drainages have been avoided and provided with setbacks as per Sonoma County VESCO requirements There are no drainages within the footprint of the proposed project.

• Migratory Corridors or Habitat Links

Wildlife Corridors are natural areas interspersed within developed areas that are important for animal movement, increasing genetic variation in plant and animal populations, reduction of population fluctuations, retention of predators of agricultural pests and for movement of wildlife and plant populations. Wildlife corridors have been demonstrated to not only increase the range of vertebrates including avifauna between patches of habitat but also facilitate two key plant-animal interactions: pollination and seed dispersal. Corridors and also preserve watershed connectivity. Corridor users can be grouped into two types: passage species and corridor dwellers. The data from various studies indicate that wildlife corridors should be a minimum of 100 feet wide to provide adequate movement for passage species and corridor dwellers in the landscape.

Criteria for evaluating corridors – Corridors are considered suitable for wildlife movements if they provide avenues along which:

1. Wide-ranging animals can travel, migrate and meet mates.
2. Plants can propagate.
3. Genetic interchange can occur.
4. Populations can move in response to environmental changes and natural disasters.
5. Individuals can recolonize habitats from which populations have been locally extirpated.

These five functions were used to evaluate potential wildlife corridors on the property and if the project would interrupt any corridors. The property is currently deer fenced. The project will not negatively impact any migratory corridor or interrupt habitat linkage.

• Trees

The project will remove a small amount of live oaks surrounding the proposed vineyard blocks. No Valley or heritage oaks will be removed.

• Nesting or Breeding Habitat, or Unique Plant Distributions or Populations

We found no indications of nesting raptors on the property or in the near vicinity of the project. We did not observe any nests, whitewash or nest droppings, associated with the project sites. No bird rookeries were found to be present within the project footprint.

The Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The MBTA also prohibits disturbance or harassment of nesting migratory birds at any time during their breeding season. No raptor nests or whitewash from nests near the project sites were observed. The project footprint does not support any potential nesting habitat for raptors.

Unique plant populations consist of endemics or associations that would be outliers from populations that are outside of the region. There are no unique plant distributions associated with the proposed project.

• Bat Roosting Habitat

Foliage and bark with small cavities in any tree could provide suitable temporary habitat for solitary tree-roosting bat species. Trees proposed to be removed were review to determine if they contained potential structure for bat roosting. Trees proposed to be removed are healthy and did not contain features required for roosting bats. Trees surrounding the proposed vineyard blocks do not contain structure to support potential roosting habitat for bats.

D. POTENTIAL BIOLOGICAL IMPACTS

The project's effect to onsite or regional biological resources is considered to be significant if the project results in:

- Alteration of unique characteristics of the area, such as sensitive plant communities and habitats (i.e. serpentine habitat, wetlands, riparian habitat);
- Adverse impacts to special-status plant and animal species;
- Adverse impacts to important or vulnerable resources as determined by scientific opinion or resource agency concerns (i.e. sensitive biotic communities, special-status habitats; e.g. wetlands);
- Loss of critical breeding, feeding or roosting habitat; or
- Interference with migratory routes or habitat connectivity.

D.1 Analysis of Potential Impacts to Special-status Species

The habitat impacted by the proposed project is such that there is little reason to expect impacts to special-status species. We found no evidence for the presence of any special-status species on or in the vicinity of the proposed vineyard. The habitat present and historic use of the property reasonably precludes presence of special-status species on or associated with the proposed vineyard.

The CNDDB five-mile search does not show any records of special-status species on the property. There is no reason to expect any negative impacts to special-status species or locally significant biological resources by the proposed project, provided Best Management Practices for Agricultural Erosion and Sediment Control as per Sonoma County Agricultural Commissioner's Office, December 2013 are followed.

The project drains into unnamed tributaries of Windsor Creek thence the Russian River, which contains habitat for Chinook salmon, and Steelhead.

Adequate analysis of the water demands of the proposed vineyard and potential stream flow impacts should be analyzed if direct water diversions are used to irrigate vineyards or for frost protection.

