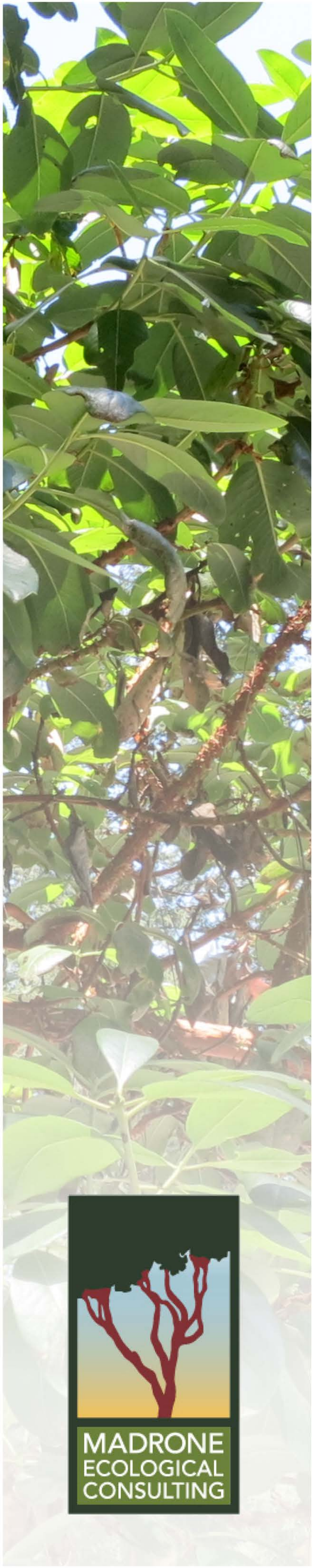


Biological Resources Assessment

Village Farms Davis

Yolo County, California
13 December 2024

Revised 28 March 2025

Prepared for:
North Davis Land Company, LLC
3500 Anderson Road
Davis, CA 95616

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone). 2025. *Biological Resources Assessment for Village Farms Davis*. Prepared for North Davis Land Company, LLC. Published on 13 December 2024, Revised 28 March 2025.

CONTENTS

Biological Resources Assessment
Village Farms Davis

Tables

Figures

Attachments

1.0 INTRODUCTION

This report presents the results of a Biological Resources Assessment (BRA) conducted for the Village Farms Davis Project (Study Area). The approximately 515.9-acre Study Area, which is comprised of the proposed development areas, the urban agricultural transition area , the avoided Natural Habitat Area (for one of the alternatives), and the Program Study Areas (as detailed below in Section 1.1), is located largely north of Covell Boulevard, east of County Road 101A, and west of Pole Line Road in north Davis, Yolo County, California. The Study Area is located in portions of Sections 33-34, Township 9 North, Range 2 East, and Sections 2-3, 10 Township 8 North, Range 2 East (MDB&M) of the "Davis, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**). The Study Area is comprised of the Project Area, within which the Project (described in **Section 1.1**) occurs, and the Program Study Areas, which are described in **Section 1.2**. These areas are shown graphically on **Figure 2**.

1.1 Project Description

1.1.1 Project Alternatives

Two Project alternatives are analyzed in this document; the Proposed Project Alternative, and the Biological Resource Preservation Alternative. These alternatives are discussed in greater detail below.

<u>1.1.1.1 Proposed Project Alternative</u>

The Proposed Project Alternative would include development of a mixed-use community, including 1,800 residential units. In addition, the Proposed Project Alternative would include parks and recreation areas, restored vegetated areas, greenbelts, stormwater drainage infrastructure, and public service facilities, such as a new Pre-K Day Care, educational farm, a fire station, neighborhood mixed uses, and agricultural buffers. A site plan is included as **Attachment A**. The area north of the residential development is proposed as a large urban agricultural buffer area that would experience grade reduction during a single summer/fall to provide fill for the Project. The fields would then be left as naturalized open space for an urban agriculture transition area with an agricultural buffer to the north. Under the Proposed Project Alternative, the 515.9 acre Study Area would include 379.2 acres of developed area, 18.3 acres of offsite Program Study Areas, and 118.4 acres of urban agricultural transition area.

<u>1.1.1.2 Biological Resource Preservation Alternative</u>

The Biological Resource Preservation Alternative will similarly include development of a mixed-use community, including 1,800 residential units, but would avoid the alkali prairie that occurs around the alkali playas south of Covell Drain as well as the associated watershed. In addition, the Biological Resource Preservation Alternative would include parks and recreation areas, restored vegetated areas, greenbelts, stormwater drainage infrastructure, and public service facilities, such as a new Pre-K Day Care, educational farm, a fire station, neighborhood mixed uses, and agricultural buffers. A site plan is included as **Attachment B**. The area north of the residential development is proposed as a large urban agricultural buffer area that would experience grade reduction during a single summer/fall to provide fill for the Project. The fields would then be left as naturalized open space for an urban agriculture transition area with an agricultural buffer to the north. Under the Biological Resource Preservation Alternative, the 515.9 acre Study Area would include 332.1 acres of developed area, 47.1 acres of avoided Natural Habitat Area, 18.3 acres of offsite Program Study Areas, and 118.4 acres of urban agricultural transition area.

1.1.2 Realignment of Covell Drain/Channel A

Covell Drain/Channel A currently flows through the Project Area, entering at the northwest corner of the site through existing box culverts, then south along the UPRR tracks comingling with the stormwater flows from the F Street Channel. Covell Drain then continues east through the central portion of the Project Area as Channel A, continuing to Pole Line Road where the drainage channel passes under the road in an existing box culvert and flows through the Wildhorse Golf Course.

Both Project alternatives will reroute storm water flows from the existing Covell Drain at the northwest corner and direct storm water east, along the northern boundary of the project in a larger, enhanced storm water conveyance channel. Storm water from the F Street Channel entering the project further south will be re-routed north to comingle with Covell Drain and continue east along the northern boundary. The enhanced storm water channel at the northern edge of the Project will continue approximately 2,200 feet to an in-channel stormwater detention basin expanding to the south into the project area. This detention basin will vary in depth with the deepest portions being ~9-10 feet deep and extend south to the existing Channel A alignment at which point the eastern ~1,500 feet of existing channel A will be expanded with a drainage capacity equivalent to the existing flows tributary to Wildhorse Channel. Existing trees and vegetation within the area of the rebuilt and expanded portion of channel A will be removed, and new plantings will be installed in this area as a part of the project development. The existing portion of Channel A west of the new detention basin will remain within a proposed greenbelt with a new multi-use path along the edge outside the limits of the existing vegetation, and will serve as a high flow channel for the enhanced Covell Drain. Various crossings of the existing and proposed Channel A are proposed with the project. These crossings will be accomplished with prefabricated bridges or box culverts of sufficient size to allow large wildlife passage. Permanent impacts to the existing vegetation could occur around these crossings.

1.2 Program Study Areas

If feasible, two pedestrian and/or bicycle separated grade crossings and other offsite infrastructure are proposed in the future associated with the Project. The general location of these crossings has been identified, but the specific location and project footprint is still being developed. As a result, these offsite improvement areas are being analyzed at the programmatic level in this document, are referred to throughout this document as the Western and Eastern Program Study Areas, and are shown for reference on **Figure 2**. Ultimately, the feasibility of the crossings will depend on UPRR limitations, landing constraints, impacts to the surrounding area and other unforeseen challenges.

2.0 REGULATORY SETTING

This section describes federal, state and local laws and policies that are relevant to this assessment of biological resources.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 protects species that are federally listed as endangered or threatened with extinction. FESA prohibits the unauthorized "take" of listed wildlife species. Take includes harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such activities. Harm includes significant modifications or degradations of habitats that may cause death or injury to protected species by impairing their behavioral patterns. Harassment includes disruption of normal behavior patterns that may result in injury to or mortality of protected species. Civil or criminal penalties can be levied against persons convicted of unauthorized "take." In addition, FESA prohibits malicious damage or destruction of listed plant species on federal lands or in association with federal actions, and the removal, cutting, digging up, damage, or destruction of listed plant species in violation of state law. FESA does not afford any protections to federally listed plant species that are not also included on a state endangered species list on private lands with no associated federal action.

2.1.2 Clean Water Act, Section 404

Section 404 of the Federal Clean Water Act requires that a Department of the Army permit be issued prior to the discharge of dredged or fill material into waters of the United States, including some wetlands. The U.S. Army Corps of Engineers (USACE) administers this program, with oversight from the U. S. Environmental Protection Agency. As of the date of this document, waters of the United States (waters of the U.S.) are defined as follows (40 CFR 120.2):

1. Waters which are:
   i. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
   ii. The territorial seas; or
   iii. Interstate waters;
2. Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under item (5) below;
3. Tributaries of waters identified in items (1) or (2) above that are relatively permanent, standing or continuously flowing bodies of water;
4. Wetlands adjacent to the following waters:
   i. Waters identified in item (1) of this section; or

    ii. Relatively permanent, standing or continuously flowing bodies of water identified in items (2) or (3) above and with a continuous surface connection to those waters;

5. Intrastate lakes and ponds not identified in paragraphs (1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items (1) or (3) above.

Under the current definition of waters of the U.S., "adjacent" means *having a continuous surface connection*.

Waters subject to regulation under Section 404 are referred to as "jurisdictional waters".

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any native migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11.). Likewise, Section 3513 of the California Fish & Game Code prohibits the "take or possession" of any migratory non-game bird identified under the MBTA. Therefore, activities that may result in the injury or mortality of native migratory birds, including eggs and nestlings, would be prohibited under the MBTA.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. The USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

2.2 State Regulations

2.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires evaluations of project effects on biological resources. Determining the significance of those effects is guided by Appendix G of the CEQA guidelines. These evaluations must consider direct effects on a biological resource within the project site itself, indirect effects on adjacent resources, and cumulative effects within a larger area or region. Effects can be locally important but not significant according to CEQA if they would not substantially affect the regional population of the biological resource. Significant adverse impacts on biological resources would include the following:

- Substantial adverse effects on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife

(CDFW) or the U.S. Fish and Wildlife Service (USFWS) (these effects could be either direct or via habitat modification);

- Substantial adverse impacts to species designated by the California Department of Fish and Game (2009) as Species of Special Concern;
- Substantial adverse effects on riparian habitat or other sensitive habitat identified in local or regional plans, policies, or regulations or by CDFW and USFWS;
- Substantial adverse effects on federally protected wetlands defined under Section 404 of the Clean Water Act (these effects include direct removal, filling, or hydrologic interruption of marshes, vernal pools, coastal wetlands, or other wetland types);
- Substantial interference with movements of native resident or migratory fish or wildlife species population, or with use of native wildlife nursery sites;
- Conflicts with local policies or ordinances protecting biological resources (e.g. tree preservation policies); and
- Conflict with provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

2.2.2 State Endangered Species Act

With limited exceptions, the California Endangered Species Act (CESA) of 1984 protects state-designated endangered and threatened species in a way similar to FESA. For projects on private property (i.e. that for which a state agency is not a lead agency), CESA enables CDFW to authorize take of a listed species that is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code Section 2081).

2.2.3 California Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code, § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.4 California Species of Special Concern

The Species of Special Concern (SSC) are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal or California ESAs or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with habitats that are threatened. Project-related impacts to SSC, state-threatened or endangered species are considered "significant" under CEQA.

2.2.5 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

2.2.6 Clean Water Act, Section 401

Section 401 of the Clean Water Act requires any applicant for a 404 permit in support of activities that may result in any discharge into waters of the United States to obtain a water quality certification with the Regional Water Quality Control Board (RWQCB). This program is meant to protect these waters and wetlands by ensuring that waste discharged into them meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit (and both programs are a part of the Clean Water Act), the definition of waters of the United States under Section 401 is the same as that used by the USACE under Section 404.

2.2.7 California Water Code, Porter-Cologne Act

Waters that are not considered waters of the U.S. may be considered waters of the State of California (waters of the State) under the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne, from Division 7 of the California Water Code, requires any person discharging waste or proposing to discharge waste that could affect the quality of waters of the state to file a report of waste discharge (RWD) with the RWQCB. The RWQCB can waive the filing of a report, but once a report is filed, the RWQCB must either waive or adopt water discharge requirements (WDRs). Waters of the State are defined as any surface water or groundwater, including saline waters, within the boundaries of the state of California.

2.2.8 California Fish and Game Code, Section 1600 – Streambed and Lake Alteration

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code, Section 1602, requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- 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.

For the purposes of Section 1602, rivers, streams and lakes include those that are dry for periods of time as well as those that flow year-round. If notification is required and CDFW believes the proposed activity is likely to substantially adversely affect fish and wildlife resources, it will require that the parties enter into a Lake or Streambed Alteration Agreement (LSAA).

2.2.9 California Fish and Game Code, Section 3503.5 - Raptor Nests

Section 3503.5 of the Fish and Game Code makes it unlawful to take, possess, or destroy hawks or owls, unless permitted to do so, or to destroy the nest or eggs of any hawk or owl.

2.2.10 California Fish and Game Code, Section 3511, 4700, 5050, and 5515 – Fully Protected Species

California Fish and Game Code identifies "fully protected species" in sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). The state initially identified fully protected species in the 1960s to identify and provide additional protection to animals that were rare or faced possible extinction. Subsequent passage of the California Endangered Species Act has offered additional protection to some fully protected species.

Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (NCCP).

2.3 Local Regulations

2.3.1 City of Davis Tree Ordinance

Many native and non-native trees are present within the Study Area and it is assumed that many of these trees would need to be removed as part of the Project construction. The City of Davis (City) Municipal Code Chapter 37 (Tree Ordinance) requires a permit to remove any "Protected Trees" (Davis 2022). The Tree Ordinance protects a number of different categories of Protected Trees, as follows: "street trees", "city trees", "landmark trees", "trees of significance", "parking lot trees", and certain "private trees". The following categories occur within the Study Area:

- Street Trees are "any tree planted and/or maintained by the city, or recorded as a street tree, adjacent to a street or within a city easement or right-of-way on private property, within the street tree easement." The Street Tree Easement is "the ten-foot zone behind the sidewalk or between curb and sidewalk." Street Trees occur along either side of East Covell Boulevard, and in the median.
- City Trees are "trees in parks, greenbelts, open spaces, on city property or easements, etc." These occur in the northern "arm" of the Study Area.
- Trees of Significance/Private Trees are all trees greater than 5 inches DBH. Where they occur on unimproved property zoned for single-family or duplex development, they are considered "Trees of Significance," and where they occur on properties with single-family or duplex dwellings already present, they are considered "Private Trees." Both categories are subject to the same requirements if a grading permit or other discretionary permit application is submitted. These occur in the remainder of the Study Area.

Protected Trees are defined in Municipal Code 37.03.050 trees that have a trunk diameter at breast height (DBH) of more than 5 inches. The Tree Ordinance requires a Tree Permit for the removal of any "Protected Tree, unless otherwise exempted. It is recommended that prior to removing any trees, an arborist report be prepared for the Study Area and conducted by a certified arborist, and a tree removal permit application be submitted to the City.

Mitigation for the removal of Protected Trees is outlined in City Code section 37.03.070 and will be determined by the City and may include the following options:

- Incorporate existing healthy trees into the design of the Project;
- Replanting trees on-site;
- Replanting trees off-site in City-owned open space or park; or
- Payment to the Tree Preservation Fund In lieu of Replacement**.**

2.3.2 Yolo Habitat Conservation Plan

The Yolo HCP (ICF 2018), which was adopted in January 2019, is a 50-year regional plan which provides for the conservation of 12 sensitive species (hereafter "Covered Species") and the natural communities and agricultural land on which they depend while allowing for orderly development in Yolo County consistent with local general plans. Six local agencies prepared the Yolo HCP; Yolo Habitat Conservancy, County of

Yolo, City of Davis, City of West Sacramento, City of Winters, and City of Woodland. The Yolo HCP only applies to eligible projects, also known as covered activities, undertaken within the Plan Area which includes all areas within Yolo County, including the incorporated cities of Davis, West Sacramento, Winters, and Woodland.

The Yolo HCP provides the basis for issuance of long-term permits under FESA and California Natural Community Conservation Planning Act (NCCPA) that cover an array of public and private activities, including activities that are essential to the ongoing viability of Yolo County's agricultural and urban economies. Specifically, the Yolo HCP will provide the Permittees (i.e., Yolo County, the four incorporated cities, and the Yolo Habitat Conservancy) with incidental take permits from both USFWS and CDFW for the 12 Covered Species. This action is pursuant to Section 10(a)(1)(B) of the FESA and Section 2835 of the NCCPA chapter of the California Fish & Game Code. The Yolo HCP ensures compliance with the FESA, NCCPA, and the CESA for covered activities that may affect Covered Species.

In addition to the Permittees, the Yolo HCP permits may cover the activities of other entities through certificates of inclusion obtained by completing the Yolo HCP application process. The Yolo Habitat Conservancy charges various types of fees to cover implementation costs, including administration, land acquisition, restoration, and land management costs. Yolo HCP applicants can either pay mitigation fees for land cover conversion or conduct wetland restoration and/or dedicate land in-lieu of the fees. Wetland restoration and land-in-lieu proposals must be reviewed and approved by the Yolo Habitat Conservancy (the entity overseeing Yolo HCP implementation). If an applicant opts to pay the mitigation fees, the Yolo Habitat Conservancy applies an adopted land cover fee schedule, with additional fees for wetlands. Fees are automatically increased annually, adjusted for inflation. Additionally, every five years, the Yolo Habitat Conservancy completes a fee assessment to review costs, underlying assumptions, and actual costs. After this review, fee schedule adjustments are made, and automatic annual increases resume based off the five-year fee assessment.

3.0 METHODOLOGY

3.1 Literature Review

A list of special-status species with potential to occur within the Study Area was developed by conducting a query of the following databases:

- California Natural Diversity Database (CNDDB) (CNDDB 2024) query of the Study Area and all areas within 5 miles of the Study Area (**Figures 3 and 4**);
- CNDDB "unprocessed records" within the Study Area (CNDDB 2024);
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2024) query for the Study Area (**Attachment C**);
- California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2024) query of the "Davis, California" USGS topo quadrangle, and the eight surrounding quadrangles (**Attachment D**); and
- Western Bat Working Group (WBWG) Species Matrix (WBWG 2024).

In addition, any special-status species that are known to occur in the region, but that were not identified in any of the above database searches were also analyzed for their potential to occur within the Project area.

For the purposes of this Biological Resources Assessment, special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the USFWS or National Marine Fisheries Service;
- listed as threatened or endangered and candidates for listing by CDFW;
- identified as Fully Protected species or species of special concern by CDFW;
- identified as Medium or High priority species by the WBWG (WBWG 2024); and
- plant species considered to be rare, threatened, or endangered in California by the CNPS and CDFW [California Rare Plant Rank (CRPR) 1, 2, and 3]:
  - CRPR 1A: Plants presumed extinct.
  - CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
  - CRPR 2A: Plants extirpated in California, but common elsewhere.
  - CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
  - CRPR 3: Plants about which the CNPS needs more information – a review list.
  - Identified as a covered species in the Yolo HCP.

3.2 Field Surveys

Madrone biologists Daria Snider, Dustin Brown, Lily Kalachik, Matt Shaffer, and Tara Collins conducted field surveys of various portions of the Study Area on 23 and 25 August, 3 October, 7 November, and 14 December 2023 and 17, 23, and 24 January and 7 February 2024 to map Yolo HCP landcover types, assess the suitability of habitats on-site to support special-status species, and conduct the protocol-level surveys listed below. Meandering pedestrian surveys were performed on foot throughout the Study Area. Vegetation communities were classified in accordance with the Yolo HCP, and plant taxonomy was based on the nomenclature in the *Jepson eFlora* (Jepson Flora Project 2024). A list of all wildlife species incidentally observed during field surveys is included as **Attachment E**.