D.2 Analysis of Potential Impacts on Sensitive Habitat

The sensitive habitat types identified in the CDFW CNDDB and known for the region are not present within the proposed vineyard sites. The project will not impact any seasonal wetlands, or vernal pools.

D.3 Potential Off-site Impacts

The project has the potential to impact aquatic species downstream by sediment loss. The proposed project must follow Best Management Practices for Agricultural Erosion and Sediment Control and stream setbacks as per Sonoma County Agricultural Commissioner's Office (December 2013) to insure that there is no increased sediment or erosion from the sites during development of vineyards.

Any potential off-site impacts will be less than significant provided Best Management Practices for Agricultural Erosion and Sediment Control and stream setbacks are implemented as per Sonoma County Agricultural Commissioner's Office (December 2013) are implemented and followed.

D.4 Potential Cumulative Impacts

Cumulative biological effects are the result of incremental losses of biological resources within a region. Removal of vegetation can reduce the abundance and diversity of species in an area. Vineyards provide limited foraging, cover, and breeding habitat for native wildlife species. Vineyards can be used by wildlife but the diversity is low within vineyards and foraging may be difficult.

Significant cumulative effects may be expected where there is a substantial reduction in required habitat for local or regional species or the project will result in substantial interference with the movement and or reproduction of resident or migratory species. Factors that were considered in the evaluation of cumulative biological impacts include:

1. Any known rare, threatened, or endangered species or sensitive species that may be directly or indirectly affected by project activities or on the habitat of the species.
2. Any significant, known wildlife or fisheries resource concerns within the immediate project area and the biological assessment area (e.g. loss of structural elements, and significant natural areas).
3. Adequacy of standard setbacks for protection of aquatic and near-water habitat conditions.

On a local or regional scale it is anticipated that any cumulative effects will be negligible or un-quantifiable. The project footprint will not significantly contribute to habitat loss or habitat fragmentation. There is no reason to expect any species exclusion, isolation or extinction. There are no potential significant impacts to migratory corridors or wildlife nursery sites associated with the proposed project.

D.5 State and Federal Permits

No State or Federal permits are required for the project as proposed. Our findings show that the proposed project will be in compliance with the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA).

Water extraction linked to agricultural development must comply with State and Federal laws and permits.

E. RECOMMENDATIONS

The vineyard planting must follow Best Management Practices for Agricultural Erosion and Sediment Control and stream setbacks as per Sonoma County Agricultural Commissioner's Office, December 2013. All construction activities must be limited to the proposed project footprint or existing roads.

The project is within the watershed of the Russian River which, which is designated as critical habitat for salmonids. It is recommended that the project applicant review the PRESCRIBE Online Database. The PRESCRIBE online database application was developed to help pesticide applicators find out if they have any endangered species in the vicinity of their application sites, and the use limitations applicable to the pesticide product(s) they intend to use. This site provides information consistent with the U.S. Environmental Protection Agency Interim Measures Bulletins for Protection of Endangered Species for user-selected sites and pesticides. This program is implemented by the Department of Pesticide Regulation on behalf of U.S. EPA under Section 7(a)(1) of the Endangered Species Act.

Deer fencing should be designed with exit gates and limited to vineyard blocks to allow wildlife movement around the project. Any new fencing should use a design that has 6-inch square gaps at the base instead of the typical 3" by 6" rectangular openings to allow small mammals to move through the fence.

Whenever possible Integrated Pest Management practices should be employed and utilize minimally toxic pest control methods. Trapping or raptors should be used for rodent control. Sustainable Farming Practices should be used to insure that use of herbicides toxic to amphibians should be minimized.

F. SUMMARY

Our survey did not identify any evidence of or habitat for special-status species known for the Quadrangle, surrounding Quadrangles, or the region within the proposed vineyard sites. The proposed vineyard sites do not contain vegetation associates, habitat or edaphic conditions, which would support special-status species.

The proposed planting area is not located within the designated critical habitat identified by the U.S. Fish and Wildlife Service for the Sonoma California Tiger Salamander, or the California Red-legged Frog.