The following biological surveys have been performed within the Study Area:

- Special-status plant survey: Ms. Snider conducted comprehensive surveys of the Study Area with the assistance of Ms. Kalachik and Ms. Collins on 23 and 25 August 2023; 3, 11, 17, and 22 April 2024; 27 June 2024; and 16, 24 and 25 July 2024. The 2024 surveys were comprehensive for the entire Study Area. During the August 2023 survey, much of the habitat was being actively farmed or managed for fire hazard reduction and lacked vegetation; as a result, these late-season surveys were repeated in June and July of 2024 when the habitat had not been disturbed, and as such, sufficient vegetation was present to conduct a determinate-level survey. The special-status plant surveys were conducted in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996), California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating*

Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018), and the CNPS *Botanical Survey Guidelines* (CNPS 2001).

- Dry-season and wet-season vernal pool branchiopod surveys: Dry-season samples were collected by Mr. Brown on 26 October 2023 in areas that appeared to pond in winter, based on aerial photograph examination. Wet-season surveys were conducted in all ponded habitat during the winter of 2023-2024. Additional habitat was identified during the course of the wet season surveys, and dry-season samples of these additional features were collected on 18 June 2024. These surveys were conducted in accordance with the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017). The report for this survey is included as **Attachment F**.
- Burrowing owl surveys: Four non-breeding surveys were conducted on 3 October, 7 November, 14 December 2023, and 17 January 2024, and four breeding-season surveys were conducted on 21 March, 19 April, 14 May, and 20 June 2024. Surveys were conducted in accordance with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The report for this survey is included as **Attachment G**.
- Swainson's hawk nest surveys: Seven Swainson's hawk nest surveys were conducted within the Study Area and a 0.5-mile buffer on 17 January, 21 March, 26 March, 4 April, 9 April, 12 April, and 19 April 2024. These surveys were conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). The report for this survey is included as **Attachment H**.
- Valley elderberry longhorn beetle habitat surveys: Elderberry shrub surveys were conducted concurrent with the special-status plant surveys. As required by the Yolo HCP, all elderberry shrubs with stems one inch in diameter or greater were mapped, stems were counted, and an exit hole search was conducted. The results are presented in this document.
- Tree inventory: Madrone conducted a tree inventory under the supervision of a Certified Arborist within most of the Study Area on 31 May and 3, 4, 6, 7, and 21 June. Detailed tree data was collected throughout all areas outside of the Covell Drain riparian corridor. Additionally, approximately half of the trees within the Covell Drain riparian corridor were inventoried. Following discussions with City staff, the remaining trees within the Covell Drain riparian corridor were estimated by extrapolating the collected data to the remaining canopy area[1]. Diameter at Breast Height (DBH) and condition were collected for all inventoried trees, but for consistency are not summarized in this document, as we do not have that data for extrapolated trees. The report for this survey is included as **Attachment I**. As detailed in **Section 7.11**, an updated tree inventory will be required prior to each phase of Project construction.
- Giant garter snake habitat assessment (Madrone 2024) (report included as **Attachment J**).
- Aquatic resources delineation conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western*

---

[1] Trees were extrapolated in unsurveyed portions of the Covell Drain riparian corridor as follows: the inventoried riparian canopy acreage was divided by the number of inventoried trees of each species. That yielded the "occupied area" for each tree by species. Subsequently, the uninventoried canopy acreage was divided by the "occupied area" for each species to yield the number of each species of tree expected to occur in the uninventoried area.

United States (USACE 2008b), and the Sacramento District's *Minimum Standards for Acceptance of Preliminary Wetlands Delineations* (USACE 2016b).

4.0 EXISTING CONDITIONS

The Study Area is largely comprised of active agricultural fields with interspersed farm roads. Covell Drain, along with its associated non-native riparian corridor, cuts from east to west across the Study Area. The agricultural fields are planted annually. For the 2024 season, they have been planted in wheat, tomatoes, and corn. One of the fields south of Covell Drain contains a large alkali playa/alkali wetland complex. As a result, this field is not farmed, but vegetation is managed for fire hazard reduction. The field containing the alkali playa/alkali wetland complex has been mapped as Alkali Prairie. An additional strip running along much of the northeast boundary of the Study Area (adjacent to the paintball park) has also been mapped as Alkali Prairie. A portion of Covell Drain on the western side of the site is wider than the east-to-west section of Covell Drain, and supports some emergent vegetation. The remainder of Covell Drain is almost entirely unvegetated below the dense riparian canopy. Various areas around most of the edges of the Study Area are occupied by dense non-native forbs and have been mapped as Urban Ruderal. The farm roads within the Study Area are well maintained and have been mapped as Semi-agricultural, consistent with Yolo HCP Land Cover types, as has the mostly demolished rural residence in the southern portion of the Study Area. An extension of the site along the western edge crosses County Road 101A and incorporates an area that was recently restored with native grasses, constructed wetlands, and planted native shrubs – this area has been mapped as California annual grassland. The Study Area is very flat and is almost entirely at approximately 36 to 44 feet above mean sea level.

Surrounding properties to the west, south and east are urban residential, commercial, and a golf course. To the northeast is a recreational paintball park, and the remaining properties to the north are largely agricultural.

4.1 Yolo HCP Land Cover Types

The Yolo HCP Land Cover Types within the Study Area are summarized in **Table 1** and shown on **Figure 5**. All portions of the Study Area have been assigned an HCP Land Cover Type based on the HCP definitions of landcover types as well as Madrone's prior experience. It should be noted that these landcover types and acreages will be refined at the time of Yolo HCP participation, a process which includes Yolo HCP Conservancy verification of an applicant's landcover mapping.

Table 1. Yolo HCP Land Cover Types within the Study Area

Land Cover Type	Acreage[1]		
	Project Area	Program Study Areas	Study Area Total
Alkali Prairie	27.3	0.0	27.3
Barren-Anthropogenic	0.0	0.6	0.6
California Annual Grassland Alliance	0.0	2.7	2.7
Freshwater Emergent Wetland	<0.1	0.0	<0.1

Table 1. Yolo HCP Land Cover Types within the Study Area

Land Cover Type	Acreage[1]		
	Project Area	Program Study Areas	Study Area Total
Grain and Hay Crops	276.7	0.0	276.7
Semiagricultural	33.4	0.0	33.4
Truck Crops	150.3	0.0	150.3
Urban	7.9	2.3	10.2
Urban Ruderal	2.2	1.3	3.5
Valley Foothill Riparian	8.1	0.2	8.3
Vegetated Corridor	3.0	0.0	3.0
Total	**507.6**	**8.3**	**515.9**

[1] *Summation errors may occur due to rounding.*

4.1.1 Alkali Prairie

Alkali prairie occurs around the large alkali playa south of Covell Drain, and in an undisturbed strip along the northwestern borders of the Study Area. This community is dominated by salt grass (*Distichlis spicata*), but also supports a number of other halophytes, including Parry's rough tarplant (*Centromadia parryi ssp. rudis*) (a CRPR List 4 species), common tarweed (*Centromadia pungens ssp. pungens*), alkali heath (*Frankenia salina*), alkali weed (*Cressa truxillensis*), alkali mallow (*Malvella leprosa*), and several generalist non-native species, such as broad leaved pepper weed (*Lepidium latifolium*), stinkwort (*Dittrichia graveolens*), Mediterranean barley (*Hordeum marinum*), and Mediterranean beard grass (*Polypogon maritimus*).

4.1.2 Barren-Anthropogenic

The Union Pacific Railroad alignment was classified as "Barren-Anthropogenic". This area consists of an unvegetated rock railbed prism topped by railroad tracks.

4.1.3 California Annual Grassland Alliance

An area west of County Road 101A has recently been restored with native bunch grasses, small, constructed wetlands, large patches of milkweeds (*Asclepias* species), and a variety of native shrubs and sub-shrubs. This area was mapped as California annual grassland alliance as the best approximation of its current habitat value.

4.1.4 Freshwater Marsh Alliance

A small freshwater marsh has established along the western edge of the Study Area adjacent to the Cannery housing development. This feature supports a variety of perennial hydrophytes, including cattail (*Typha* species), tall nutsedge (*Cyperus eragrostis*), smartweed (*Persicaria* species), and Mediterranean beard grass (*Polypogon monspeliensis*).

4.1.5 Grain and Hay Crops

These agricultural fields were planted in wheat for the 2024 growing season, and as such have been classified as "Grain and Hay Crops". When not growing this crop, they remain fallow.

4.1.6 Semiagricultural

The margins of the agricultural fields, farm roads, and a prior rural residence on-site have been classified as "Semiagricultural". These areas consist of vegetated areas along the margins of the agricultural fields, along with ditches and dirt paths in association with the agricultural fields. Both native and non-native trees occur in association with the rural residence.

4.1.7 Truck Crops

These agricultural fields were planted in tomatoes and corn in 2024, and as such have been classified as "Truck Crops". When not growing these crops, they remain fallow.

4.1.8 Urban

Roadways, parking lots, and a pump facility were classified as Urban. These areas are dominated by pavement and buildings. There is some planted and manicured ornamental vegetation within the urban areas, but where aggregations of vegetation occur, it was mapped as Vegetated Corridor.

4.1.9 Urban Ruderal

Strips along the western and eastern edges of the Study Area have been classified as "Urban Ruderal". These areas all support dense, high-rank stands of non-native forbs including milk thistle (*Silybum marianum*), broad leaved pepperweed, black mustard (*Brassica nigra*), wild radish (*Raphanus sativus*), and stinkwort.

4.1.10 Valley Foothill Riparian

A strip of woody vegetation occurs along either side of Covell Drain. While this community is almost entirely comprised of non-native trees and therefore could be classified as a Vegetated Corridor, it is riparian in nature, and has therefore been classified as Valley Foothill Riparian for the purposes of this CEQA review. This community is heavily dominated by wingnut (*Pterocarya* species) and Arizona ash (*Fraxinus velutina*), but also supports cigar tree (*Catalpa bignonioides*), Siberian elm (*Ulmus pumila*), Chinese elm (*Ulmus parvifolia*), Chinese tallow (*Triadica sebifera*), Bradford pear (*Pyrus calleryana*), and cork oak (*Quercus suber*). Occasional native trees also occur in this community including Valley oak (*Quercus lobata*), Northern California black walnut (*Juglans hindsii*), boxelder (*Acer negundo*), red willow (*Salix laevigata*) and black willow (*S. gooddingii*). Very little herbaceous vegetation is present in the understory of this community due to the relatively closed canopy.

4.1.11 Vegetated Corridor

A strip of planted trees along East Covell Boulevard and along the southwest edge associated with the adjacent development have been classified as "Vegetated Corridor". In addition, the Vegetated Corridor mapped in the eastern extension is comprised of a turf recreational field and trees around the associated parking area. These areas are surrounded by and associated with urban development, and consist of maintained non-native turf and landscaped ornamental trees and shrubs.

4.2 Aquatic Resources

Madrone conducted an Aquatic Resources Delineation throughout the Study Area in accordance with USACE protocol. A map with the results of this delineation is included as **Figure 6**, and the mapped acreages are summarized in **Table 2** below. Note that the acreages and locations of aquatic resources may change slightly during the USACE verification process. A description of each of the aquatic resource types is included below.

Table 2. Waters of the U.S. Mapped within the Study Area

Waters Type	Acreage[1] Project Area	Program Study Areas	Study Area Total
Wetlands			
Alkali Playa	9.846	--	9.846
Alkali Wetland	9.775	--	9.775
Farmed Wetland	0.365	--	0.365
Freshwater Emergent Marsh	0.022	--	0.022
Seasonal Wetland	--	0.104	0.104
Wetland Ditch	0.209	0.091	0.300
Other Waters			
Drainage Ditch	0.256	--	0.256
Intermittent Drainage - Covell Drain	2.827	0.053	2.880
Roadside Ditch	0.020	--	0.020
Total	**23.317**	**0.248**	**23.565**

[1] Summation errors may occur due to rounding.

4.2.1 Alkali Playa and Alkali Wetland

There is a large alkali playa/alkali wetland complex located within the Alkali Prairie area in the central western portion of the Study Area. Areas mapped as alkali playa are the deeper areas that retained water for a longer period of time than surrounding wetland areas, and as a result are largely unvegetated. The alkali wetlands are the surrounding wetlands that were relatively densely vegetated with hydrophytes. The alkali playas supported sparse alkali popcorn flower (*Plagiobothrys leptocladus*), alkali barley (*Hordeum depressum*), Parry's rough tarplant, common tarweed, and swamp grass (*Crypsis schoenoides*). The alkali wetlands were dominated by common tarweed, alkali barley, alkali popcorn flower, perennial ryegrass, bur clover (*Medicago polymorpha*), Boccone's sand spurry (*Spergularia bocconi*), and miniature lupine (*Lupinus bicolor*). Other species commonly observed in the alkali wetlands include slender popcorn flower (*Plagiobothrys stipitatus ssp. stipitatus*), blow wives (*Achyrachaena mollis*), alkali milk vetch (*Astragalus tener ssp. tener*), dwarf sack clover (*Trifolium depauperatum var. depauperatum*), and toad rush (*Juncus bufonius*). The northern boundary of the alkali playa/alkali wetland complex is bound by a levee on the south side of Covell Drain. There is a low saddle that would allow flood water from the area to drain into Covell Drain if water in the playa got deep enough. The playa area is generally shallow and is less than two feet in depth.

4.2.2 Farmed Wetland

One farmed wetland is located within a long, low, sinuous area that was previously a natural drainage. The drainage in this area was rerouted to the north and into Covell Drain when the properties to the west were developed, and therefore this remnant wetland no longer functions as a drainage. This feature is regularly disced by normal farming operations, and supports largely weedy facultative wetland species, including prickly cocklebur (*Xanthium strumarium*), perennial ryegrass, curly dock (*Rumex crispus*), and alkali mallow (*Malvella leprosa*).

4.2.3 Freshwater Emergent Marsh

A freshwater emergent marsh is present along the southwestern edge of the Study Area. This feature is wet well into the summer, and is dominated by obligate hydrophytes including cattail (*Typha* species), tall nutsedge (*Cyperus eragrostis*), Mediterranean beard grass (*Polypogon monspeliensis*), and smartweed (*Persicaria* species).

4.2.4 Seasonal Wetland

Several small man-made seasonal wetlands are located to the west of County Road 101A in a small park-like area. These features support a mix of perennial and annual hydrophytes. Species observed in these features include common sedge (*Carex praegracilis*), Baltic rush (*Juncus balticus*), Mediterranean beard grass, Great Valley gumweed (*Grindelia camporum*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex crispus*), hyssop loosestrife, and common sunflower (*Helianthus annuus*).

4.2.5 Wetland Ditch

A ditch along the northeastern perimeter of the Study Area serves to convey stormwater and irrigation flows, but is less regularly maintained, and as such has become well vegetated with annual and perennial wetland plant species. Additionally, a few remnant ditches that support wetland vegetation are present in the field with the alkali playa/alkali wetland complex. Plant species commonly observed within these ditches include saltgrass, alkali barley, alkali heath, hyssop loosestrife, common tarplant, broad-leaved pepperweed, Mediterranean beard grass, and perennial ryegrass.

4.2.6 Drainage Ditch

A drainage ditch is present north of Covell Drain, running between two of the agricultural fields. This feature is actively used to drain the adjacent fields into Covell Drain, and as such is regularly maintained and almost entirely unvegetated.

4.2.7 Intermittent Drainage - Covell Drain

Covell Drain is a historic seasonal drainage that flows generally from west-to-east into the Willow Slough Bypass, through the Yolo Bypass, and into the Sacramento River. Covell Drain historically flowed through the southeastern portion of the Study Area and a remnant, mostly upland, channel is still present where the creek used to flow. Between 1957 and 1968, (based on historic aerial photograph review) Covell Drain was realigned to the north, presumably for flood protection and to serve agricultural needs, as Putah Creek was realigned south of the City of Davis for the same reasons. The current channel of Covell Drain is engineered to be trapezoidal in nature and the banks are bound by earthen levees that are higher in elevation than the surrounding farmland. The channel is approximately 20 to 30 feet in width and approximately 10 feet deep and contains an earthen and sandy substrate.

Water within Covell Drain enters the Study Area from the west and makes a jog to the south for approximately 0.25 mile before turning east and flowing 0.8 mile east before exiting the Study Area. A small tributary enters Covell Drain along the western boundary near the offsite Julie Partansky Pond. This tributary appears to gather precipitation runoff and parallels County Road 101A/F Street for approximately 0.75 mile before flowing into Covell Drain.

Hydrology within Covell Drain is driven by rain events and water appears to be present within the channel starting in late fall or early winter after several rain events. Water remains present, albeit very shallow, until late spring or early summer when the channel dries.

Riparian vegetation along the banks of Covell Drain consists of dense strips of mostly non-native trees. This community is heavily dominated by wingnut and Arizona ash, but also supports golden rain tree, cigar tree, white mulberry, tree of heaven, Siberian elm, Chinese elm, Chinese tallow, Callery pear, and she-oak. Occasional native trees also occur in this community including Valley oak, Northern California black walnut, boxelder, Fremont's cottonwood, red willow and black willow. Very little herbaceous vegetation is present in the shaded understory of this community due to the dense closed canopy. The channel contains abundant woody debris and log jams. The western portion of Covell Drain is wider and less shaded, and as a result, supports some emergent wetland vegetation, including spotted ladysthumb, common knotweed, curve pod yellow cress, bearded sprangletop, tule, jungle rice, prickly cocklebur, canarygrass and big saltbush.

4.2.8 Roadside Ditch

A roadside ditch was mapped along the western edge of Road 102. This feature conveys stormwater flows away from the road. It is almost entirely unvegetated, and is ephemeral in nature (flows only immediately following storm events).

4.2.9 Special Lands

The Study Area is not located within any of the following special designated lands:
- The Primary or Secondary Zone of the Legal Delta;
- Critical Habitat as proposed or designated by the USFWS; or
- USFWS Vernal Pool Core Recovery Areas.

4.3 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2024), eight soil mapping units occur within the Study Area (**Table 3**) (**Figure 7**). The soils range from slightly acidic to strongly alkaline, and are comprised of various types of loams, clay loams, and clays.

Table 3. Soil Mapping Units within the Study Area

Soil Mapping Unit		pH Range in Surface Layers	Dominant Texture
BrA	Brentwood silty clay loam, 0 to 2 percent slopes	Moderately alkaline	Clay loam
M-W	Miscellaneous water[1]	N/A	N/A
Mp	Merritt complex, saline-alkali	Moderately alkaline	Silty clay loam
Pb	Pescadero silty clay, saline-alkali	Strongly alkaline	Silty clay
Rg	Rincon silty clay loam	Slightly acidic	Silty clay loam
St	Sycamore silty clay loam, drained, 0 percent slopes, MLRA 17	Slightly acidic	Silty clay loam
Ya	Yolo silt loam, 0 to 2 percent slopes, MLRA 17	Neutral	Silt loam
Yb	Yolo silty clay loam, 0 to 2 percent slopes, MLRA 17	Neutral	Silty clay loam

[1] The area mapped as "Miscellaneous water" was a wastewater treatment facility decades ago when the soil survey was conducted.

5.0 RESULTS

Table 4 provides a list of special-status species that were evaluated, including their listing status, habitat associations, and their potential to occur in the Study Area. The following set of criteria was used to determine each species' potential for occurrence on the site:
- Present: Species was recently observed on the site during field surveys by Madrone.
- High: The site is within the known range of the species and suitable habitat exists. The species may also be documented on the site in CNDDB records.

- Moderate: The site is within the known range of the species and very limited suitable habitat exists.
- Low: The site is within the known range of the species and there is marginally suitable habitat.
- No Habitat Present: The site does not contain suitable habitat for the species and/or the site is outside the known range of the species.
- Absent: The species was not observed during protocol-level surveys conducted on-site that were comprehensive for the species.

The names of all Yolo HCP Covered Species are **bolded** in **Table 4** below.

Figures 3 and 4 are exhibits displaying CNDDB occurrences within five miles of the Study Area and **Figure 8** shows in greater detail where special-status species have been documented within and adjacent to the Study Area in the CNDDB. **Figure 9** summarizes special-status species or their habitat that have been documented within the Study Area by Madrone during the protocol-level surveys detailed above in **Section 3.2**. Below is a discussion of all special-status plant and animal species with potential to occur on the site.

Throughout this section, the following somewhat similar but discrete habitat types are referred to: alkali prairie, alkali playa, and alkali wetlands. We have outlined each in **Sections 4.1.1 and 4.21,** but the following is a comparison:

- Alkali playas are the depressional, unvegetated wetland areas south of Covell Drain. These areas inundate for a prolonged period of time and as such provide habitat for plant and animal species that require that type of hydrology.
- Alkali wetlands are densely vegetated wetland areas adjacent to the alkali playas, primarily to the south due to the Covell Drain levee to the north. These areas may inundate briefly, but their hydrology seems to be primarily driven by very shallow perched groundwater through the winter and spring. As such, they provide habitat for certain alkali adapted plant species, but do not represent habitat for species that require prolonged inundation.
- Alkali prairie is the Yolo HCP terrestrial Land Cover Type that includes the alkali wetlands, alkali playas, and the adjacent grasslands that also support halophytic species.

5.1 Plants

5.1.1 Ferris' Milk-Vetch

Ferris' milk-vetch (*Astragalus tener var. ferrisiae*) is not state or federally listed, but it is classified as a CRPR List 1B.2 plant. This annual herb is found in subalkaline flats of valley and foothill grassland and vernally mesic meadows and seeps (CNPS 2024). This plant occurs at elevations between 5 and 245 feet and has a short blooming period from April to May (CNPS 2024).

The alkali playa and alkali wetlands within the Study Area represent suitable habitat for this species. There are two records of Ferris' milk-vetch within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #18) is located in the approximate area of the site (CNDDB 2024). This record

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Plants				
Astragalus tener var. ferrisiae Ferris' milk-vetch	--	CRPR 1B.1	Occurs in meadows, foothill and valley grasslands. Usually found in dry adobe soils (elevation 5'-245').	**Absent.** Suitable habitat for this species is present in the alkali playa and alkali wetlands within the Study Area. CNDDB occurrence No. 18 is near the Study Area (CNDDB 2024). This record was documented by Kennedy in 1926, and the exact location is extremely vague (CNDDB 2024). However, the habitat within the Study Area is suitable for the species. This species was not detected during the April 2024 survey of the Study Area.
Astragalus tener var. tener Alkali milk-vetch	--	CRPR 1B.2	Occurs in playas, valley and foothill grassland (adobe clay), and vernal pools (elevation 5'-195').	**Present**. Suitable habitat for this species is present in the alkali playa and alkali wetlands within the Study Area. CNDDB occurrence No. 36 (most recently documented in 1951) is within the Study Area (CNDDB 2024), and five unprocessed records from 2023 documented this species within the alkali playa area (CNDDB 2024). Thousands of individuals of this species were documented by Madrone within the alkali wetlands within the Study Area (**Figure 9**).
Atriplex cordulata var. cordulata Heartscale	--	CRPR 1B.2	Grows in grasslands with sandy alkaline or saline soils (elevation 0'-1,835').	**Absent**. Suitable habitat for this species is present in the Alkali Prairie within the Study Area. CNDDB Occurrence No. 4 is within the Study Area (CNDDB 2024). This record was documented in 1952, the exact location is somewhat vague, and sandy soils do not occur within the Study Area. As a result, this species has a moderate potential to occur within the Study Area. This species was not detected

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

***Scientific Name* (Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
				during the August 2023 or June and July 2024 survey of the Study Area.A
Atriplex depressa Brittlescale	--	CRPR 1B.2	Prefers meadows or grasslands, chenopod scrub, vernal pools, in alkaline or saline clay soils (elevation 5'-1,050').	**Absent.** Suitable habitat for this species is present in the Alkali Prairie within the Study Area. This species has been documented within the Study Area in the CNDDB as recently as 1996 (Occurrence #57), and in the prior EIR for this Project (**Figure 8**). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area.
Carex comosa Bristly sedge	--	CRPR 2B.1	Occurs in coastal prairie, margins of marshes and swamps, and valley and foothills grasslands (elevation 0'-2,050').	**Absent.** Suitable habitat for this species occurs within the freshwater emergent marsh and the western-most portion of Covell Drain, but this species was not detected during the August 2023 or June and July 2024 survey of the Study Area.
Centromadia parryi ssp. *parryi* Pappose tarplant	--	CRPR 1B.2	Found on alkaline soils in coastal prairie, meadows, seeps, coastal salt marshes, and valley/foothill grasslands (elevation 0'-1,380').	**Absent.** Suitable habitat for this species is present in the Alkali Prairie within the Study Area. This species was not detected during the This species was not detected during the August 2023 or June and July 2024 survey of the Study Area.
Chloropyron palmatum **Palmate-bracted bird's-beak**	FE	CE, CRPR 1B.1	Found on alkaline soils in chenopod scrub and valley and foothill grasslands, primarily on side slopes adjacent to ditches and other waterways where the hydrology is appropriate (elevation 15'-510'). Most common host plant for this	**Absent.** This species requires very specific habitat and minimal disturbance, and as such, the Alkali Prairie within the Study Area represents marginally suitable habitat. This species was not detected during the August 2023 or June and July 2024 survey of the Study Area.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
			hemiparasite is salt grass (*Distichlis spicata*).	
Eryngium jepsonii Jepson's coyote-thistle	--	CRPR 1B.2	Occurs in vernal pools and other mesic areas in valley and foothill grasslands on clay soils (elevation 10′-985′).	**Absent.** Suitable habitat for this species is present in seasonal wetlands and the alkali playa/alkali wetlands on clay soils throughout the Study Area. This species was not detected during the August 2023 or June and July 2024 survey of the Study Area.
Extriplex joaquinana San Joaquin spearscale	--	CRPR 1B.2	Found in seasonal alkali wetlands or alkali sink scrub (elevation 5′-2,740′).	**Present.** Suitable habitat for this species is present in alkali prairie throughout the Study Area, especially around the alkali playa/alkali wetlands. This species has been documented within the Study Area in the CNDDB (Occurrence # 40) and thousands of individuals were documented by Madrone during the 2024 survey (**Figures 8 and 9**).
Fritillaria pluriflora Adobe-lily	--	CRPR 1B.2	Grows in chaparral, cismontane woodland, or foothill grasslands with clay or serpentine soils. (elevation 195′-2,315′).	**No Habitat Present.** Study Area is outside the elevational range of the species.
Hibiscus lasiocarpos var. occidentalis Woolly rose-mallow	--	CRPR 1B.2	Occurs in freshwater wetlands/marshes including edges. Often in riprap on sides of levees (elevation 0′-395′).	**Absent.** Suitable habitat for this species occurs within the western-most portion of Covell Drain, but this species was not detected during the August 2023 or June and July 2024 survey of the Study Area.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Lepidium latipes var. heckardii Heckard's pepper-grass	--	CRPR 1B.2	Prefers mesic alkaline flats within valley and foothill grasslands (elevation 5'-655').	**Absent.** Suitable habitat for this species is present in the alkali playa/alkali wetlands and other seasonal wetlands within the Study Area. This species was not detected during the April 2024 survey of the Study Area.
Lessingia hololeuca Wooly-headed lessingia	--	CRPR 3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland on serpentine clay soils (elevation 50'-1,000').	**No Habitat Present.** Serpentine soils do not occur within the Study Area.
Lilaeopsis masonii Mason's lilaeopsis	--	Rare, CRPR 1B.1	Prefers brackish or freshwater swamps, intertidal marshes, and riparian scrub (elevation 0'-35').	**No Habitat Present.** The Study Area is not tidally influenced.
Myosurus minimus spp. *apus* Little mousetail	--	CRPR 3.1	Found in mesic areas in valley and foothill grassland and alkaline vernal pools (elevation 65' – 2,100').	**Absent.** Suitable habitat for this species is present in the alkali playa/alkali wetlands and other seasonal wetlands within the Study Area. This species was not detected during the April 2024 survey of the Study Area.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	--	CRPR 1B.1	Favors vernal pools and other mesic areas in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grasslands (elevation 15'-5,710'.	**Absent.** Suitable habitat for this species is present in the alkali playa/alkali wetlands and other seasonal wetlands within the Study Area. This species was not detected during the April 2024 survey of the Study Area.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Neostapfia colusana Colusa grass	FT, CH	CE, CRPR 1B.1	Large vernal pools and other mesic areas in clay soils (elevation 16' – 656').	**Absent.** Suitable habitat is present within the alkali playa/alkali wetlands within the Study Area. This species was not detected during the August 2023 or June and July 2024 survey of the Study Area.
Plagiobothrys hystriculus Bearded popcornflower	--	CRPR 1B.1	Often in mesic areas of valley and foothill grassland and vernal pool margins (elevation 0' – 900').	**Absent.** Suitable habitat for this species is present in the alkali playa/alkali wetlands and other seasonal wetlands within the Study Area. This species was not detected during the April 2024 survey of the Study Area.
Puccinellia simplex California alkali grass	--	CRPR 1B.2	Alkaline, vernally mesic areas in sinks, flats and lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools (elevation 7' – 3,051').	**Absent.** Suitable habitat for this species is present in the Alkali Prairie within the Study Area, especially around wetlands. CNDDB occurrence No. 52 is within the Study Area (CNDDB 2024). This record was documented by several botanists between 1947 and 1963, the exact location is extremely vague, and the occurrence is considered "possibly extirpated" (CNDDB 2024). However, the habitat within the study area is suitable for the species. This species was not detected during the April 2024 survey of the Study Area.
Sidalcea keckii Keck's checkerbloom	FE	CRPR 1B.1	Serpentinite clay soils in cismontane woodland and valley and foothill grasslands (elevation 245' - 2,135').	**No Habitat Present.** Serpentine soils do not occur within the Study Area, and the site is outside of the elevational range of the species.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Symphyotrichum lentum Suisun Marsh aster	--	CRPR 1B.2	Occurs in fresh and salt water marshes, often associated with blackberries, cattails, and bulrush (elevation 0'-10').	**No Habitat Present.** The Study Area is outside of the distributional range of the species.
Trifolium hydrophilum Saline clover	--	CRPR 1B.2	Grows in marshes, swamps, vernal pools, and other mesic areas with alkaline soils (elevation 0'-985').	**Absent.** Suitable habitat for this species is present in the alkali playa/alkali wetlands and other seasonal wetlands within the Study Area. This species was not detected during the April 2024 survey of the Study Area.
Tuctoria mucronata Crampton's tuctoria	FE	CE, CRPR 1B.1	Vernal pools and mesic areas in valley and foothill grasslands (elevation 15'–35').	**Absent.** Suitable habitat for this species is present in the alkali playa/alkali wetlands within the Study Area. This species was not detected during the August 2023 or June and July 2024 survey of the Study Area.
Invertebrates				
Bombus crotchii Crotch's bumble bee	--	CC	Occurs in open grasslands and scrub habitats. This species occurs primarily in California including the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills through most of southwestern California (William et al 2014).	**Moderate.** Much of the Study Area is disturbed and in active agriculture. However, the Alkali Prairie and California annual grassland may provide low quality seasonal habitat for this species.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Bombus occidentalis Western bumble bee	--	CC	Meadows and grasslands with the blended floral resources are the appropriate habitat for this sub-species. While the Western bumble bee was historically known throughout the mountains and northern coast of California, it is now largely confined to high elevation sites and a small handful of records on the northern California coast (Cameron et al. 2011a; Xerces Society 2012: Williams et al. 2014; Xerces Society et al. 2017).	**No Habitat Present.** The Study Area is outside of the current range of the species. This species was documented somewhere near Davis in the 1950s and 1960s in the CNDDB (Occurrence #176) (CNDDB 2024). However, recent data and range maps indicated that the Study Area is outside of the current range of this species.
Branchinecta conservatio Conservancy fairy shrimp	FE	--	Occurs in very large, turbid vernal pools and other similar wetlands.	**Absent.** The alkali playas within the Study Area have the potential to support this species. Protocol wet and dry season surveys conducted in 2023-2024 did not detect this species.
Branchinecta lynchi Vernal pool fairy shrimp	FT	--	Occurs in vernal pools and other similar wetlands.	**Absent.** The alkali playa, seasonal wetlands, farmed wetland, and wetland ditches within the Study Area have the potential to support this species. Protocol wet and dry season surveys conducted in 2023-2024 did not detect this species.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status**[1]	**State Status**[1]	**Habitat Requirements**	**Potential for Occurrence**
Danaus plexippus Monarch butterfly	FPT	--	Migratory species; most prevalent in the Central Valley in summer and early fall. Dependent upon milkweed (*Asclepias* species) plants as their exclusive larval host.	**High.** Several patches of milkweed plants are present that could support this species.
Desmocerus californicus dimorphus **Valley elderberry longhorn beetle**	FT	--	Dependent upon elderberry (*Sambucus* species) plant as primary host species.	**High.** Twenty-six elderberry shrubs are present within or adjacent to the Study Area that could represent habitat for this species (**Figure 9**). This species was documented in the vicinity of the Study Area in 1934 in the CNDDB (Occurrence #256) (CNDDB 2024).
Lepidurus packardi Vernal pool tadpole shrimp	FE	--	Occurs in vernal pools and other similar wetlands.	**Present.** Suitable habitat for this species is present in the alkali playas, wetland ditches and seasonal wetlands within the Study Area. Two overlapping CNDDB records (Occurrences #217 and #222) occur in a portion of the Study Area. These Occurrences include collections in 1941, 1942, 1952, and 1979, and all of the collections were from features west of Road 101A (which is west of the Project Area, but cuts through a portion of the Western Program Study Area) (CNDDB 2024). This species was documented in three features within the Study Area: two alkali playas, and one wetland ditch (**Figure 9**).

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Fish				
Acipenser medirostris Green sturgeon – Southern DPS	FC	CT	Prefers moderately saline water and may be found in major bays and estuaries from San Francisco Bay northward.	**No Habitat Present.** Outside of the geographic range of the species and suitable aquatic habitat is not present.
Amphibians				
Ambystoma californiense **California tiger salamander**	FT	CT	Breeds in ponds or other deeply ponded wetlands and uses gopher holes and ground squirrel burrows in adjacent grasslands for upland refugia/foraging.	**No Habitat Present.** The Study Area does not contain and is not adjacent to large grassland habitat that is necessary for this species to persist. The intensive agricultural practices such as plowing, disking, and irrigation of the fields would preclude this species from being present.
Spea hammondii Western spadefoot	FPT	CSC	Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	**Low.** Low quality habitat for this species is present in the alkali playa, seasonal wetlands, and wetland ditches within the Study Area. However, due to ongoing intensive agricultural activities there is a low potential that western spadefoot is present within the Study Area. Larvae of this species were not detected during 2023-2024 bi-weekly wet season surveys of all suitable aquatic habitat in the Study Area.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Reptiles				
Actinemys marmorata **Northwestern pond turtle**	FPT	CSC	Occurs in ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	**Low.** Covell Drain within the Study Area is shallow and ephemeral and contains very little open water that northwestern pond turtle prefer. The species could use Covell Drain to disperse from pond habitats at the North Davis Farms and Julie Partansky Pond downstream through the Study Area toward the Willow Slough Bypass.
Thamnophis gigas **Giant garter snake**	FT	CT	Occurs in rivers, canals, irrigation ditches, rice fields, and other aquatic habitats with slow moving water and heavy emergent vegetation.	**No Habitat Present.** Covell Drain and the uplands within the Study Area do not represent suitable habitat for giant garter snake. The lack of perennial or semi-perennial water needed to support a prey base, the lack of suitable basking habitat due to the dense riparian canopy, and the highly disturbed and farmed nature of the uplands surrounding Covell Drain make the Study Area unsuitable. Additionally, the lack of adjacent wetlands or rice farming to Covell Drain also contributes to the unsuitability of the Study Area for giant garter snake. Please see the attached giant garter snake habitat assessment for additional information on this species (**Attachment F**).