We find that the proposed vineyard will not have an adverse effect, either directly or through habitat modifications, on any species identified as threatened or endangered by CDFW or USFWS.

We find that the proposed vineyard, with the implementation of Best Management Practices, will not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

We find that the proposed project will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means.

The habitat is such that there is no need for seasonal floristic surveys or seasonal wildlife surveys. It is concluded, based on our site visit and available information that the proposed project is in compliance with the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). The proposed project must comply with all other applicable state and federal laws.

The proposed vineyard with the implementation of Best Management Practices for Agricultural Erosion and Sediment Control will not result in any potentially significant adverse biological impacts to the environment on site or off site.

Should you have any questions, please do not hesitate to contact us at: Telephone (707) 544-3091, Fax (707) 575-8030 Email kjeldsen@sonic.net

Kjeldsen Biological Consulting

Note: This is a technical document and not a legal document. Findings made in this document regarding the potential impacts to State and Federal listed species are made only in reference to proposed project referenced in this report. By submitting this report the Clients hereby waive any and all complaints or causes of action, known or unknown, which exist now or may exist at any time in the future, against Consultant and hold Consultant harmless for any such claims or causes of action including for all work performed under this agreement and for any work provided to Clients collectively or to any one of them without limitation.

G. LITERATURE CITED / REFERENCES

G.1 Literature Cited / References

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G.2 Names and Qualifications of Field Investigators.

Chris K. Kjeldsen, Ph.D., Botany, Oregon State University, Corvallis, Oregon. He has over forty years of professional experience in the study of California flora. He was a member of the Sonoma County Planning Commission and Board of Zoning (1972 to 1976). He has over thirty years of experience in managing and conducting environmental projects involving impact assessment and preparation of compliance documents, Biological Assessments, DFW Habitat Assessments, DFW SB 34 Mitigation projects, ACOE Mitigation projects and State Parks and Recreation Biological Resource Studies. Experience includes conducting special-status species surveys, jurisdictional wetland delineations, general biological surveys, 404 and 1600 permitting, and consulting on various projects. A full resume is available upon request. He has a valid DFW collecting permit.

Daniel T. Kjeldsen, B. S., Natural Resource Management, California Polytechnic State University, San Luis Obispo, California. He spent l994 to l996 in the Peace Corps managing natural resources in Honduras, Central America. His work for the Peace Corps in Central America focused on watershed inventory, mapping and the development and implementation of a protection plan. He has over fifteen years of experience in conducting Biological Assessments, DFW Habitat Assessments, ACOE wetland delineations, wetland rehabilitation, and development of and implementation of mitigation projects and mitigation monitoring. He has received 3.2 continuing education units MCLE 27 hours in Determining Federal Wetlands Jurisdiction from the University of California Berkeley Extension. Attended Wildlife Society Workshop Falconiformes of Northern California Natural History and Management California Tiger Salamander 2003; Natural History and Management of Bats Symposium 2005: Western Pond Turtle Workshop 2007; Western Section Bat Workshop 2011, and Laguna Foundation & The Wildlife Project Rare Pond Species Survey Techniques 2009. A full resume is available upon request.

Plate I. Location and Site Map (Healdsburg USGS Quadrangle)