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Birds				
Agelaius tricolor **Tricolored blackbird**	--	CE, CSC	Colonial nester in cattails (*Typha* species), bulrush (*Schoenoplectus* species), or blackberry (*Rubus* species) associated with marsh habitats.	**Low.** A very small freshwater emergent marsh and isolated patches of cattail, bulrush, and blackberry in Covell Drain are present on-site; however, these areas are too small to support colonial nesting habitat. The agricultural fields throughout the Study Area represent potential foraging habitat for this species. Tricolored blackbird has not been observed by Madrone staff during any of our surveys in 2023 and 2024, including the protocol-level Swainson's hawk and burrowing owl surveys.
Ammodramus savannarum Grasshopper sparrow	--	CSC	Typically found in expansive short- to middle-height, moderately open grasslands with scattered shrubs or other song perches (Shuford and Gardali 2008).	**Moderate.** The agricultural fields are moderately suitable habitat for this species due to the lack of interspersed trees and shrubs.
Aquila chrysaetos Golden eagle	--	CFP	Forages in open areas including grasslands, savannahs, deserts, and early successional stages of shrub and forest communities. Nests in large trees and cliffs.	**High.** The site is outside of the breeding range of the species, but the agricultural fields throughout the Study Area represent suitable winter foraging habitat.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Asio flammeus Short-eared owl	--	CSC	Typically found in open areas with few trees such as grasslands, prairies, dunes, meadows, and croplands.	**High.** The site is outside of the breeding range of the species, but the agricultural fields throughout the Study Area represent suitable winter foraging habitat.
Athene cunicularia **Burrowing owl**	--	CC, CSC	Nests in abandoned ground squirrel (*Otospermophilus beecheyi*) burrows associated with open grassland habitats.	**Low.** Extensive complexes of ground squirrel burrows occur throughout the Study Area, particularly along the western edge of the site and along Covell Drain; these burrows represent suitable habitat for this species. Despite this, no burrowing owls were observed during protocol-level breeding and non-breeding season surveys of the Study Area conducted in 2023 and 2024. However, this species is highly mobile and could move into the area at any time.
Buteo swainsoni **Swainson's hawk**	--	CT	Nests in large trees, preferably in riparian areas. Forages in fields, cropland, irrigated pasture, and grassland near large riparian corridors.	**Present.** Large trees throughout the Study Area represent suitable nesting habitat, and the Alkali Prairie, Grain and Hay Crops, and Semi-Agricultural Land Covers on-site represent suitable foraging habitat. This species has previously been observed nesting within the southern portion of the Study Area in 1982 through 1991 (CNDDB Occurrence #450) (CNDDB 2024). During the 2024 protocol-level surveys for the species, one active nest

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
				was observed along Covell Drain, and a second was observed just to the north of the Study Area (**Figure 9**). This species forages throughout the Study Area regularly.
Charadrius alexandrinus nivosus Western snowy plover	FT	CSC	Occurs in barren to sparsely vegetated open areas near water.	**No Habitat Present.** Outside of the known range of the species and no suitable habitat is present.
Circus hudsonius Northern harrier	--	CSC	Nests in emergent wetland/marsh, open grasslands, or savannah habitats. Forages in open areas such as marshes, agricultural fields, and grasslands.	**Present.** The Study Area does not support potential nesting habitat for this species since no suitable grassland habitat occurs on-site. This species was observed foraging on-site during several surveys in 2023 and 2024.
Coccyzus americanus occidentalis **Western yellow-billed cuckoo**	FT	CE	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, adjacent to slow-moving waterways, backwaters, or seeps.	**No Habitat Present.** No appropriate extensive riparian woodland habitat occurs on-site; as such, the Study Area does not provide suitable habitat for this species.
Elanus leucurus **White-tailed kite**	--	CFP	Open grasslands, fields, and meadows are used for foraging. Isolated trees in close proximity to foraging habitat are used for perching and nesting.	**Present.** Trees throughout the Study Area represent suitable nesting habitat, and Alkali Prairie, Grain and Hay Crops, and Semi-Agricultural Land Covers on-site represent suitable foraging habitat. This species was observed foraging within the Study Area during surveys in 2023 and 2024.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Lanius ludovicianus Loggerhead shrike	--	CSC	Occurs in open areas with sparse trees, shrubs, and other perches.	**Moderate.** The agricultural fields are moderately suitable habitat for this species due to the lack of interspersed trees and shrubs.
Pelecanus erythrorhynchos American white pelican	--	CSC	Nests on isolated islands in lakes and feeds on shallow lakes, rivers, and marshes away from human disturbance.	**No Habitat Present.** The species could occur as an occasional winter migrant, but no nesting or foraging habitat occurs within the Study Area.
Riparia riparia **Bank swallow**	--	CT	Colonial nester preferring vertical cliffs and banks with fine textured/sandy soils associated with riparian zones along streams, rivers, and lakes.	**No Habitat Present.** Vertical cliffs and fine-textured/sandy soils are not present on-site.
Vireo bellii pusillus **Bell's least vireo**	FE	FE	Strongly associated with riparian corridors. Generally restricted to southern California along lowland willow-dominated riparian areas. In the Sacramento Valley, the species occurs as a vagrant during the breeding season.	**No Habitat Present.** The Study Area does not support riparian habitats with the dense shrubby willow thickets the species requires.
Mammals				
Antrozous pallidus Pallid bat	--	CSC, WBWG H	Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of coast redwoods	**High.** Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees scattered throughout the site.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
			[*Sequoia sempervirens]* and giant sequoia [*Sequoiadendron giganteum]*, bole cavities of oaks [*Quercus* species], exfoliating Ponderosa pine [*Pinus ponderosa]* and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2024).	
Corynorhinus townsendii Townsend's big-eared bat	--	CSC, WBWG H	Roosts in caves and cave analogues, such as abandoned mines, buildings, bridges, rock crevices and large basal hollows of coast redwoods (*Sequoia sempervirens*) and giant sequoia (*Sequoiadendron giganteum*). Extremely sensitive to human disturbance (WBWG 2022).	**Low.** Marginally suitable habitat occurs within the building associated with the prior residence in the southern portion of the Study Area.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Lasionycteris noctivagans Silver-haired bat	--	WBWG M	Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	**High.** Suitable roosting habitat for this species is present in tree hollows and under exfoliating bark on trees scattered throughout the site.
Lasiurus cinereus Hoary bat	--	WBWG M	Roosts primarily in foliage of both coniferous and deciduous trees at the edges of clearings (WBWG 2024).	**High.** Trees scattered throughout the site are suitable roosting habitat for this species.
Lasiurus frantzii Western red bat	--	CSC, WBWG H	Requires large leaf trees such as cottonwoods (*Populus* species), willows (*Salix* species), and fruit/nut trees for daytime roosts. Often associated with wooded habitats that are protected from above and open below. Often found in association with riparian corridors. Requires open space for foraging.	**High.** Trees throughout the Study Area are suitable roosting habitat for this species.
Taxidea taxus American badger	--	CSC	This species prefers dry open fields, grasslands, and pastures.	**Low.** The small area of grassland within the Study Area is surrounded by development and has regular pedestrian traffic and is not suitable habitat for American badger. American badger may utilize Covell Drain as a migratory corridor, dispersing to and from suitable habitat.

Table 4. Special-Status Species with Potential to Occur within the Village Farms Davis Project Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence

[1]*Status Codes:*

CC - CDFW Candidate for Listing *CE - CDFW Endangered* *CFP - CDFW Fully Protected* *CRPR - California Rare Plant Rank* *CR - California Rare*
CSC - CDFW Species of Concern *CT - CDFW Threatened* *FE - Federally Endangered* *FT - Federally Threatened* *FC - Federal Candidate for Listing*
FPT – Federally Proposed Threatened *WBWG H - Western Bat Working Group High Threat Rank* *WBWG M - Western Bat Working Group Medium Threat Rank*

was mapped by CNDDB in the general vicinity of Davis. The exact location is unknown. This species was not detected during the April 2024 survey of the Study Area when this species would have been in bloom.

5.1.2 Alkali Milk-Vetch

Alkali milk-vetch (*Astragalus tener var. tener*) is not state or federally listed, but it is classified as a CRPR List 1B.2 plant. This annual herb is found in adobe clay in valley and foothill grassland, vernal pools, and playas. (CNPS 2024). This plant occurs at elevations between 5 and 195 feet and blooms from March to June (CNPS 2024).

The alkali playa and alkali wetlands within the Study Area represent suitable habitat for this species. There are four records of alkali milk-vetch within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #36) overlaps the Study Area, and there are an additional five unprocessed CNDDB records from 2023 within the alkali play within the Study Area (CNDDB 2024). Thousands of individuals of this species were documented by Madrone within the alkali wetlands within the Study Area (**Figure 9**) during targeted surveys in 2024. The plants were observed both in relatively typical habitat (interspersed with hydrophytic species typical of the alkali wetland) as well as in some mesic upland areas. Plants were widely scattered in some areas, particularly to the west, and were more dense in eastern areas. A total of approximately 19,300 alkali milk vetch plants were documented within 3.17 acres of occupied habitat (**Figure 9**). This population estimate is based on a combination of direct counts for relatively small populations, and extrapolated population estimates for the very large populations[2].

5.1.3 Heartscale

Heartscale (*Atriplex cordulata var. cordulata*) is not state or federally listed but is classified as a CRPR 1B.2 plant. This species is an herbaceous annual that sometimes occurs in alkaline soils within chenopod scrub, sandy valley and foothill grasslands, and meadows and seeps (CNPS 2024). Heartscale blooms from April through October and is known to occur at elevations ranging from approximately sea level to 1,835 feet. (CNPS 2024).

The Alkali Prairie within the Study Area represents suitable habitat for heartscale. There is one record of heartscale within five miles of the Study Area in the CNDDB (**Figure 3**). This record (CNDDB Occurrence #4) overlaps the Study Area, and is based on a 1952 collection (CNDDB 2024). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable.

---

[2] For alkali milk vetch, the extrapolated population estimates were achieved by counting plants in a number of semi-randomly located 15 ft^2plots throughout each large population. This methodology was employed because of widely varying plant densities throughout the populations, and because in many cases, the alkali milk vetch plants were located below taller vegetation. The plots were only semi-randomly located because an effort was made to establish plots in each density type within a population, and have the number of plots in a density type be approximately proportionate to the area that density type occupied within a given population. All of the plant counts within the population were averaged, and then that average population count was extrapolated across the mapped population area.

5.1.4 Brittlescale

Brittlescale (*Atriplex depressa*) is not state or federally listed but is classified as a CRPR 1B.2 plant. This species is an herbaceous annual that occurs in valley and foothill grassland, meadows and seeps, chenopod scrub, playas, and vernal pools with alkaline and clay soils (CNPS 2024). Brittlescale blooms from April through October and is known to occur at elevations ranging from approximately 5 to 1,050 feet. (CNPS 2024).

The Alkali Prairie within the Study Area represents suitable habitat for brittlescale. There are three records of brittlescale within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #57) is on-site, within the alkali playa (CNDDB 2024). This occurrence was last documented in 1996 as 70 plants were identified within the onsite alkali playa. This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable.

5.1.5 Bristly Sedge

Bristly sedge (*Carex comosa*) is not a state or federally listed species but is classified as a CRPR List 1B.2 plant. Bristly sedge is found in marshes and swamps in valley and foothill grasslands and coastal prairies (CNPS 2024). It is a rhizomatous perennial, and blooms from March through September at elevations from sea level to 2,050 feet (CNPS 2024).

The freshwater emergent marsh and the western portion of Covell Drain within the Study Area provide suitable habitat for this species. There are no documented occurrences of this species in the CNDDB within five miles of the Study Area (CNDDB 2024). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable. The habitat for this species was not disturbed at the time of the August 2023 survey.

5.1.6 Pappose Tarplant

Pappose tarplant (*Centromadia parryi* ssp. *parryi*) is not federally or state listed, but it is classified as a CRPR List 1B.2 species. This annual herb is primarily associated with mesic, often alkaline areas in chaparral, coastal prairie, and valley and foothill grassland as well as meadows and seeps and coastal salt marshes (CNPS 2024). Pappose tarplant occurs at elevations between sea level and 1,380 feet, and blooms from May through November (CNPS 2024).

The Alkali Prairie throughout the Study Area represents suitable habitat for this species. There is one record of pappose tarplant within five miles of the Study Area in the CNDDB (**Figure 3**). This record (CNDDB Occurrence #37) is located approximately 4.7 miles east of the site along Highway 80 between Chiles Road and Levee Road, on the west edge of the Yolo Bypass Wildlife Area (CNDDB 2024). This occurrence was last observed in 2011. This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable.

5.1.7 Palmate-Bracted Bird's-Beak

Palmate-bracted bird's-beak (*Chloropyron palmatum*) is listed as a federally and state endangered species and is classified as a CRPR List 1B.1 plant. This hemi-parasitic annual herb is found in chenopod scrub and valley and foothill grassland with alkaline soils (CNPS 2024). This species occurs at elevations between 15 and 510 feet and blooms from May through October (CNPS 2024).

The Alkali Prairie within the Study Area represents suitable habitat for this species. There are two records of palmate-bracted bird's-beak within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #1) is located approximately 4.1 miles north of the site near junction of Road 103 and Road 25, between Woodland and Davis (CNDDB 2024). This population is located on City of Woodland property and has been monitored regularly since the 1980s with 517 plants observed in 2021 (CNDDB 2024). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable.

5.1.8 Jepson's Coyote Thistle

Jepson's coyote-thistle (*Eryngium jepsonii*) is not a state or federally listed species but is classified as a CRPR 1B.2 plant. It is a perennial herb that is found in vernal pools and valley and foothill grassland on clay soils. This species occurs at elevations from ten to 985 feet and blooms from April through August (CNPS 2024).

The alkali playa, alkali wetlands, and seasonal wetlands within the Study Area provide suitable habitat for this species. There are no documented occurrences of this species in the CNDDB within five miles of the Study Area (CNDDB 2024). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable.

5.1.9 San Joaquin Spearscale

San Joaquin spearscale (*Extriplex joaquinana*) is not federally or state listed, but it is classified as a CRPR 1B.2 plant. This annual herb is found on alkaline soils in meadows, seeps, and playas, in chenopod scrub and valley and foothill grassland (CNPS 2024). San Joaquin spearscale is found between approximately 5 feet and 2,740 feet above MSL, and blooms from April through October (CNPS 2024).

The Alkali Prairie within the Study Area represents suitable habitat for this species. There are six records of San Joaquin spearscale within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #40) is located within the Study Area (CNDDB 2024). Thousands of individuals of this species were documented by Madrone within the alkali wetlands and surrounding alkali prairie within the Study Area (**Figure 9**) during targeted surveys in 2024. The plants were widely scattered in some areas, and quite dense in others. A total of approximately 20,900 San Joaquin spearscale plants were documented within 3.78 acres of occupied habitat (**Figure 9**). This population estimate is based on a combination of direct counts for relatively small populations, and extrapolated population estimates for the very large populations[3].

5.1.10 Woolly Rose-Mallow

Woolly rose-mallow (*Hibiscus lasiocarpos var. occidentalis*) is not state or federally listed, but it is classified as a CRPR List 1B.2 plant. This perennial rhizomatous herb typically occurs in shallow freshwater marshes and swamp habitats and is strongly associated with the Delta watershed. Woolly rose-mallow often occurs in riprap on sides of levees. This species is found at elevations from sea level to approximately 395 feet and blooms from June to September (CNPS 2024).

The western portion of Covell Drain that contains emergent vegetation represents marginal habitat for this species. There are no documented occurrences of this species in the CNDDB within five miles of the Study Area (CNDDB 2024). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable. The habitat for this species was not disturbed at the time of the August 2023 survey.

5.1.11 Heckard's Pepper-Grass

Heckard's pepper-grass (*Lepidium latipes var. heckardii*) is not state or federally listed but is classified as a CRPR 1B.2 List plant. This herbaceous annual is found in valley and foothill grassland with alkaline flats (CNPS 2024). Heckard's pepper-grass blooms from March through May and is known to occur at elevations ranging from approximately five to 655 feet. (CNPS 2024).

The alkali playa, alkali wetlands, and seasonal wetlands within the Study Area represent suitable habitat for Heckard's pepper-grass. There are three records of Heckard's pepper-grass within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #2) overlaps a small portion of the Study Area (**Figure 8**). The herbarium label is the only source of information for this occurrence from 1957 and the exact location is unknown (CNDDB 2024). This species was not detected during the April 2024 survey of the Study Area when this species would have been in bloom.

5.1.12 Little Mousetail

Little mousetail (*Myosurus minimus ssp. apus*) is not a state or federally listed species, but it is classified as a CRPR List 3.1 plant. This annual herb favors valley and foothill grassland and alkaline vernal pool. Little mousetail is found between 65 and 2,100 feet and blooms from March to June (CNPS 2024).

---

[3] The extrapolated population estimates for San Joaquin spearscale were achieved by visually comparing the density of the plants in a smaller mapped population where direct counts were feasible to the larger mapped population, and extrapolating the population count in a similar density small population to the larger population. This technique was feasible for San Joaquin spearscale because the plants are tall and most of them are visible from a distance.

The alkali playa, alkali wetlands, and seasonal wetlands within the Study Area provide suitable habitat for this species. There are no records of this species within five miles of the Study Area within the CNDDB (CNDDB 2024). This species was not detected during the April 2024 survey of the Study Area when this species would have been in bloom. Both *Myosurus minimus* and *Myosurus sessilis* were observed within the alkali wetlands within the Study Area, and CNPS staff were consulted to determine taxonomy for *Myosurus minimus ssp. apus* as it is not recognized in the Jepson eFlora. No *Myosurus* plants that fit the characteristics of *Myosurus minimus ssp. apus* were found within the Study Area.

5.1.13 Baker's Navarretia

Baker's navarretia (*Navarretia leucocephala ssp. bakeri*) is not state or federally listed but is classified as a CRPR 1B.1 List plant. This herbaceous annual is associated with mesic soils and is found in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools (CNPS 2024). Baker's navarretia occurs at elevations ranging from approximately 15 to 5,710 feet and blooms from April through July (CNPS 2024).

The alkali playa, alkali wetlands, and seasonal wetlands within the Study Area represent suitable habitat for Baker's navarretia. There are no records of this species within five miles of the Study Area within the CNDDB (CNDDB 2024). This species was not detected during the April 2024 survey of the Study Area when this species would have been in bloom.

5.1.14 Colusa Grass

Colusa grass (*Neostapfia colusana*) is listed as threatened under the FESA, endangered under the CESA, and is classified as a CRPR List 1B.1 plant. It is an annual herb that occurs in large vernal pools with clay soils at elevations between 16 feet and 656 feet (CNPS 2024). In the vicinity of the Study Area, this species has been documented growing in vernal pools on Bear Creek, Corning, Greenfield, Keyes, Landlow, Lewis, Meikle, Pentz, Peters, Raynor, Redding, and Whitney soils (USFWS 2005). Colusa grass blooms from May through August (CNPS 2024).

The alkali playa and alkali wetlands within the Study Area provide suitable habitat for this species. There are no records of this species within five miles of the Study Area within the CNDDB (CNDDB 2024). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable.

5.1.15 Bearded Popcornflower

Bearded popcornflower (*Plagiobothrys hystriculus*) is not a state or federally listed species but is classified as a CRPR List 1B.1 plant. This herbaceous annual is often found along margins of vernal pools as well as mesic valley and foothill grasslands. Bearded popcornflower occurs at elevations from sea level to 900 feet and blooms from April through May (CNPS 2024).

The alkali playa, alkali wetlands, and seasonal wetlands within the Study Area provide suitable habitat for this species. There are no records of this species within five miles of the Study Area within the CNDDB (CNDDB 2024). This species was not detected during the April 2024 survey of the Study Area when this species would have been in bloom.

5.1.16 California Alkali Grass

California alkali grass (*Puccinellia simplex*) is not listed under the federal or California Endangered Species Act but is classified as a CNPS List 1B.2 plant. This annual herb favors chenopod scrub, meadows and seeps, valley and foothill grasslands, and mesic vernal pools. California alkali grass is found in elevations ranging from about 5 to 3,050 feet and blooms from March to May. (CNPS 2024).

The Alkali Prairie within the Study Area represents suitable habitat for this species. There are eight records of California alkali grass within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #52) overlaps the Study Area (**Figure 8**). This occurrence is from 1952 through 1961 but the CNDDB considers this population potentially extirpated (CNDDB 2024). This species was not detected during the April 2024 survey of the Study Area when this species would have been in bloom.

5.1.17 Saline Clover

Saline clover (*Trifolium hydrophilum*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. This herbaceous annual favors marshes, swamps, vernal pools, as well as mesic alkaline areas in valley and foothill grassland habitat (CNPS 2024). Saline clover is found from sea level to approximately 985 feet in elevation and blooms from April through June (CNPS 2024).

The alkali playa, alkali wetlands, and seasonal wetlands within the Study Area represent suitable habitat for this species. There are four records of saline clover within five miles of the Study Area in the CNDDB (**Figure 3**). The closest record (CNDDB Occurrence #43) is located approximately 4.0 miles southwest of the site at Woodland Regional Park, about 0.5 mile southeast of intersection of County Roads 102 and 25 (CNDDB 2024). This species was not detected during the April 2024 survey of the Study Area when this species would have been in bloom.

5.1.18 Crampton's Tuctoria

Crampton's tuctoria (also known as Solano grass; *Tuctoria mucronata*) is listed as a federally and California state endangered species and is classified as a CNPS List 1B.1 plant. This annual herb favors mesic valley and foothill grassland and is associated with vernal pools. Solano grass occurs at elevations ranging from approximately 15 to 35 feet and blooms from April through August (CNPS 2024).

The alkali playa and alkali wetlands within the Study Area represents suitable habitat for this species. There are no documented records of this species within five miles of the Study Area (CNDDB 2024). This species was not detected during the August 2023 or June and July 2024 survey of the Study Area when this species would have been identifiable.

5.2 Invertebrates

5.2.1 Crotch's Bumble Bee

Crotch's bumble bee (*Bombus crotchii*) is a candidate for listing under the California Endangered Species Act. The species has a limited distribution in southwestern North America. This species occurs primarily in California, including the Mediterranean region, Pacific Coast, West Desert, Great Valley, and adjacent foothills through most of southwestern California. It also occurs in Mexico (Baja California and Baja California Sur) (Williams et al. 2014) and has been documented in southwest Nevada, near the California border. This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range (Williams et al. 2014; Richardson et al 2014). In California, *B. crotchii* inhabits open grasslands and scrub habitats.

All bumble bees have three basic requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the entirety of the colony period (spring, summer, and fall), and suitable overwintering sites for the queens. Nests are often located underground in abandoned holes made by ground squirrels, mice, and rats or occasionally abandoned bird nests (Osborne et al 2008). Some species nest on the surface of the ground (in tufts of grass) or in empty cavities. Bumble bees that nest aboveground may require undisturbed areas with nesting resources such as grass and hay to protect nests. Furthermore, areas with woody cover, or other sheltered areas provide bumble bees sites to build their nests (e.g., downed wood, rock walls, brush piles, etc.).

Bumble bees depend on the availability habitats with a rich supply of floral resources that bloom continuously during the entirety of the colony's life. The queen collects nectar and pollen from flowers to support the production of her eggs, which are fertilized by sperm she has stored from mating the previous fall. As generalist foragers, bumble bees do not depend on any one flower type. They generally prefer flowers that are purple, blue or yellow; they are essentially blind to the color red. The plant families most commonly associated with Crotch's bumblebee observations in California include Apocynaceae, Asteraceae, Boraginaceae, Fabaceae, and Lamiaceae (Xerces Society 2018). Very little is known about hibernacula, or overwintering sites utilized by most bumble bees. Generally, bumble bees overwinter in soft, disturbed soil (Goulson 2010), under leaf litter or other debris (Williams et al. 2014), in abandoned holes made by fossorial mammals or occasionally in abandoned bird nests (Osborne at all 2008). Some species nest on the surface of the ground (in grassy tussocks) or in empty cavities (hollow logs, dead trees, under rocks, etc.). Queens most likely overwinter in small cavities just below or on the ground surface.

The California Annual Grassland and Alkali Prairie within the Study Area represent suitable habitat for Crotch's bumble bee. There is one documented occurrence of this species in the CNDDB (Occurrence #11) within 1.3 miles of the Study Area (CNDDB 2024). Collections from Davis and Putah Creek were attributed to this location from 1949 through 1998 (CNDDB 2024).

5.2.2 Conservancy Fairy Shrimp

The Conservancy fairy shrimp (*Branchinecta conservatio*) is listed as endangered pursuant to the federal Endangered Species Act. This fairy shrimp is endemic to California, and is found in vernal pools in grasslands in the northern two thirds of the Central Valley (Eriksen and Belk 1999). The historic distribution of Conservancy fairy shrimp is not known, but it likely occurred throughout a large portion of the Central Valley and Southern Coastal regions of California (USFWS 2005). Until recently, this species has only been known from a few disjunct populations in California. In April of 2007, the USFWS reported that a single Conservancy fairy shrimp was documented in one vernal pool within the Mariner Conservation Bank in Placer County.

Conservancy fairy shrimp is the largest of the endemic Central Valley fairy shrimp and can reach lengths of slightly over 1 inch. This species has a relatively long maturation (36 days) and reproductive (46 days) period, and is typically found with other large branchiopod species with long maturation and reproductive periods such as vernal pool tadpole shrimp (*Lepidurus packardi*) and California fairy shrimp (*Linderiella occidentalis*) (Helm 1998). This species sometimes co-occurs with endemic vernal pool grasses such as Colusa grass (*Neostapfia colusana*) and Orcutt grasses (*Orcuttia* spp.) (Helm 1998), which likewise tend to inhabit deep wetlands with long inundation periods. Like the endemic vernal pool grasses, Conservancy fairy shrimp occur in wetlands that are primarily unvegetated in the deepest portion of the pool (Helm 1998, Helm 2014).

Conservancy fairy shrimp has been documented in vernal pools and vernal lakes ranging from 0.076 acres in size to 88.03 acres (Helm 2014). A previously reported occurrence of Conservancy fairy shrimp in a pool approximately 0.007 acre in size (Helm 1998) has since been assumed to be erroneous (Helm 2014). This pool is located within a swale that flows out of a very large, turbid pool. It is assumed that the shrimp washed out of the large pool, and were merely transient, and likely not breeding within the smaller pool (Helm 2014).

The alkali playas within the Study Area have the potential to support Conservancy fairy shrimp. There are no documented occurrences of this species in the CNDDB within five miles of the Study Area, but the species has been documented approximately nine miles southeast of the Study Area (CNDDB 2024). Protocol-level wet and dry season surveys for this species were conducted in all suitable habitat within the Study Area and the surveys were negative.

5.2.3 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the federal Endangered Species Act. Historically, the range of vernal pool fairy shrimp extended throughout the Central Valley of California. Vernal pool fairy shrimp populations have been found in several locations throughout California, with habitat extending from Stillwater Plain in Shasta County through the Central Valley to Pixley in Tulare County, and along the Central Coast range from northern Solano County to Pinnacles National Monument in San Benito County (Eng et al. 1990, Fugate 1992). Additional populations occur in San Luis Obispo, Santa Barbara, and Riverside counties. The historic and current ranges of vernal pool fairy shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005). The life cycle of vernal pool fairy shrimp is adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales. Fairy shrimp embryos survive the dry season in cyst form. Cysts "hatch" soon after pools become inundated during the wet season. Fairy shrimp complete their life cycle quickly and feed on small particles of detritus, algae, and bacteria (Eriksen and Belk 1999).

The alkali playa, seasonal wetlands, farmed wetland, and wetland ditches within the Study Area represent suitable habitat for this species. There are no documented occurrences of this species in the CNDDB within five miles of the Study Area (CNDDB 2024). Protocol-level wet and dry season surveys for this species were conducted in all suitable habitat within the Study Area and the surveys were negative.

5.2.4 Monarch Butterfly

Monarch butterfly (*Danus plexippus*) is proposed for federal listing as threatened. This species can occur in fields, roadside areas, open areas, wet areas or urban gardens and requires flowering plants as a food source and healthy and abundant milkweed (generally *Asclepius* sp.) for laying eggs on as larval host plants (USFWS 2023b). The monarch life cycle varies by geographic location, and in many regions where monarchs are present, monarchs breed year-round (USFWS 2020).

While this species was not observed on-site during the field surveys, several substantial patches of narrowleaf milkweed (*Asclepius fascicularis*), a larval host plant for monarch butterfly, were documented within the Study Area. The largest populations of these plants are located along the western edge of the Study Area, south of Covell Drain. Additionally, flowering plants within the Study Area may provide nectar for foraging adults. A query of the Western Monarch Milkweed Database yielded 2020 observations of monarch adults approximately 0.3 mile east of the Study Area, and monarch breeding approximately 3.2 miles southeast of the site (WMMM 2024). Therefore, the Study Area provides suitable habitat for this species.

5.2.5 Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is a federally threatened medium-sized, red and dark green insect. It is approximately 0.5-0.8 inches long. Females are larger than males and resemble males except that the first pair of wings do not fully cover the abdomen when viewed from above. Males have longer, thicker antennae than females, as well as red-orange wing covers with four spots (USFWS 2018, 2024).

The valley elderberry longhorn beetle is completely dependent on its host plant, elderberry (*Sambucus* spp.), which occurs in riparian and other woodland communities in California's Central Valley and the associated foothills (USFWS 1999). Female beetles lay their eggs in crevices on the stems or on the leaves of living elderberry plants. When the eggs hatch, larvae bore into the stems. The larval stages last for one to two years. The fifth instar larvae create emergence holes in the stems and then plug the holes and remain in the stems through pupation (Talley 2003). Adults emerge through the emergence holes from late March through June. The short-lived adult beetles forage on leaves and flowers of elderberry shrubs.

The historic range of the valley elderberry longhorn beetle is limited to moist valley oak woodlands along margins of rivers and streams in the lower Sacramento and lower San Joaquin Valleys (USFWS 1980). At the time of its listing, the valley elderberry longhorn beetle was known from less than 10 localities in Merced, Sacramento, and Yolo Counties (USFWS 1984). Its current distribution is patchy throughout California's Central Valley and associated foothills (USFWS 1999). Valley elderberry longhorn beetle most commonly occur in areas within, or near, some type of riparian corridor containing elderberries as well as other woody plant species such as willow *(Salix* spp.), cottonwood *(Populus fremontii),* wild grape (*Vitis californica),* and box elder *(Acer negundo).* Population densities of the valley elderberry longhorn beetle are probably naturally low (USFWS 1984), and it has been suggested based on the spatial distribution of occupied shrubs (Barr 1991), that the valley elderberry longhorn beetle has limited dispersal capabilities. Low density and limited dispersal capability may cause the valley elderberry longhorn beetle to be vulnerable to the adverse effects of the isolation of small subpopulations due to habitat fragmentation.

There is one occurrence of Valley elderberry longhorn beetle from 1934 that overlaps a small portion of the Study Area (CNDDB 2024). The occurrence (CNDDB #256) has been mapped as a "best guess" based on the vague location description of "Davis". The exact location of this historic observation is unknown. Twenty-six elderberry shrubs are present within or adjacent to the Study Area. Twenty-one of these are very small shrubs that appear to have been planted just outside of the western boundary of the Study Area, adjacent to the Cannery development.

5.3.6 Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp is listed as endangered pursuant to the federal Endangered Species Act. The historic range of the vernal pool tadpole shrimp likely extended throughout the Central Valley of California, and has been documented from east of Redding in Shasta County south to Fresno County, and from the San Francisco Bay Wildlife Refuge in Alameda County. The historic and current ranges of vernal pool tadpole shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005a).

This species is associated with low-alkalinity seasonal pools in grasslands throughout the northern and eastern portions of the Central Valley. Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone. Vernal pool tadpole shrimp are adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales. Tadpole shrimp embryos survive the dry season in cyst form. Cysts "hatch" soon after pools become inundated during the wet season. Sexually mature adults may persist three to four weeks after habitat inundation (Sugnet and Associates 1993).

The largest threats to vernal pool tadpole shrimp are loss of habitat through urbanization. Other threats include encroachment of nonnative annual grasses, agricultural conversion, and parasitism by flukes

(Trematoda) of an undetermined species (Ahl 1991). Some populations are also threatened by pesticide drift from adjacent farmlands (USFWS 2005a).

The alkali playas, seasonal wetlands, and wetland ditches within the Study Area provide suitable habitat for this species. There are three occurrences within five miles of the Study Area and the closest occurrence (Occurrence #222) overlaps the Study Area (CNDDB 2024) (**Figures 4 and 8**). This occurrence was documented just west of County Road 101A/F Street in 1979 (CNDDB 2024). Protocol-level wet and dry season surveys for this species were conducted in all suitable habitat within the Study Area and vernal pool tadpole shrimp were documented in 3 features; two alkali playas, and one wetland ditch basin (**Figure 9**).

5.4 Amphibians

5.4.1 Western Spadefoot

The western spadefoot (*Spea hammondii*) is proposed for federal listing as threatened and is a CDFW species of special concern. This amphibian is a nocturnal animal that forages in grassland, open chaparral, and pine-oak woodlands for a variety of invertebrates such as insects and worms (USFWS 2005). Western Spadefoot breeds from January through May in variety of temporary wetlands including creeks, pools in intermittent drainages, vernal pools, and seasonal wetlands, and other fish-free water features. The tadpoles develop in 3 to 11 weeks, and must complete their metamorphosis before the temporary pools dry. Post-metamorphic juveniles feed and then immediately seek underground refugia. Following metamorphosis, the adults are largely terrestrial in nature and will burrow into sandy or gravelly soils utilizing the "spades" on the hind feet. The majority of the adult's life is spent in underground burrows (USFWS 2005). In Placer County, western spadefoot are known to breed in relatively deep man-made features, such as ponded areas adjacent to railroad tracks, and in intermittent drainage plunge pools or similar pools that hold water through late spring (CNDDB 2023).

The alkali playas, seasonal wetlands, and wetland ditches within the Study Area represent suitable breeding habitat for western spadefoot. However, the uplands surrounding these features are heavily disturbed by ongoing farming practices and greatly reduce the potential for western spadefoot to be present within the Study Area. There is a low potential for western spadefoot to be present within the Study Area. There are no documented records of this species within five miles of the Study Area (CNDDB 2024). Larvae of this species were not detected during 2023-2024 bi-weekly wet season surveys of all suitable aquatic habitat in the Study Area.

5.5 Reptiles

5.5.1 Northwestern Pond Turtle

The northwestern pond turtle (*Actinemys marmorata*) is proposed for federal listing as threatened and is a CDFW species of special concern and a Yolo HCP covered species. Its favored habitats include streams, large rivers and canals with slow-moving water, aquatic vegetation, and open basking sites (Jennings and

Hayes 1994). Although the turtles must live near water, they can tolerate drought by burrowing into the muddy beds of dried drainages. This species feeds mainly on invertebrates such as insects and worms, but will also consume small fish, frogs, mammals, and some plants. Northwestern pond turtle predators include raccoons, coyotes, raptors, weasels, large fish, and American bullfrogs. This species breeds from mid to late spring in adjacent open grasslands or sandy banks (Jennings and Hayes 1994).

Covell Drain within the Study Area is shallow and ephemeral and contains very little open water that northwestern pond turtle prefer. There is a potential the species may use Covell Drain to disperse from pond habitats at the North Davis Farms and Julie Partansky Pond downstream through the Study Area toward the Willow Slough Bypass. Covell Drain is dry for most of the year and it does not serve as suitable habitat when it is not inundated. The adjacent uplands are heavily disturbed farmland that are unsuitable for northwestern pond turtle. The nearest CNDDB occurrence of northwestern pond turtle was last observed in 2001 approximately 2.1 miles southwest of the Study Area along the old Putah Creek channel in the UC Davis Arboretum (**Figure 4**)(CNDDB Occurrence #362)(CNDDB 2024), and this species was observed at that location by a Madrone biologist in 2023. No western pond turtles were observed within the Study Area during the field surveys.

5.6 Birds

5.6.1 Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) populations, which are currently in decline throughout the state, were listed as threatened under the CESA by the California Fish and Game Commission on 19 April 2018. Historically, colonies were established in freshwater marshes dominated by cattails (*Typha* spp.) and bulrushes (*Scirpus* or *Schoenoplectus* spp.). More recently, they have utilized non-native mustards (*Brassica* spp.), blackberries (*Rubus* spp.), thistles (*Circium* spp.), and mallows (*Malva* spp.) as nesting substrate (Airola et al. 2016). Since the 1980s, the largest colonies have been observed in the San Joaquin Valley in cultivated fields of triticale, which is a hybrid of wheat and rye often grown as livestock fodder (Meese 2014). This current trend of nesting in active agricultural fields has further imperiled the species as nestlings typically are not fledged by the time the triticale is harvested.

A very small freshwater emergent marsh and isolated patches of cattail, bulrush, and blackberry in Covell Drain are present on-site; however, these areas are too small to support colonial nesting habitat. Therefore, suitable nesting habitat is not present within the Study Area. However, the agricultural fields on-site represent potential foraging habitat for this species. There are five documented occurrences of this species within five miles of the Study Area (**Figure 4**). The nearest occurrence (CNDDB Occurrence #488) overlaps the Study Area and has been mapped as a best guess based on the vague location description of "Davis" (CNDDB 2024). This occurrence is from 1932, and the exact location is unknown. The nearest distinct occurrence (CNDDB Occurrence #489) is located approximately 2.4 miles northeast of the site, and dates to 2011 (CNDDB 2024). Tricolored blackbird has not been observed within the Study Area by Madrone staff during any of our surveys in 2023 and 2024, including the protocol-level Swainson's hawk and burrowing owl surveys.

5.6.2 Grasshopper Sparrow

Grasshopper sparrow (*Ammodramus savannarum*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is designated as a species of special concern by CDFW. Grasshopper sparrows breed across most coastal counties into the central valley foothills and coastal ranges. Along the coast, they are most widely distributed in the San Francisco Bay and central coast (Audubon California 2025). Grasshopper sparrows generally inhabit moderately open grasslands and prairies with patchy bare ground and scattered shrubs (Vickery 2020). They are more likely to occupy large tracts of habitat than small fragments (Vickery 2020). This species typically breeds from early May through August.

The agricultural fields throughout the Study Area represent moderately suitable habitat for this species due to the lack of interspersed trees and shrubs. The CNDDB does not contain any records of this species within five miles of the Study Area (CNDDB 2024).

5.6.3 Golden Eagle

Golden eagle (*Aquila chrysaetos*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is categorized as a species of special concern and a fully protected species by the CDFW, and is protected under the federal Bald and Golden Eagle Protection Act. This species is a very large solitary raptor that feeds on mammals, carrion, and reptiles. It typically nests in large trees or cliffsides in rolling to mountainous terrain, and forages in large, expansive open grasslands and savannas (Shuford and Gardali 2008). Although its natural densities are generally believed to be low, it was once relatively common to the open areas of California. Today, golden eagles are rarely observed in the Central Valley. This species typically nests between February and August.

The site is outside of the breeding range of the species, but the agricultural fields throughout the Study Area represent suitable winter foraging habitat. The CNDDB does not contain any records of this species within five miles of the Study Area (CNDDB 2024).

5.6.4 Short-Eared Owl

Short-eared owl (*Asio flammeus*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is categorized as a Species of Special Concern by the CDFW. The breeding range of this species extends from Alaska south to central California, including the San Francisco Bay region and irregularly in the Sacramento Valley (Holt and Leasure 2006). In the Central Valley, short-eared owls are a wintering species. Wintering habitat includes large open areas within woodlots, weedy areas, stubble fields, and marsh and shrub thickets. Nesting occurs between March and July.

The site is outside of the breeding range of the species, but the agricultural fields throughout the Study Area represent suitable winter foraging habitat. The CNDDB does not contain any records of this species within five miles of the Study Area (CNDDB 2024).

5.6.5 Burrowing Owl

Burrowing owl (*Athene cunicularia*) is a candidate for listing under the California Endangered Species Act and is designated as a species of special concern by the CDFW. This species typically inhabits dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. It typically uses burrows created by fossorial mammals, most notably the California ground squirrel (*Otospermophilus beecheyi*), but may also use man-made structures such as culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 1995). The breeding season extends from February 1 through August 31 (CBOC 1993, CDFG 2012).

Extensive complexes of ground squirrel burrows occur throughout the Study Area, particularly along the western edge of the site and along the irrigation canal; these burrows represent suitable habitat for burrowing owls. No sign of burrowing owl (owls, whitewash, feathers, or pellets have been observed at any of the burrows during the non-breeding season surveys. There are several documented occurrences of this species within five miles of the Study Area (**Figures 4 and 8**). The nearest occurrence (CNDDB Occurrence #1967) is located immediately adjacent to the site along the northeast boundary, and dates to 2016 (CNDDB 2024). Despite the extensive potential habitat, no burrowing owls were observed during protocol-level breeding and non-breeding season surveys of the Study Area conducted in 2023 and 2024. However, this species is highly mobile and could move into the area at any time.