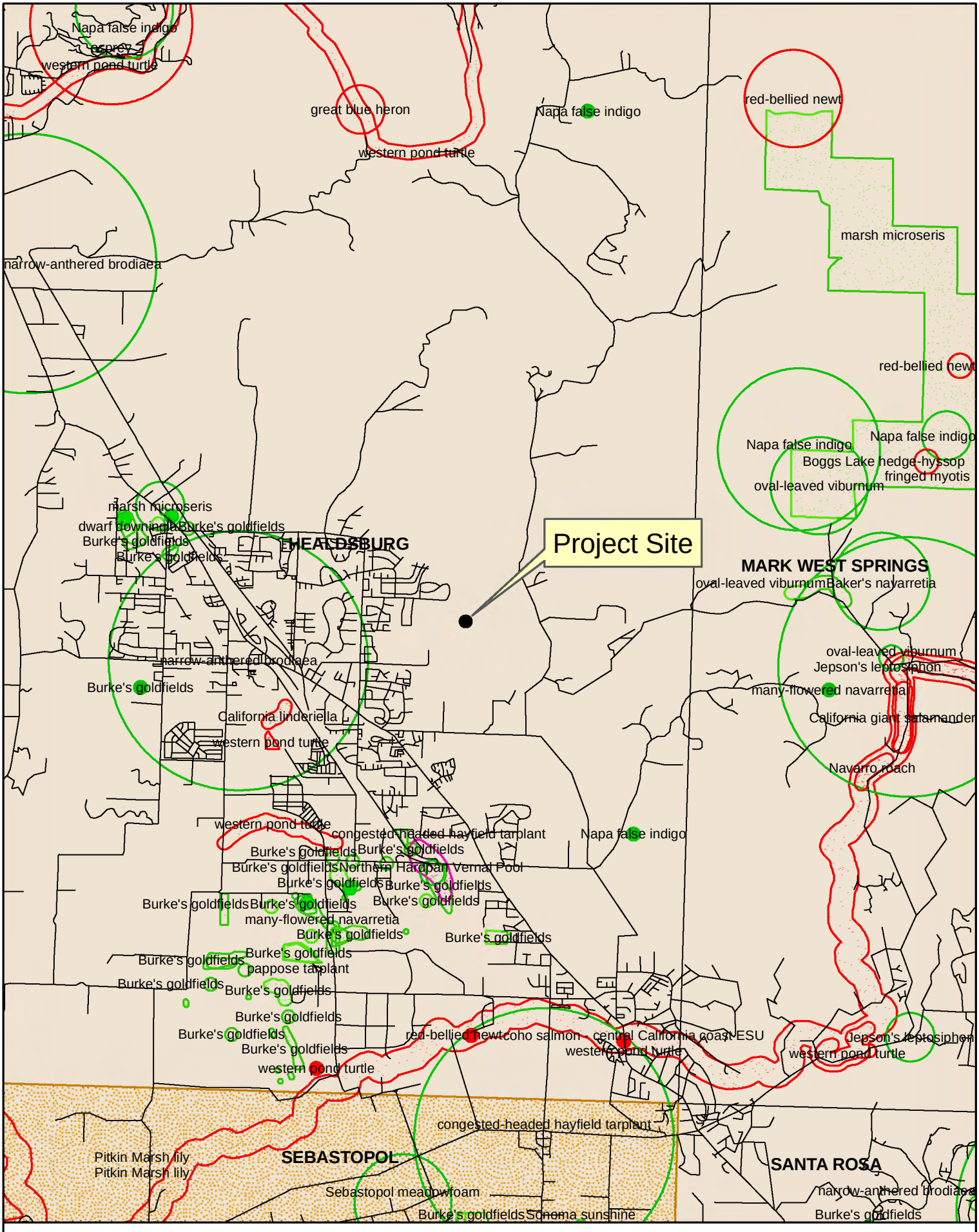


Plate II. CDFW CNDDB Rare Find Data

(Data Date July 2017)

Plate III. Aerial Photo / Survey Area

APPENDIX A

FLORA AND FAUNA

Plant Species Observed on or in the Vicinity of the Project

The nomenclature for the list of plants found on the project study areas and the immediate vicinity follows: Baldwin, Goldman, Keil, Patterson, Rosati, and Wilkens, editors, 2012.
Habitat type indicates the general associated occurrence of the taxon on the project sites or in nature.
Abundance refers to the relative number of individuals on the project sites or in the region.

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

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

LICHENS		
FOLIOSE		
Flavoparmelia caperata (L.) Hale Common Green Shield	On Oaks	Common
Flavopunctilia flaventor (Stirt.) Hale Speckled Green Shield	On Oaks, Occasional on Rocks	Common
Physcia adscendens (Fr.) H. Olivier NCN	On Oaks	Common
Physconia americana Essl. Fancy Frost Lichen	On Oak Limbs	Common
Xanthoria polycarpa (Hoffm.) Rieber Pin-cushion Sunburst Lichen	On Oaks Young Twigs	Common
FRUTICOSE		
Evernia prunastri (L.) Ach. NCN	On Oaks	Common
Ramalina farinacea (L.) Ach. NCN	On Oaks	Common
Teloschistes chrysophthalmus (L.) Th. Fr. NCN	On Oaks	Common
Usnea intermedia=U. arizonica NCN	On Oaks	Common

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

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

VASCULAR PLANTS DIVISION CONIFEROPHYTA--GYMNOSPERMS

TAXODIACEAE		
Sequoia sempervirens (D.Don) Endl. Redwood	Coastal Forests	Common

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

EUDICOTS		
FAGACEAE Oak Family		
Quercus agrifolia Nee Live Oak	Woodlands	Common
Quercus lobata Nee. Valley Oak	Valley Grasslands	Common
JUGLANDACEAE Walnut Family		
Juglans hindsii R. E. Sm. N. C Black Walnut (used rootstock for *J. regia* may be**Juglans nigra* L.)	Escape from Roostock	Occasional
OLEACEAE Olive Family		
Fraxinus latifolia Benth. Oregon Ash	Woodlands, Riparian	Occasional
ROSACEAE Rose Family		
**Prunus dulcis* (Mill.) D.A.Webb Almond *(=P. amygdalus)*	Escape, Ruderal	Occasional
SALICACEAE Willow Family		
Populus fremontii S.Watson ssp. *fremontii* Fremont Cottonwood	Riparian	Occasional
Salix laevigata Bebb. Red Willow	Riparian	Common
SAPINDACEAE Soapberry Family		
Acer negundo L. Box Elder	Riparian, Stream Sides, Bottomland	Occasional
Aesculus californica (Spach) Nutt. California Buckeye	Woodlands, Riparian	Common

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

EUDICOTS		
ANACARDIACEAE Sumac Family		
Toxicodendron diversilobum (Torry&Gray) E.Green Poison Oak	Woodlands	Common

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

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

ARALIACEAE Ginsing Family		
**Hedra helix* L. English Ivy	Ruderal	Occasional
ASTERACEAE (Compositae) Sunflower Family		
Baccharis pilularis deCandolle Coyote Brush	Woodlands, Grasslands	Common
CAPRIFOLIACEAE Honeysuckle Family		
*Symphoricarpos albu*s (L.) SF Blake *var. laevigatus* Snowberry	Riparian, Shrub/Scrub	Common
FABACEAE (Leguminosae) Legume Family		
**Genista monspessulana* (L.) Johnson Broom, French Broom	Woodlands	Common
ROSACEAE Rose Family		
Heteromeles arbutifolia (Lind.) M. Rome. Christmas Berry, Toyon	Shrub/Scrub	Common
**Pyracantha angustifolia* (Franc.) C.Schnei. Firethorn	Ruderal	Occasional
**Rubus armeniacus* Focke Himalayan Blackberry	Ruderal	Common
VITACEAE Grape Family		
Vitis californica Benth California Wild Grape	Riparian Woodlands	Occasional
Vitis vinifera L. Grape	Domestic Introduction	Occasional

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

EUDICOTS

APIACEAE (Umbelliferae) Carrot Family		
**Dacus carota*L. Wild Carrot, Queen Anne's Lace	Ruderal Grasslands	Common
**Foeniculum vulgare* Mill. Fennel	Ruderal	Common
**Torilis arvensis* (Huds.) Link Hedge-parsley	Grasslands Woodlands	Common
ASTERACEAE (Compositae) Sunflower Family		
Anaphalis margaritacea (L.) Benth Pearly Everlasting	Ruderal	Occasional
Artemesia douglasiana Besser Mugwort	Riparian	Common