5.6.6 Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a raptor species that is not federally listed but is listed as threatened by CDFW. Breeding pairs typically nest in tall trees associated with riparian corridors, and forage in grassland, irrigated pasture, and cropland with a high density of rodents (Shuford and Gardali 2008). The Central Valley populations breed and nest in the late spring through early summer before migrating to Central and South America for the winter (Shuford and Gardali 2008).

Large trees throughout the Study Area represent suitable nesting habitat for this species, and the Alkali Prairie, Grain and Hay Crops, and Semi-Agricultural Land Covers on-site represent suitable foraging habitat. There are many documented occurrences of Swainson's hawk within five miles of the Study Area (**Figures 4 and 8**), including two occurrences (CNDDB Occurrence #450 and #1985) which are located on-site (CNDDB 2024). Occurrence #450 is in the southern portion of the site and dates to 1991, while Occurrence #1985 is located at the northwest corner of the site and dates to 2009. During the 2024 protocol-level surveys for the species, one active nest was observed within the Study Area along Covell Drain, and a second was observed just to the north of the Study Area (**Figure 9**). This species forages throughout the Study Area regularly.

5.6.7 Northern Harrier

Northern harrier (*Circus hudsonius*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is categorized as a species of special concern by the CDFW. This raptor is known to nest within the Central Valley, along the Pacific Coast, and in northeastern California (Shuford and Gardali 2008). It is a ground nesting species, and typically utilizes emergent wetland/marsh, open grasslands, or savannah habitats. Foraging occurs within a variety of open habitats such as marshes, agricultural fields, and grasslands (Shuford and Gardali 2008).

The Study Area does not support potential nesting habitat for this species since no suitable grassland or marsh habitat occurs on-site; however, the agricultural fields and Alkali Prairie support suitable foraging habitat. There is one documented occurrence of northern harrier within five miles of the site (**Figure 4**). This occurrence (CNDDB Occurrence #51) dates to 2015 and is located approximately 0.5-mile northwest of the Study Area (CNDDB 2024). This species was observed foraging on-site during several field surveys.

5.6.8 White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is not federally or state listed, but it is a CDFW fully protected species. This species is a year-round resident in the Central Valley and is primarily found in or near foraging areas such as open grasslands, meadows, farmlands, savannahs, and emergent wetlands (Shuford and Gardali 2008). White-tailed kites typically nest from March through June in trees within riparian, oak woodland, and savannah habitats of the Central Valley and Coast Range (Shuford and Gardali 2008).

Trees throughout the Study Area represent suitable nesting habitat for this species, and the Alkali Prairie, Grain and Hay Crops, and Semi-Agricultural Land Covers on-site represent suitable foraging habitat. There are six documented occurrences of white-tailed kite within five miles of the site (**Figure 4**). The nearest occurrence (CNDDB Occurrence #64) is located approximately 0.9 mile to the southeast of the Study Area, and dates to 2003 (CNDDB 2024). This species was observed foraging on-site during several field surveys.

5.6.9 Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is designated as a species of special concern by the CDFW. This predatory songbird typically hunts insects, as well as small vertebrates including amphibians, reptiles, mammals, and birds. They can cache excess food for later consumption by skewering their prey on thorns, barbed wire, or other sharp objects. Loggerhead shrikes nest in small trees and shrubs in woodland and savannah vegetation communities, and forage in open habitats throughout California (Shuford and Gardali 2008). Their nesting season ranges from March through June.

The agricultural fields throughout the Study Area represent moderately suitable habitat for this species due to the lack of interspersed trees and shrubs. The CNDDB does not contain any records of this species within five miles of the Study Area (CNDDB 2024).

5.7 Mammals

5.7.1 Pallid Bat

The Pallid bat (*Antrozous pallidus*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a high-priority species along the western coast in California. It favors roosting sites in crevices in rock outcrops and cliffs, caves, abandoned mines, hollows of trees, and human-made structures such as barns, attics, and sheds (WBWG 2024). Though pallid bats are gregarious, they tend to group in smaller colonies of 2 to 20 individuals and are known to roost alone as well. This species is a nocturnal hunter and captures prey in flight, but unlike most American bats, the species has been observed foraging for flightless insects, which it seizes after landing. They forage over open shrub-steppe grasslands, oak savannah grasslands, open Ponderosa pine forests, talus slopes, gravel roads, fruit orchards, and vineyards. (WBWG 2024).

Tree hollows and exfoliating bark on trees throughout the Study Area represent suitable roosting habitat for pallid bat. There is one record of this species within five miles of the Study Area in the CNDDB (**Figure 4**). The closest record (CNDDB Occurrence #312) was documented in 1964 overlaps the Study Area and has been mapped as a best guess based on the vague location description of "Davis" (CNDDB 2024).

5.7.2 Townsend's Big-Eared Bat

The Townsend's big-eared bat (*Corynorhinus townsendii*) is not listed pursuant to either the federal or California Endangered Species Acts; however, this species is considered a species of special concern by CDFW. Townsend's big-eared bat is a fairly large bat with prominent bilateral nose lumps and large rabbit-like ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet (NPS 2023). Habitats used include coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. This species is readily detectable when roosting due to their habit of roosting pendant-like on open surfaces. Townsend's big-eared bat is a moth specialist with over 90 percent of its diet composed of Lepidopterans. Foraging habitat includes edge habitats along streams as well as adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2025).

The structure(s) associated with the former residence in the southern portion of the Study Area represents marginally suitable roosting habitat for the Townsend's big-eared bat due to the frequency of vagrant use. The open areas within the Study Area provide suitable foraging habitat for this species. The CNDDB does not contain any records of this species within five miles of the Study Area (CNDDB 2024).

5.7.3 Silver-Haired Bat

Silver-haired bat (*Lasionycteris noctivagans*) is not federally or state listed but is classified by the WBWG as a Medium priority species. The silver-haired bat occurs in more xeric environments during winter and seasonal migrations (WBWG 2024). This species changes roosts frequently, and use multiple roosts within a limited area, indicating that clusters of large trees are necessary (WBWG 2023). Silver-haired bat roosts in hollow trees, abandoned woodpecker holes, under sloughing bark, in rock crevices, and occasionally under wood piles. They tend to forage above the canopy, over open meadows, and in the riparian zone along water courses. This species is known to eat a wide variety of species; however, moths appear to be a major portion of dietary prey (WBWG 2024).

Tree hollows and exfoliating bark on trees throughout the Study Area represent suitable roosting habitat for silver-haired bat. There is one record of this species within five miles of the Study Area in the CNDDB (**Figure 4**). The closest record (CNDDB Occurrence #88) was documented in 1957 overlaps the Study Area and has been mapped as a best guess based on the vague location description of "Davis" (CNDDB 2024

5.7.4 Hoary Bat

The hoary bat (*Lasiurus cinereus*) is not federally or state listed but is classified by the WBWG as a medium priority species. It is also considered to be one of the most widespread of all American bats with a range extending from Canada to central Chile and Argentina as well as Hawaii. Hoary bats are solitary and roost primarily in foliage of both coniferous and deciduous trees, and usually at the edge of a clearing (WBWG 2024). This species is primarily crepuscular or nocturnal and requires open areas to hunt its preferred prey item, moths. The hoary bat is considered a forest/woodland species, and in California they are often associated with undisturbed riparian or stream corridors (WBWG 2024).

Trees scattered throughout the Study Area represent suitable roosting habitat for hoary bat. There is one record of this species within five miles of the Study Area in the CNDDB (**Figure 4**). The closest record (CNDDB Occurrence #136) was last observed in 1991 overlaps the Study Area and has been mapped as a best guess based on the vague location description of "Davis" (CNDDB 2024).

5.7.5 Western Red Bat

The western red bat (*Lasiurus frantzii*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a High priority species (WBWG 2025). This species has a broad distribution reaching from southern British Columbia in Canada, through much of the western U.S, through Mexico and Central America, to Argentina and Chile in South America (WBWG 2025). This species is typically solitary, roosting primarily in the foliage of trees or shrubs, and day roosts are commonly found in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas, with a possible association with intact riparian habitat (particularly willows [*Salix* spp.], cottonwoods [*Populus* spp.], and sycamores [*Platanus* spp.]) (WBWG 2025). Western red bats generally begin to forage one to two hours after sunset and typically have an initial foraging period corresponding to the early period of nocturnal insect activity, and a minor secondary activity period corresponding to insects that become active several hours before sunrise, although some bats may forage all night (WBWG 2025). Western red bats have been observed feeding around streetlights and flood lights, with prey items include homopterans, coleopterans, hymenopterans, dipterans, and lepidopterans (WBWG 2025).

Trees scattered throughout the Study Area, and especially those within the riparian corridor, represent suitable roosting habitat for western red bat. The CNDDB does not contain any records of this species within five miles of the Study Area (CNDDB 2024).

5.7.6 American Badger

The American badger (*Taxidea taxus)* is not federally or state listed but is considered a CDFW species of special concern. The species historically ranged throughout much of the state except in humid coastal forests. Badgers were once numerous in the Central Valley; however, populations now occur in low numbers in the surrounding peripheral parts of the valley and in the adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo counties (Williams 1986). Badgers occupy a variety of habitats, including grasslands and savannas. The principal requirements seem to be significant food supply, friable soils, and relatively open uncultivated ground (Williams, 1986). This burrowing carnivorous mammal is solitary and very territorial (Williams 1986). American badger has no known natural predators, and feeds on small mammals, lizards, snakes, insects, and carrion.

The small area of grassland within the Study Area is surrounded by development and has regular pedestrian traffic; as such, it is not suitable habitat for American Badger. This species may utilize Covell Drain as a migratory corridor dispersing to and from suitable habitat. There are two documented CNDDB occurrences of American badger within five miles of the Study Area (**Figure 4**). The nearest occurrence (CNDDB Occurrence #329) was observed in 1986 overlaps the Study Area and has been mapped as a best guess based on the vague location description of "Davis" (CNDDB 2024). No badgers were observed within the Study Area during the field surveys.

5.8 Trees

As detailed in **Section 3.1**, Madrone conducted a tree inventory under the supervision of a Certified Arborist within most of the Study Area. Detailed tree data was collected throughout all areas outside of the Covell Drain riparian corridor. Additionally, approximately half of the trees within the Covell Drain riparian corridor were inventoried. Following discussions with City staff, the remaining trees within the Covell Drain riparian corridor were estimated by extrapolating the collected data to the remaining canopy area. This approach was taken as there are a very large number of trees at a high density along the edges of Covell Drain. Given the current uncertainty regarding exactly which trees may be impacted, and because a formal arborist survey will be required in the future in order to secure a Tree Modification Permit from the City, it was determined that estimating the number and types of trees on-site is sufficient for the purposes of the Project's CEQA review. As such, the tree data presented in **Attachment K** includes tree points where trees were inventoried, and canopy polygons where trees were extrapolated. Of note is that less than 7% of the trees inventoried within the Covell Drain riparian corridor are native. The vast majority of the trees (78%) are Arizona ash (*Fraxinus velutina*) and Chinese wingnut (*Pterocarya stenoptera*). Although Arizona ash is native to the southern California deserts, it is not regionally native. **Table 5** summarizes the trees inventoried within the Study Area, including those extrapolated as described above. Diameter at Breast Height (DBH) and condition were collected for all inventoried trees, but for consistency are not summarized here, as we do not have that data for extrapolated trees.

Table 5. Trees Inventoried within the Study Area

Tree Species (Native species are highlighted in green)	Number of Trees (DBH if applicable)			
	Project Area		Program Study Area	Study Area Total
	Inventoried	Extrapolated*		
Aleppo pine (*Pinus halepensis*)	3 (100.0)	--		3
Almond (*Prunus dulcis*)	2 (36.5)	--		2
American sycamore (*Platanus occidentalis*)	2 (19.0)	--	11 (115.5)	13
Arizona ash (*Fraxinus velutina*)	254 (4183.1)	244	5 (91.5)	503
Australian blackwood (*Acacia melanoxylon*)	12 (207.0)	--		12
Bald cypress (*Taxodium distichum*)	1 (13.0)	--		1
Black willow (*Salix gooddingii*)	1 (27.5)	1		2
Boxelder (*Acer negundo*)	22 (260.5)	21		43
Bradford pear (*Pyrus calleryana*)	3 (49.5)	1		4
Cherry plum (*Prunus cerasifera*)	1 (8.0)	--		1
Chinese elm (*Ulmus parvifolia*)	25 (344.8)	24		49
Chinese hackberry (*Celtis sinensis*)	8 (100.5)	--	2 (23.5)	10
Chinese pistache (*Pistacia chinensis*)	7 (111.5)	--	1 (9.5)	8
Chinese tallowtree (*Triadica sebifera*)	38 (539.1)	10	1 (13.0)	49
Chinese wingnut (*Pterocarya stenoptera*)	183 (2,532.6)	178		361
Cigar tree (*Catalpa bignonioides*)	14 (203.8)	14		28
Coast live oak (*Quercus agrifolia*)	4 (47.3)	1	1 (14.0)	6
Cork oak (*Quercus suber*)	11 (192.5)	9		20
English walnut (*Juglans regia*)	1 (32.5)	--		1
Japanese privet (*Ligusticum japonicum*)	4 (54.4)	4		8
Kentucky coffeetree (*Gymnocladus dioicus*)	1 (8.5)	--		1
London planetree (*Platanus x acerifolia*)	8 (69.5)	8		16
Mexican fan palm (*Washingtonia robusta*)	1 (22.0)	1		2
Narrow-leaved ash (*Fraxinus angustifolia*)	1 (10.5)	--		1
Northern California black walnut (*Juglans hindsii*)	8 (157.5)	8		16
Olive (*Olea europaea*)	1 (16.5)	--		1
Pecan (*Carya illinoinensis*)	1 (7.5)	--		1
Persian silk tree (*Albizia julibrissin*)	1(25.0)	--		1
Queen's crepe-myrtle (*Lagerstroemia speciosa*)	4 (21.5)	--		4
Red willow (*Salix laevigata*)	2 (114.0)	2		4
Redwood (*Sequioa sempervirens*)	2 (43.5)	--		2

Table 5. Trees Inventoried within the Study Area

Tree Species (Native species are highlighted in green)	Number of Trees (DBH if applicable)			
	Project Area		Program Study Area	Study Area Total
	Inventoried	Extrapolated*		
Siberian elm (*Ulmus pumila*)	38 (799.0)	11		49
Silver maple (*Acer saccharum*)	1 (12.4)	1		2
Sour cherry (*Prunus cerasus*)	1 (8.5)	--		1
Valley oak (*Quercus lobata)*	59 (1,125.0)	4	7 (101.5)	70
Total	**725 (11,504.0)**	**542**	**28 (368.5)**	**1,295**

* Most of the extrapolated trees are within the Project Area, but a few are located within the Program Study Area.

6.0 IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

This section details potential impacts to the biological resources discussed above associated with implementation of the two Project alternatives within the Project Area; the Proposed Project, as shown in **Attachment A**, and the Biological Resource Preservation Alternative, as shown in **Attachment B**.

Impacts within the Program Study Areas are not specifically known as these areas are being evaluated at a programmatic level; therefore, they are not discussed in this section. However, the vegetation communities and aquatic resources within the Program Study Areas are summarized in **Table 1** and **Table 2**, sensitive species with potential to occur within these communities are detailed in **Section 5.0**, and mitigation measures for these resources are provided in **Section 7.0**, below.

As impacts within the Program Study Areas are not discussed in this section, impacts and avoidance throughout this section are focused only on the resources within the Project Area.

Impacts analyzed within this section include both permanent and temporary impacts. Permanent impacts range from mass grading and lot construction to pedestrian trail construction. Adjacent to Covell Drain, where bridges are proposed, permanent impacts may include bridge footings and abutments, pan deck, and approach grading. Temporary impacts are impacts that will occur for less than one year's time before the area is restored, and will involve activities including but not limited to: construction of the stormwater drainage channels, mass grading to remove soil and drop the drainage area elevation, utility trenching, environmentally sensitive area fencing, and heavy equipment access into an area for infrastructure installation. Indirect impacts have been identified as required by the Yolo HCP as a buffer of 50 feet beyond the permanent impact boundary, or 10 feet around linear transportation infrastructure, but not extending beyond parcel boundaries. Indirect impacts have been quantified only for Yolo HCP landcovers, and are shown on **Figures 10 and 11**.

6.1 Aquatic Resources

Based on the wetland delineation conducted throughout the Study Area by Madrone, approximately 23.317 acres of aquatic resources were mapped within the Project Area.

6.1.1 Proposed Project Alternative

Under the Proposed Project Alternative, approximately 20.349 acres of aquatic resources would be permanently impacted by the Project, approximately 1.029 acres would be temporarily impacted, and 1.939 acres would be avoided (**Table 6** and **Figure 12**). The temporary impacts to Covell Drain are discussed in detail in **Section 1.1.2**. The temporary impacts to the wetland ditch will be associated with grade reductions within the agricultural buffer detailed in **Section 1.1**.

Table 6. Aquatic Resource Impacts Associated with the Proposed Project Alternative

Aquatic Resource Type	Permanent Impacts (ac[1])	Temporary Impacts (ac[1])	Avoided (ac[1])	Total (ac[1])
Wetlands				
Alkali Playa	9.843	--	--	9.843
Alkali Wetland	9.775	--	--	9.775
Farmed Wetland	0.365	--	--	0.365
Freshwater Emergent Marsh	0.022	--	--	0.022
Wetland Ditch	0.039	0.170	--	0.209
Other Waters				
Drainage Ditch	0.104	0.151	--	0.256
Intermittent Drainage – Covell Drain	0.180	0.707	1.939	2.827
Roadside Ditch	0.020	--	--	0.020
Total	**20.349**	**1.029**	**1.939**	**23.317**

[1] Summation errors may occur due to rounding.

6.1.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, approximately 0.648 acres of aquatic resources would be permanently impacted by the Project, approximately 0.988 acres would be temporarily impacted, and 21.681 acres would be avoided (**Table 7** and **Figure 13**). The temporary impacts to Covell Drain are discussed in detail in **Section 1.1.2**. The temporary impacts to the wetland ditch will be associated with grade reductions within the agricultural buffer detailed in **Section 1.1**.

Table 7. Aquatic Resource Impacts Associated with the Biological Resource Preservation Alternative

Aquatic Resource Type	Permanent Impacts (ac[1])	Temporary Impacts (ac[1])	Avoided (ac[1])	Total (ac[1])
Wetlands				
Alkali Playa	--	--	9.843	9.843
Alkali Wetland	--	--	9.775	9.775
Farmed Wetland	0.365	--	--	0.365
Freshwater Emergent Marsh	0.022	--	--	0.022
Wetland Ditch	--	0.170	0.039	0.209
Other Waters				

Aquatic Resource Type	Permanent Impacts (ac[1])	Temporary Impacts (ac[1])	Avoided (ac[1])	Total (ac[1])
Drainage Ditch	0.104	0.151	--	0.256
Intermittent Drainage – Covell Drain	0.137	0.667	2.023	2.827
Roadside Ditch	0.020	--	--	0.020
Total	**0.648**	**0.988**	**21.681**	**23.317**

[1] Summation errors may occur due to rounding.