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

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

**Carduus pycnocephalus* L.subsp.*pycnocephalus* Italian Thistle	Woodlands	Common
**Circium vulgare* (Savi) Ten. Bull Thistle	Grasslands, Ruderal	Common
**Helminthotheca echioides* (L.) Holub Ox-tongue (=*Picris echioides)*	Ruderal	Common
**Lactuca serriola* L. Prickly Lettuce	Ruderal	Occasional
**Sonchus asper* (L.) Hill var. *asper* Prickly Sow Thistle	Ruderal	Common
**Sonchus oleraceus* L. Common Sow Thistle	Ruderal	Common
**Taraxacum officinale* F.H.Wigg Dandelion	Ruderal	Common
BRASSICACEAE Mustard Family		
**Brassica nigra* (L.) Koch Black Mustard	Ruderal	Common
**Raphanus sativus* L. Wild Radish	Ruderal	Common
CONVOLVULACEAE Morning-glory Family		
Convolvulus arvensis L. Morning-glory, Bindweed	Grasslands	Common
FABACEAE (Leguminosae) Legume Family		
**Vicia sativa* L. subsp. *nigra* Narrow Leaved-vetch	Grasslands, Ruderal	Common
ONAGRACEAE Evening-primrose Family		
Epilobium ciliatum Raf. Subsp. *ciliatum* Northern Willow Herb	Ruderal	Common
OROBANCHACEAE Broomrape Family		
Cordylanthus pilosus A. Gray subsp. *pilosus* NCN	Oak Woodland	Occasional
PLANTAGINACEAE Plantain Family		
**Kickxia spuria* (L.) Dumort. Fluellin	Ruderal	Occasional
**Plantago lanceolata* L. English Plantain	Ruderal	Common
POLYGONACEAE Buckwheat Family		
**Polygonum agyrocoleon* Kunze Persian Wireweed	Ruderal Wet Ground	Occasional

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

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

**Rumex acetosella* L. Sheep Sorrel	Ruderal	Common
**Rumex crispus* L. Curly Dock	Ruderal	Common

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--MONOCOTYLEDONAE-GRASSES

POACEAE Grass Family

**Avena barbata* Link. Slender Wild Oat	Grasslands	Common
**Bromus diandrus* Roth Ripgut Grass	Ruderal, Grasslands	Common
**Bromus hordeaceus* L. Soft Chess, Blando Brome (*B.mollis*)	Grasslands	Common
**Cynodon dactylon* (L.) Pers. Bermuda Grass	Ruderal	Common
**Cynosurus echinatus* L. Hedgehog, Dogtail	Ruderal	Common
**Festuca perennis* (L.) Columubus & Sm. Perennial Rye Grass (*=Lolium multiflorum, L. perenne)*	Grasslands	Common
**Hordeum murinum* Huds. subsp. *leporinum* Farmers Foxtail	Grasslands	Common
**Phalaris aquatica* L. Harding Grass	Grasslands	Common

Fauna Species Observed in the Vicinity of the Project Sites

The nomenclature for the animals found on the project sites and in the immediate vicinity follows: Mc Ginnis–1984, for the fresh water fishes; Stebbins-l985, for the reptiles and amphibians; Udvardy and Farrand–1998, for the birds; and Jameson and Peeters -l988 for the mammals.

MAMMALS **ORDER** **Common Name**	**Genus**	**Observed**
CERVIDAE		
Black-tailed Deer	*Odocoileus hemionus*	Sight
RODENTIA		
Pocket Gopher	*Thomomys bottae*	Sight

APPENDIX B.

CDFW CNDDB Rare Find 5 State and Federal Listed Species for the Quadrangle and Surrounding Quadrangles

U.S. Fish & Wildlife Service IPaC Trust Resources Federal Endangered and Threatened Species that Occur in or may be Affected by the Project

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Geyserville (3812268) OR Jimtown (3812267) OR Mount St. Helena (3812266) OR Guerneville (3812258) OR Healdsburg (3812257) OR Mark West Springs (3812256) OR Camp Meeker (3812248) OR Sebastopol (3812247) OR Santa Rosa (3812246))
AND Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Rare OR Candidate Endangered OR Candidate Threatened)

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Federal Status	State Status	Global Rank	State Rank	Habitats
Agelaius tricolor	tricolored blackbird	Birds	None	Candidate Endangered	G2G3	S1S2	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Monocots	Endangered	None	G5T1	S1	Freshwater marsh, Marsh & swamp, Riparian scrub, Wetland
Ambystoma californiense	California tiger salamander	Amphibians	Threatened	Threatened	G2G3	S2S3	Cismontane woodland, Meadow & seep, Riparian woodland, Valley & foothill grassland, Vernal pool, Wetland
Arctostaphylos bakeri ssp. bakeri	Baker's manzanita	Dicots	None	Rare	G2T1	S1	Broadleaved upland forest, Chaparral, Ultramafic
Arctostaphylos bakeri ssp. sublaevis	The Cedars manzanita	Dicots	None	Rare	G2T2	S2	Chaparral, Closed-cone coniferous forest, Ultramafic
Arctostaphylos densiflora	Vine Hill manzanita	Dicots	None	Endangered	G1	S1	Chaparral

Astragalus claranus	Clara Hunt's milk-vetch	Dicots	Endangered	Threatened	G1	S1	Chaparral, Cismontane woodland, Valley & foothill grassland
Blennosperma bakeri	Sonoma sunshine	Dicots	Endangered	Endangered	G1	S1	Valley & foothill grassland, Vernal pool, Wetland
Castilleja uliginosa	Pitkin Marsh paintbrush	Dicots	None	Endangered	GXQ	SX	Freshwater marsh, Marsh & swamp, Wetland
Chorizanthe valida	Sonoma spineflower	Dicots	Endangered	Endangered	G1	S1	Coastal prairie
Clarkia imbricata	Vine Hill clarkia	Dicots	Endangered	Endangered	G1	S1	Chaparral, Valley & foothill grassland
Cordylanthus tenuis ssp. capillaris	Pennell's bird's-beak	Dicots	Endangered	Rare	G4G5T1	S1	Chaparral, Closed-cone coniferous forest, Ultramafic
Delphinium bakeri	Baker's larkspur	Dicots	Endangered	Endangered	G1	S1	Broadleaved upland forest, Coastal scrub, Valley & foothill grassland
Delphinium luteum	golden larkspur	Dicots	Endangered	Rare	G1	S1	Chaparral, Coastal prairie, Coastal scrub
Gratiola heterosepala	Boggs Lake hedge-hyssop	Dicots	None	Endangered	G2	S2	Freshwater marsh, Marsh & swamp, Vernal pool, Wetland
Lasthenia burkei	Burke's goldfields	Dicots	Endangered	Endangered	G1	S1	Meadow & seep, Vernal pool, Wetland
Lilium pardalinum ssp. pitkinense	Pitkin Marsh lily	Monocots	Endangered	Endangered	G5T1	S1	Cismontane woodland, Freshwater marsh, Marsh & swamp, Meadow & seep, Wetland
Limnanthes vinculans	Sebastopol meadowfoam	Dicots	Endangered	Endangered	G1	S1	Meadow & seep, Valley & foothill grassland,

							Vernal pool, Wetland
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Dicots	Endangered	Endangered	G4T1	S1	Vernal pool, Wetland
Oncorhynchus kisutch	coho salmon - central California coast ESU	Fish	Endangered	Endangered	G4	S2?	Aquatic
Oncorhynchus mykiss irideus	steelhead - central California coast DPS	Fish	Threatened	None	G5T2T3Q	S2S3	Aquatic, Sacramento/San Joaquin flowing waters
Pekania pennanti	fisher - West Coast DPS	Mammals	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	North coast coniferous forest, Oldgrowth, Riparian forest
Pleuropogon hooverianus	North Coast semaphore grass	Monocots	None	Threatened	G2	S2	Broadleaved upland forest, Meadow & seep, North coast coniferous forest, Wetland
Rana boylii	foothill yellow-legged frog	Amphibians	None	Candidate Threatened	G3	S3	Aquatic, , Riparian woodland, Sacramento/San Joaquin flowing waters
Rana draytonii	California red-legged frog	Amphibians	Threatened	None	G2G3	S2S3	Aquatic, Artificial flowing waters, Artificial standing waters, Freshwater marsh, Marsh & swamp,
Sidalcea oregana ssp. valida	Kenwood Marsh checkerbloom	Dicots	Endangered	Endangered	G5T1	S1	Freshwater marsh, Marsh & swamp, Wetland
Syncaris pacifica	California freshwater shrimp	Crustaceans	Endangered	Endangered	G2	S2	Aquatic, Sacramento/San Joaquin flowing waters
Trifolium amoenum	two-fork clover	Dicots	Endangered	None	G1	S1	Coastal bluff scrub,