Note that no impacts are proposed to the south or the west of the alkali playa/alkali wetland area that is being avoided under this alternative, and as a result, no indirect impacts to the wetlands are anticipated along those edges. The alkali playa/alkali wetlands are bounded along the north side by a constructed levee that runs along the southern edge of Covell Drain. This levee and the Drain will be left in place, and the only work proposed in that location is minor upgrades to the existing dirt road along the top of the levee to convert it to a trail. These minor upgrades are not expected to affect the hydrology of the wetlands in any way, and no indirect impacts are expected along the northern edge (apart from the Yolo HCP standard 50 foot indirect impact buffer that applies to all natural land covers). Along the eastern edge, the edge of the mapped alkali wetlands are defined by a farm road with a raised berm. In this location, impacts are proposed approximately 5-10 feet from the edge of the wetlands, although in two locations, impacts are proposed immediately adjacent. These impacts are to install a recreational trail along the edge of the avoidance area. To the east of the trail will be a park/open space and residential development. It appears that the farm road may form a hydrologic break, but detailed topographic surveys will be conducted to determine whether or not there will be indirect impacts associated with the development proposed along the eastern edge. As required by Yolo HCP Avoidance and Minimization Measure 9 (noted below in **Section 7.1.1**), the Wildlife Agencies will ultimately determine whether indirect impacts will occur to the alkali wetlands as a result of the Project, and applicable Yolo HCP fees assigned accordingly.

6.2 Special-Status Plant Species

The vegetation communities proposed for impact represent suitable habitat for special-status plant species. Madrone has documented approximately 19,300 alkali milk vetch plants and 20,900 San Joaquin spearscale plants within the Study Area (all occurring within the Project Area, south of Covell Drain).

6.2.1 Proposed Project Alternative

Under the Proposed Project Alternative, all 19,300 alkali milk vetch plants and 20,900 San Joaquin spearscale plants would be permanently impacted (**Figure 14**).

6.2.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, all 19,300 alkali milk vetch plants and 20,900 San Joaquin spearscale plants would be avoided by the Project (**Figure 15**).

6.3 Crotch's Bumble Bee

Under both the Proposed Project Alternative and the Biological Resource Protection Alternative, impacts to the California annual grassland and the unplowed portions of the Alkali Prairie may impact nesting Crotch's bumble bees. If Crotch's bumble bees are present at the time of grading, incidental mortality could occur.

6.4 Vernal Pool Branchiopods

Approximately 9.812 acres of occupied vernal pool tadpole shrimp habitat (alkali playas and wetland ditch basin) are present within the Project Area.

6.4.1 Proposed Project Alternative

Under the Proposed Project Alternative, all 9.812 acres of vernal pool tadpole shrimp habitat would be permanently filled (**Figure 14**), and any cysts within those features would be crushed and buried.

6.4.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, 0.023 acre of vernal pool tadpole shrimp habitat would be permanently filled, and 9.789 acres of vernal pool tadpole shrimp habitat would be avoided (**Figure 15**). Any cysts within permanently filled features would be crushed and buried.

6.5 Monarch Butterfly

Several stands of narrowleaf milkweed are located along the western Project Area boundary that represent potential habitat for monarch butterfly.

6.5.1 Proposed Project Alternative

Under the Proposed Project Alternative, potential habitat for this species is proposed to be permanently impacted. If monarch butterfly eggs, larva or chrysalises were present on the milkweed plants when they are removed, incidental mortality could occur.

6.5.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, the area where most of these plants occur (south of Covell Drain and west of the alkali playas) would be avoided. Isolated milkweed plants scattered throughout the Study Area could still be permanently impacted. If monarch butterfly eggs, larva or chrysalises were present on the milkweed plants when they are removed, incidental mortality could occur.

6.6 Valley Elderberry Longhorn Beetle

A total of 23 elderberry shrubs have been mapped within or within 100 feet of the Project Area. Under both the Proposed Project Alternative and the Biological Resource Protection Alternative, one elderberry shrub will be permanently impacted by the project and 22 elderberry shrubs will be indirectly impacted by the project construction (**Figures 14 and 15**). These shrubs represent potential habitat for valley elderberry longhorn beetle (VELB). If VELB larvae were present within the elderberry shrubs, when the shrubs are removed, incidental mortality of larvae could occur. Additionally, construction activities that occur within 100 feet of avoided elderberry shrubs could indirectly effect VELB, if they were present. Potential indirect effects that could result in incidental mortality of individual beetles includes dust, herbicides, or adjacent compaction that could reduce the health of the shrubs hosting the beetles and could cause larva inside the shrubs to die.

6.7 Western Spadefoot

The alkali playas and wetland ditches within the Project Area represent suitable breeding habitat for western spadefoot.

6.7.1 Proposed Project Alternative

Under the Proposed Project Alternative, all of the potential western spadefoot breeding habitat would be permanently or temporarily impacted (**Figure 12**), and incidental mortality could occur to any individuals within those aquatic features or in burrows in adjacent uplands.

6.7.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, the alkali playas and some of the wetland ditches would be avoided, but 0.017 acre of wetland ditch would be temporarily impacted (**Figure 13**), and incidental mortality could occur to any individuals within those features or in burrows in adjacent uplands.

6.8 Northwestern Pond Turtle

Covell Drain represents marginally suitable habitat for northwestern pond turtle, when inundated. Under both the Proposed Project-Alternative and the Biological Resource Protection Alternative, portions of Covell Drain that run through the Project Area will be impacted by the Project. If northwestern pond turtles are present during construction, individual turtles could be injured or incidental mortality could occur during the initial grading. In addition, if northwestern pond turtles are present and/or nesting in the upland areas adjacent to Covell Drain, incidental mortality of individual turtles or eggs could occur during construction that occurs adjacent to the drainage.

6.9 Tricolored Blackbird

Suitable nesting habitat for this species is not present on-site, but the Alkali Prairie and Grain and Hay Crops landcovers on-site represent potential foraging habitat for this species.

6.9.1 Proposed Project Alternative

Under the Proposed Project Alternative, 186.1 acres of tricolored blackbird foraging habitat would be permanently impacted including Alkali Prairie and Grain and Hay Crops land covers (**Figure 10**). Removal of this foraging habitat could reduce the food available to nestlings at nest colonies in the vicinity, which could result in mortality of nestlings.

6.9.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, 143.9 acres of tricolored blackbird foraging habitat would be permanently impacted including Alkali Prairie and Grain and Hay Crops land covers (**Figure 11**). Removal of this foraging habitat could reduce the food available to nestlings at nest colonies in the vicinity, which could result in mortality of nestlings.

6.10 Burrowing Owl

Extensive complexes of ground squirrel burrows occur throughout the Project Area, particularly along the western edge of the site and along Covell Drain; these burrows represent suitable habitat for burrowing owl; however, no burrowing owls or owl sign (white wash, feathers, or pellets) were observed during protocol breeding and non-breeding season burrowing owl surveys.

6.10.1 Proposed Project Alternative

Under the Proposed Project Alternative, 53.3 acres of potential burrowing owl habitat would be permanently impacted including Alkali Prairie, Semi-Agricultural, and Urban Ruderal land covers (**Figure 10**). If ground disturbance occurred while burrowing owls were occupying burrows, incidental mortality of individuals of this species could occur.

6.10.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, 23.1 acres of potential burrowing owl habitat would be permanently impacted including Alkali Prairie, Semi-Agricultural, and Urban Ruderal land covers (**Figure 11**). If ground disturbance occurred while burrowing owls were occupying burrows, incidental mortality of individuals of this species could occur.

6.11 Swainson's Hawk

Large trees throughout the Project Area represent suitable nesting habitat for this species, and the agricultural fields and other open areas on-site represent suitable foraging habitat. One active Swainson's hawk nest was documented within a tree in the riparian zone surrounding Covell Drain within the Project Area in 2024, and a second active nest was documented just north of the Project Area. Swainson's hawks were observed foraging in suitable habitats (Alkali Prairie, California Annual Grassland, Semi-Agricultural, and Grain and Hay Crops landcovers) throughout the Project Area.

6.11.1 Proposed Project Alternative

Under the Proposed Project Alternative, the active Swainson's hawk nest would be avoided, but approximately 394 trees that could be used by Swainson's hawks for nesting throughout the Project site would be removed, and 213.2 acres of Alkali Prairie, Semi-Agricultural, and Grain and Hay Crops land covers that represent Swainson's hawk foraging habitat would be permanently impacted (**Figures 10 and 14 and Attachment L**). Approximately 901 trees would be avoided adjacent to the Cannery and in the Heritage Oak Park that could be used by Swainson's hawks for nesting. If Swainson's hawks were nesting in trees removed during construction, incidental mortality of individuals of this species could occur. Additionally, if Swainson's hawks were nesting in avoided habitat in the vicinity of the construction, the construction activity could cause the Swainson's hawks to abandon their nests.

6.11.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, the active Swainson's hawk nest would be avoided, but approximately 394 trees that could be used by Swainson's hawks for nesting throughout the Project site would be removed, and 166.7 acres of Alkali Prairie, Semi-Agricultural, and Grain and Hay Crops land covers that represent Swainson's hawk foraging habitat would be permanently impacted (**Figures 11 and 15 and Attachment L**). Approximately 901 trees would be avoided adjacent to the Cannery and in the Heritage Oak Park that could be used by Swainson's hawks for nesting. If Swainson's hawks were nesting in trees removed during construction, incidental mortality of individuals of this species could occur. Additionally, if Swainson's hawks were nesting in avoided habitat in the vicinity of the construction, the construction activity could cause the Swainson's hawks to abandon their nests.

6.12 Northern Harrier and Winter Foraging Birds

The proposed Project could result in impacts to Alkali Prairie, California Annual Grassland, Semi-Agricultural, Grain and Hay Crops, and Truck Crops land covers that represent potential foraging habitat for northern harrier, short-eared owl, and golden eagle. Impacts to this foraging habitat are not considered significant given the extensive remaining foraging habitat to the north.

6.13 White-Tailed Kite

Large trees throughout the Project Area represent suitable nesting habitat for this species, and the agricultural fields and other open areas on-site represent suitable foraging habitat. White-tailed kites were observed foraging in suitable habitats (Alkali Prairie, Semi-Agricultural, and Grain and Hay Crops landcovers) throughout the Project Area.

6.13.1 Proposed Project Alternative

Under the Proposed Project Alternative, approximately 394 trees that could be used by white-tailed kite for nesting throughout the Project site would be removed, and 213.2 acres of Alkali Prairie, Semi-Agricultural, and Grain and Hay Crops land covers that represent suitable foraging habitat would be permanently impacted (**Figures 10 and 14 and Attachment L**). Approximately 901 trees would be avoided adjacent to the Cannery and in the Heritage Oak Park that could be used by white-tailed kite for nesting. If white-tailed kite were nesting in trees removed during construction, incidental mortality of individuals of this species could occur. Additionally, if white-tailed kite were nesting in avoided habitat in the vicinity of the construction, the construction activity could cause the white-tailed kite to abandon their nests.

6.13.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, approximately 394 trees that could be used by white-tailed kite for nesting throughout the Project site would also be removed, and 166.7 acres of Alkali Prairie, Semi-Agricultural, and Grain and Hay Crops land covers that represent suitable foraging habitat would be permanently impacted (**Figures 11 and 15 and Attachment L**). Approximately 901 trees would be avoided adjacent to the Cannery and in the Heritage Oak Park that could be used by white-tailed kite for nesting. If white-tailed kite were nesting in trees removed during construction, incidental mortality of individuals of this species could occur. Additionally, if white-tailed kite were nesting in avoided habitat in the vicinity of the construction, the construction activity could cause the white-tailed kite to abandon their nests.

6.14 Nesting Raptors and Songbirds

In addition to the special-status bird species listed above, grasshopper sparrow, and loggerhead shrike, other more common bird species protected by the MBTA have the potential to be present and nest within the Project Area. Under both the Proposed Project Alternative and the Biological Resource Preservation Alternative, if they were actively nesting within trees, shrubs, or ground nests that were removed during construction, incidental mortality of individuals of this species could occur. Furthermore, birds nesting in avoided areas adjacent to construction could be disturbed by construction, which could result in nest abandonment.

6.15 Roosting Bats

Large trees throughout the Project Area may contain roosting habitat for several special-status bat species. Under both the Proposed Project Alternative and the Biological Resource Preservation Alternative, if special-status bats were roosting in trees to be removed by Project construction, incidental mortality could occur.

6.16 American Badger

While suitable habitat for American badger does not occur within the Project Area, the species could utilize Covell Drain as a migration corridor between areas of suitable habitat. The proposed Project will involve extensive work in and around Covell Drain, and incidental mortality of American badgers could occur if they were present within the work area.

6.17 Protected Trees

Approximately 1,295 trees are present within the Study Area. The Proposed Project Alternative and the Biological Resource Preservation Alternative would both have impacts to trees, as outlined below.

6.17.1 Proposed Project Alternative

Under the Proposed Project Alternative approximately 952 trees would be permanently impacted, and approximately 343 trees would be avoided along the northern portion of Covell Drain, in the Heritage Oak Park, in Program Study Areas, and along the western edge of the site (**Table 8** and **Attachment L**). In addition, approximately 36 trees that are proposed for avoidance may be removed due to poor health or structure if they are considered hazardous. The condition of the avoided trees will be reviewed closer to Project implementation, and formal recommendations regarding retention or removal will be developed at that time. Additionally, indirect effects from construction could occur to any trees that are avoided. These indirect effects could include compaction from adjacent construction, altered hydrology, or exposure to fungi or other pathogens. New trees will be planted within the Project, especially along the enhanced Covell Drain Channel; however, these trees will take time to mature and provide quality wildlife habitat, therefore resulting in a temporal loss of potential habitat.

Table 8. Tree Impacts Associated with the Proposed Project Alternative

Tree Species (Native species are highlighted in green)	Number of Trees		
	Permanently Impacted	Avoided	Study Area Total
Aleppo pine (*Pinus halepensis*)	2	1	3
Almond (*Prunus dulcis*)	0	2	2
American sycamore (*Platanus occidentalis*)	2	11	13
Arizona ash (*Fraxinus velutina*)	369	134	503
Australian blackwood (*Acacia melanoxylon*)	0	12	12
Bald cypress (*Taxodium distichum*)	1	0	1

Table 8. Tree Impacts Associated with the Proposed Project Alternative

Tree Species (Native species are highlighted in green)	Number of Trees		
	Permanently Impacted	Avoided	Study Area Total
Black willow (*Salix gooddingii*)	2	0	2
Boxelder (*Acer negundo*)	38	5	43
Bradford pear (*Pyrus calleryana*)	4	0	4
Cherry plum (*Prunus cerasifera*)	1	0	1
Chinese elm (*Ulmus parvifolia*)	32	17	49
Chinese hackberry (*Celtis sinensis*)	8	2	10
Chinese pistache (*Pistacia chinensis*)	2	6	8
Chinese tallowtree (*Triadica sebifera*)	41	8	49
Chinese wingnut (*Pterocarya stenoptera*)	316	45	361
Cigar tree (*Catalpa bignonioides*)	22	6	28
Coast live oak (*Quercus agrifolia*)	2	4	6
Cork oak (*Quercus suber*)	18	2	20
English walnut (*Juglans regia*)	1	0	1
Japanese privet (*Ligusticum japonicum*)	7	1	8
Kentucky coffeetree (*Gymnocladus dioicus*)	1	0	1
London planetree (*Platanus x acerifolia*)	6	10	16
Mexican fan palm (*Washingtonia robusta*)	1	1	2
Narrow-leaved ash (*Fraxinus angustifolia*)	1	0	1
Northern California black walnut (*Juglans hindsii*)	14	2	16
Olive (*Olea europaea*)	0	1	1
Pecan (*Carya illinoinensis*)	1	0	1
Persian silk tree (*Albizia julibrissin*)	1	0	1
Queen's crepe-myrtle (*Lagerstroemia speciosa*)	4	0	4
Red willow (*Salix laevigata*)	2	2	4
Redwood (*Sequioa sempervirens*)	2	0	2
Siberian elm (*Ulmus pumila*)	40	9	49
Silver maple (*Acer saccharum*)	2	0	2
Sour cherry (*Prunus cerasus*)	1	0	1
Valley oak (*Quercus lobata)*	8	62	70
Total	**952**	**343**	**1,295**

6.17.2 Biological Resource Preservation Alternative

Under the Biological Resource Preservation Alternative, approximately 394 trees would be permanently impacted, and approximately 901 trees would be avoided along Covell Drain, in the Heritage Oak Park, in Program Study Areas, along the western edge of the site, and along Covell Boulevard (**Table 9** and **Attachment L**). In addition, approximately 190 trees that are proposed for avoidance may be removed due to poor health or structure if they are considered hazardous. The condition of the avoided trees will be reviewed closer to Project implementation, and formal recommendations regarding retention or removal will be developed at that time. Additionally, indirect effects from construction could occur to any trees that are avoided. These indirect effects could include compaction from adjacent construction, altered hydrology, or exposure to fungi or other pathogens. New trees will be planted within the Project, especially along the enhanced Covell Drain Channel; however, these trees will take time to mature and provide quality wildlife habitat, therefore resulting in a temporal loss of potential habitat.

Table 9. Tree Impacts Associated with the Biological Resource Preservation Alternative

Tree Species (Native species are highlighted in green)	Number of Trees		
	Permanently Impacted	Avoided	Study Area Total
Aleppo pine (*Pinus halepensis*)	2	1	3
Almond (*Prunus dulcis*)	0	2	2
American sycamore (*Platanus occidentalis*)	0	13	13
Arizona ash (*Fraxinus velutina*)	161	342	503
Australian blackwood (*Acacia melanoxylon*)	0	12	12
Bald cypress (*Taxodium distichum*)	0	1	1
Black willow (*Salix gooddingii*)	0	2	2
Boxelder (*Acer negundo*)	23	20	43
Bradford pear (*Pyrus calleryana*)	2	2	4
Cherry plum (*Prunus cerasifera*)	1	0	1
Chinese elm (*Ulmus parvifolia*)	17	32	49
Chinese hackberry (*Celtis sinensis*)	8	2	10
Chinese pistache (*Pistacia chinensis*)	1	7	8
Chinese tallowtree (*Triadica sebifera*)	32	17	49
Chinese wingnut (*Pterocarya stenoptera*)	89	272	361
Cigar tree (*Catalpa bignonioides*)	9	19	28
Coast live oak (*Quercus agrifolia*)	1	5	6
Cork oak (*Quercus suber*)	12	8	20
English walnut (*Juglans regia*)	1	0	1
Japanese privet (*Ligusticum japonicum*)	4	4	8
Kentucky coffeetree (*Gymnocladus dioicus*)	0	1	1
London planetree (*Platanus x acerifolia*)	1	15	16
Mexican fan palm (*Washingtonia robusta*)	0	2	2
Narrow-leaved ash (*Fraxinus angustifolia*)	1	0	1
Northern California black walnut (*Juglans hindsii*)	9	7	16
Olive (*Olea europaea*)	0	1	1
Pecan (*Carya illinoinensis*)	0	1	1
Persian silk tree (*Albizia julibrissin*)	0	1	1
Queen's crepe-myrtle (*Lagerstroemia speciosa*)	1	3	4
Red willow (*Salix laevigata*)	0	4	4
Redwood (*Sequioa sempervirens*)	2	0	2
Siberian elm (*Ulmus pumila*)	15	34	49
Silver maple (*Acer saccharum*)	1	1	2

Table 9. Tree Impacts Associated with the Biological Resource Preservation Alternative

Tree Species (Native species are highlighted in green)	Number of Trees		
	Permanently Impacted	Avoided	Study Area Total
Sour cherry (*Prunus cerasus*)	1	0	1
Valley oak (*Quercus lobata)*	0	70	70
Total	**394**	**901**	**1,295**

6.18 Wildlife Corridors

The majority of the Project Area is currently comprised of active agricultural fields. The only feature within the Project Area that could currently serve as a wildlife corridor is the Valley Foothill Riparian corridor along Covell Drain. Under both the Proposed Project Alternative and the Biological Resource Protection Alternative, although the existing trees may be removed, an approximately 100-foot-wide greenbelt will be established along Covell Drain and its adjacent riparian corridor in the western portion of the Project Area, and the eastern portion will be removed and replaced with a new wider drainageway that will include extensive native riparian plantings. This new drainageway is anticipated to provide better wildlife cover, be a much wider swathe of habitat, and will likely eventually provide water for a longer period into the summer. The western greenbelt area will be approximately 10 feet wider than the existing riparian corridor and adjacent roadways, and therefore is expected to maintain or enhance wildlife passage. Two vehicular bridges will cross the new drainageway that will be sized large enough to allow the passage of large mammals such as coyote and deer. In summary, wildlife passage through the Project Area is expected to be enhanced with implementation of the Project under either the Proposed Project Alternative or the Biological Resource Preservation Alternative.