							Ultramafic, Valley & foothill grassland

IPaC **U.S. Fish & Wildlife Service**

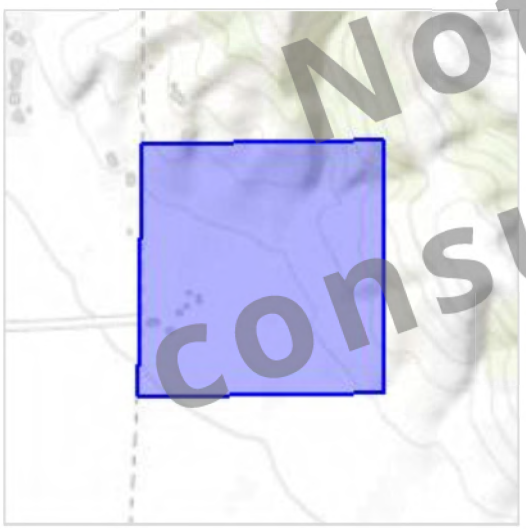
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sonoma County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Northern Spotted Owl Strix occidentalis caurina There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/2076	Endangered

Fishes

NAME	STATUS
Steelhead Oncorhynchus (=Salmo) mykiss There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/1007	Threatened

Crustaceans

NAME	STATUS
California Freshwater Shrimp Syncaris pacifica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7903	Endangered

Flowering Plants

NAME	STATUS
Burke's Goldfields Lasthenia burkei No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4338	Endangered
Many-flowered Navarretia Navarretia leucocephala ssp. plieantha No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2491	Endangered
Sebastopol Meadowfoam Limnanthes vinculans No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/404	Endangered
Sonoma Sunshine Blennosperma bakeri No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1260	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with

the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service

[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all

birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Allen's Hummingbird Selasphorus sasin https://ecos.fws.gov/ecp/species/9637	Migrating
Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	Year-round
Bell's Sparrow Amphispiza belli https://ecos.fws.gov/ecp/species/9303	Year-round
Burrowing Owl Athene cunicularia https://ecos.fws.gov/ecp/species/9737	Year-round
Fox Sparrow Passerella iliaca	Wintering
Least Bittern Ixobrychus exilis https://ecos.fws.gov/ecp/species/6175	Breeding
Lesser Yellowlegs Tringa flavipes https://ecos.fws.gov/ecp/species/9679	Wintering
Lewis's Woodpecker Melanerpes lewis https://ecos.fws.gov/ecp/species/9408	Wintering
Long-billed Curlew Numenius americanus https://ecos.fws.gov/ecp/species/5511	Wintering
Nuttall's Woodpecker Picoides nuttallii https://ecos.fws.gov/ecp/species/9410	Year-round

Oak Titmouse Baeolophus inornatus https://ecos.fws.gov/ecp/species/9656	Year-round
Olive-sided Flycatcher Contopus cooperi https://ecos.fws.gov/ecp/species/3914	Breeding
Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	Year-round
Rufous Hummingbird selasphorus rufus https://ecos.fws.gov/ecp/species/8002	Migrating
Rufous-crowned Sparrow Aimophila ruficeps https://ecos.fws.gov/ecp/species/9718	Year-round
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	Wintering
Western Grebe aechmophorus occidentalis https://ecos.fws.gov/ecp/species/6743	Year-round

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore

Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.