7.0 MITIGATION FOR IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

The following mitigation measures are typically required if a project is required to participate in the Yolo HCP, and are often required by CEQA lead agencies for impacts to sensitive biological resources that may be associated with construction of the Project.

7.1 Yolo HCP Covered Species

Participation in the Yolo HCP entails two components: 1) payment of land cover conversion fees for impacts to all fee-paying landcover types; and 2) compliance with the Avoidance and Minimization Measures (AMMs) included in the Yolo HCP.

The Yolo HCP Covered Species with potential to occur within the Study Area include the following:

- Palmate-bracted birds' beak (Alkali prairie);
- Valley Elderberry Longhorn Beetle (Elderberry shrubs);
- Northwestern pond turtle (Covell Drain);

- Swainson's hawk (nesting habitat in large trees, and foraging habitat within Alkali Prairie, California Annual Grassland, Semi-Agricultural, Grain and Hay Crops, and Truck Crops land covers);
- White-tailed kite (nesting habitat in trees, and foraging habitat within Alkali Prairie, California Annual Grassland, Semi-Agricultural, Grain and Hay Crops, and Truck Crops land covers);
- Burrowing owl (within ground squirrel burrow complexes and other refugia located throughout the Alkali Prairie, California Annual Grassland, Semi-Agricultural, and Urban Ruderal land covers); and
- Tricolored blackbird (foraging habitat in Alkali Prairie, California Annual Grassland, Semi-Agricultural, Grain and Hay Crops, and Truck Crops land covers).

7.1.1 Avoidance and Minimization Measures

Development of the Study Area would need to comply with a number of general and species-specific AMMs, of the Yolo HCP, as listed below. See **Attachment M** for the full text of the AMMs.

General Construction and Operations and Maintenance
- AMM3: Confine and Delineate Work Area
- AMM4: Cover Trenches and Holes during Construction and Maintenance
- AMM5: Control Fugitive Dust
- AMM6: Conduct Worker Training
- AMM7: Control Night-Time Lighting of Project Construction Sites
- AMM8: Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas

Sensitive Natural Communities
- AMM 9: Establish Resource Protection Buffers around Sensitive Natural Communities
- AMM10: Avoid and Minimize Effects on Wetlands and Waters

Covered Species
- AMM11: Minimize Take and Adverse Effects on Palmate-Bracted Bird's Beak
- AMM12: Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle
- AMM14: Minimize Take and Adverse Effects on Habitat of Western Pond Turtle
- AMM16: Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite
- AMM18: Minimize Take and Adverse Effects on Western Burrowing Owl
- AMM21: Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird

7.1.2 Land Conversion Fees - Proposed Project Alternative

Land Cover Conversion Fees associated with construction of the Project under the Proposed Project Alternative are summarized in **Table 10** below. Note that these fee estimates are based on the impacts shown on **Figure 10** and the current (June 2024) Yolo HCP fees, and subject to a final impact plan and confirmation by the City and the Yolo Habitat Conservancy[4]. Fees are subject to change based upon the results of the ongoing biological surveys currently being conducted for the Project. Fees for impacts associated with the Program Study Areas are not included in the table below.

Table 10. Anticipated Yolo HCP Land Conversion Fees for Proposed Project Alternative

Land Cover Type	Impacts*			Yolo HCP Fees		Project Impact Fees
	Permanent (Acres)	Temporary (Acres)	Indirect (Acres)	Land Conversion	Wetland	
Alkali Prairie	26.0	1.3	0.0	$16,559	--	$430,964.53
Fresh Emergent Wetland	0.02	0.0	0.0	$16,559	$91,085	$2,319.65
Grain and Hay Crops	160.1	113.1**	3.5	$16,559	--	$2,746,508.86
Semiagricultural	27.1	4.6	1.6	$16,559	--	$476,766.73
Truck Crops	140.7	6.6	3.1	$16,559	--	$2,383,369.99
Urban	7.9	0.0	0.0	--	--	$0.00
Urban Ruderal	0.2	1.3	0.0	$16,559	--	$3,742.33
Valley Foothill Riparian	5.9	0.0	1.4	$16,559	$95,754	$819,884.90
Vegetated Corridor	1.7	0.0	0.0	$16,559	--	$28,150.30
Total	**369.7**	**135.1**	**9.7**	**--**	**--**	$6,891,707.29

* Most of the indirect impact areas overlap temporary impact areas, and the higher indirect impact fee takes precedence. Therefore, the temporary impact acreages presented in this fee calculation table are equal to the temporary impact acreage shown on Figure 10, minus the indirect impact acreage. The only exception is Valley Foothill Riparian; some of the indirect impacts for that land cover type overlap an avoidance area. The Valley Foothill Riparian temporary impact acreage in this table is only areas where there is no overlap with indirect impacts.
** It is possible that the Yolo Habitat Conservancy does not require temporary impact fees for this area due to the proposed restoration. As noted above, final fees will be determined by the City and the Yolo Habitat Conservancy.

7.1.3 Land Conversion Fees – Biological Resource Preservation Alternative

Land Cover Conversion Fees associated with construction of the Project under the Biological Resource Preservation Alternative are summarized in **Table 11** below. Note that these fee estimates are based on the impacts shown on **Figure 11** and the current (June 2024) Yolo HCP fees, and subject to a final impact plan and confirmation by the City and the Yolo Habitat Conservancy[4]. Fees are subject to change based upon the results of the ongoing biological surveys currently being conducted for the Project. Fees for impacts associated with the Program Study Areas are not included in the table below.

[4] **Tables 9 and 10** shall not be construed to indicate a minimum amount of Land Cover Conversion fees due for this Project. For example, during review of the Yolo HCP Application for the Project, the Yolo Habitat Conservancy may determine that the nature of the activities that are proposed within the Urban Agricultural Transition Area do not constitute an impact; if that is the case, no Land Conversion fees would be due for that 118.4 acre area.

Table 11. Anticipated Yolo HCP Land Conversion Fees for Biological Resource Preservation Alternative

Land Cover Type	Impacts*			Yolo HCP Fees		Project Impact Fees
	Permanent (Acres)	Temporary (Acres)	Indirect (Acres)	Land Conversion	Wetland	
Alkali Prairie	0.3	1.3	3.3	$16,559	--	$60,042.93
Fresh Emergent Wetland	0.02	0.0	0.0	$16,559	$91,085	$2,319.65
Grain and Hay Crops	143.7	112.0**	3.5	$16,559	--	$2,474,576.96
Semiagricultural	22.8	4.7	3.2	$16,559	--	$432,090.55
Truck Crops	144.2	2.4	3.8	$16,559	--	$2,459,773.21
Urban	7.9	0.0	0.0	--	--	$0.00
Urban Ruderal	0.1	1.3	0.1	$16,559	--	$3,742.33
Valley Foothill Riparian	5.9	0.0	1.4	$16,559	$95,754	$819,884.90
Vegetated Corridor	1.7	0.0	0.0	$16,559	--	$28,150.30
Total	**326.5**	**131.2**	**15.3**	**--**	**--**	$6,280,580.83

* Many of the indirect impact areas overlap temporary impact areas, and the higher indirect impact fee takes precedence. Therefore, the temporary impact acreages for most land cover types presented in this fee calculation table are equal to the temporary impact acreage shown on Figure 11, minus the indirect impact acreage. Several land cover types also have indirect impacts overlapping avoided areas (Alkali Prairie, Grain and Hay Crops, Semiagricultural, and Valley Foothill Riparian); for these land cover types just as with the others, the temporary impact acreage included in this table is only areas where there is no overlap with indirect impacts.

** It is possible that the Yolo Habitat Conservancy does not require temporary impact fees for this area due to the proposed restoration. As noted above, final fees will be determined by the City and the Yolo Habitat Conservancy.

7.2 Aquatic Resources

1. The Project will impact Covell Drain and other aquatic resources that are Waters of the U.S. The Project applicant shall apply for a Section 404 permit from the U.S. Army Corps of Engineers. Waters that will be impacted shall be replaced or rehabilitated on a "no-net-loss" basis. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods acceptable to the USACE.
2. The applicant shall apply for a Section 401 water quality certification/waste discharge requirement from the RWQCB, and adhere to the certification conditions.
3. As the Project will impact Covell Drain and the associated riparian habitat, the applicant shall apply for a Section 1600 Lake or Streambed Alteration Agreement from CDFW. The information provided will include a description of all the activities associated with the Project, not just those closely associated with the drainages and/or riparian vegetation. Impacts will be outlined in the application and are expected to be in substantial conformance with the impacts to biological resources outlined in this document. Impacts for each activity will be broken down by temporary and permanent, and a description of the proposed mitigation for biological resource impacts will be outlined per activity and then by temporary and permanent. Information regarding Project-specific drainage and hydrology changes resulting from Project implementation will be provided as well as a description of storm water treatment methods. Minimization and avoidance measures will be proposed as appropriate and may include: preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas adjacent to open space

areas with native seed, and installation of project-specific storm water BMPs. Mitigation for impacts to riparian vegetation may include restoration or enhancement of resources on- or off-site, purchase habitat credits from an agency-approved mitigation/conservation bank, off-site, working with a local land trust to preserve land, or any other method acceptable to CDFW. Mitigation will result in no net loss of riparian vegetation.

7.3 Special-Status Plants

Special-status plant surveys have been completed throughout the Study Area. However, given sufficient time, new plants can become established. Therefore, we recommend that additional special-status plant surveys be conducted within 3 years prior to construction. If construction of portions of the Project with suitable habitat for special-status plants occurs by the end of 2027, no additional surveys would be necessary for those areas, but if any portion of the Project with suitable habitat for special-status plants (i.e., non-agricultural or urban areas) does not commence construction by the end of 2027, additional special-status plant surveys are recommended in undisturbed suitable habitat in order to accurately determine Project impacts at the time of construction. Any required future special-status plant surveys shall be completed in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 1996), the *Botanical Survey Guidelines of the California Native Plant Society* (CNPS 2001), and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). These protocols require conducting surveys at the appropriate time of year, when plants are identifiable and in bloom and/or in fruit (which often includes multiple visits to capture blooming and/or fruiting periods for all target plants), and includes ensuring that habitats are not disturbed prior to the survey so that any plants that are present may be documented. Madrone has documented alkali milk vetch and San Joaquin spearscale plants within the Project area. Because special-status plants are known to occur in the Project Area and populations would be impacted by the Proposed Project Alternative based on the current site plan, the following mitigation is recommended:

- Avoidance: If the Project avoids the special-status plants and an associated "Avoidance Zone," then no impacts to the plants would occur, and no mitigation is necessary. The size of the Avoidance Zone needed to prevent impacts may vary based on the plant species and their habitat requirements. If an ESA or CESA listed special-status plant is found and is to be avoided, then an appropriate Avoidance Zone shall be developed in consultation with USFWS or CDFW (as applicable). If the species is not listed under ESA or CESA, an appropriate Avoidance Zone shall be developed by a qualified botanist in consultation with the City. Avoidance Zone areas may differ by species and site-specific conditions, and they should be developed such that the avoided special-status plant population is likely to persist in perpetuity. Avoidance zones may be based on a fixed buffer distance from the special-status plant population, at the limit of a hydrologic break (such as Covell Drain), or as otherwise determined appropriate for the species in question. For plants associated with seasonal wetlands, the Avoidance Zone shall be 250 feet, but this zone may be as small as 50 feet for plant species that occur in uplands and do not appear to be associated with wetland hydrology.

- AMM 11 referenced in Section 7.1 above applies only to one plant species with potential to occur within the Study Area (palmate-bracted birds' beak, PBBB). In accordance with AMM 11, if PBBB is documented on-site, all of the plants, plus a 250-foot Avoidance Zone from the occupied wetland feature must be avoided. The Yolo HCP does not include provisions for impacts to this species. As stated in the AMM, this buffer distance may be reduced if the reduction is approved by the Conservancy, USFWS and CDFW.
- Impacts: If any impacts (direct or indirect) would occur to special-status plants, the Project Proponent shall mitigate according to one or a combination of the options below. A Special-Status Plant Mitigation Plan shall be developed and submitted to the City (or USFWS or CDFW as appropriate for ESA or CESA listed species). The Special-Status Plant Mitigation Plan shall be approved by the City, USFWS, or CDFW (as appropriate based on listing status) prior to issuance of a grading permit that would impact the plants. Note that the options below are minimum recommendations; the USFWS and/or CDFW may require additional mitigation if the plants are ESA or CESA listed.
    - Indirect impacts: Indirect impacts would occur if the Project avoids the mapped populations but affects a portion of an Avoidance Zone. Recommended mitigation for indirect impacts is 0.5:1 (mitigation: impacts) based on the acreage or numbers of plants that have impacts within their Avoidance Zone (if there are dense populations, acreage may be a better metric, while if there are relatively few, widely scattered plants, number of plants may be a better metric). Note that if less than 10% of the plants are indirectly impacted, and fewer than 1% of the plants are directly impacted, this would not be considered a significant impact, and no mitigation is recommended for indirect impacts in this situation.
    - Direct impacts: Direct impacts would occur if grading or other direct disturbance occurs within mapped populations. Recommended mitigation for direct impacts is 1:1 for preservation of an existing population, or 2:1 for relocation/translocation of impacted plants/seeds. These ratios may be based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan.

<u>Special-Status Plant Mitigation Options:</u>

1. <u>Preservation:</u> Identify one or more existing, unprotected populations of the special-status plant that will be impacted by the Project in the Project vicinity and protect this population in perpetuity by establishing a preserve on the land that supports those populations. Once the proposed mitigation area is approved by the City and/or USFWS/CDFW (as appropriate based on listing status, if any), the mitigation area shall be protected by a recorded conservation easement or deed restriction and managed in accordance with a long-term management plan that maintains the habitats the conservation easement was established to protect (including the special-status plants). Additionally, a preserve management endowment shall be established to fund the long-term management outlined in the long-term management plan, or sufficient annual management funding shall be a condition of a Homeowner's Association, Community Services District, or other alternative as approved by the City or regulating agency. As this option would preserve an existing, established population, there would be no temporal loss, and low risk of failure. As a result, the required mitigation ratio for this option would be 1:1. This ratio may be based on the acreage of occupied habitat or number of plants; this metric will

be clearly defined in the Special-Status Plant Mitigation Plan. This option may be implemented at a mitigation/conservation bank if the target plant species is present at the bank, and the Special-Status Plant Mitigation Plan shall describe how the purchase of bank credits translates into appropriate 1:1 preservation.

2. <u>Relocation or Translocation:</u> Mitigate impacts by establishment of a new special-status plant population or expansion of an existing special-status plant population. The proposed mitigation area may be on-site or off-site and shall be permanently protected by the recordation of a conservation easement or deed restriction, development of a long-term management plan that maintains the habitats that the conservation easement was established to protect, and include the establishment of a preserve management endowment, or sufficient annual management funding shall be a condition of a Homeowner's Association, Community Services District, or other alternative as approved by the City or regulating agency. The Project proponent would locate and protect the mitigation area(s), translocate seeds or relocate perennial plants to the mitigation area(s), monitor the translocated/relocated seeds/plants for a minimum of five years, and meet established success criteria as detailed in the Special-Status Plant Mitigation Plan. The minimum success criterion for this option would be 2:1 replacement of directly impacted plants and 1:1 replacement for indirectly impacted plants by year five of monitoring (or as otherwise required by the regulatory agencies). This ratio may be based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan. If the success criteria are not met, then additional habitat shall be set aside as set forth under Option 1 or as agreed upon by the City and/or USFWS/CDFW, as appropriate. Because population sizes for annual plants can vary widely from year to year, for Option 2, population counts or acreage mapping would be conducted in the last two years of monitoring, and the highest count or acreage shall be at least equivalent to the number of required replacement plants.

To provide a habitat protection mechanism, a conservation easement, deed restriction, or a similar habitat protection mechanism shall be recorded over the Project avoidance areas that support special-status plant species. The habitat protection mechanism shall be recorded in favor of a conservation-oriented third party and shall be accompanied by a long-term management plan that requires that the preserve area be managed in a fashion that ensures long-term viability of the plant species that the preserve was established to protect. The habitat protection mechanism shall be accompanied by a funding mechanism (e.g., an endowment or other funding source) that ensures funds will be available for management of the preserve in perpetuity.

7.4 Crotch's Bumble Bee

Crotch's bumble bee is not a covered species under the Yolo HCP. Crotch's bumble bee is currently a candidate species for listing under the California Endangered Species Act. As a candidate for listing, the species is temporarily afforded the same protections as a state-listed endangered or threatened species. After CDFW's status report is complete, the Commission must decide at a public meeting whether the petitioned action is warranted. If the Commission finds that the petitioned action is not warranted, the process ends, and the species will be removed from the list of candidate species. If the Commission finds that the petitioned action is warranted, the species will be added to the list of threatened or endangered species.

The mitigation measures below only apply if this species is a candidate species or is listed under the California Endangered Species Act at the time of construction. If Crotch's bumble bee is no longer a candidate species under the California Endangered Species Act, then following mitigation measures are not required.

- Initial ground-disturbing work (e.g., grading, vegetation removal, staging) within potential habitat for this species shall take place between 1 September and 31 March (i.e., outside the colony active period), if feasible, to avoid impacts on special-status bumble bees.
- If completing all initial ground-disturbing work within potential habitat for this species between 1 September and 31 March is not feasible, then a biologist with experience conducting biological resource surveys within California shall conduct a pre-construction survey for Crotch's bumble bee in the areas proposed for impact no more than 14 days prior to the commencement of construction activities. The survey shall occur during the period from one hour after sunrise to two hours before sunset, with temperatures between 65° F and 90° F, with low wind and no rain. If the timing of the start of construction makes the survey infeasible due to the temperature requirements, the surveying biologist shall select the most appropriate days based on the National Weather Service seven-day forecast, and shall survey at a time of day that is closest to the temperature range stated above. The survey duration shall be commensurate with the extent of suitable floral resources (which represent foraging habitat) present within the area proposed for impact. A meandering pedestrian survey shall be conducted throughout the area proposed for impact to identify patches of suitable floral resources. Suitable floral resources for Crotch's bumble bee include species in the following families: *Apocynaceae*, *Asteraceae*, *Boraginaceae*, *Fabaceae*, and *Lamiaceae*.
- At a minimum, pre-construction survey methods shall include the following:
    - Search areas with floral resources for foraging bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging bumble bees are present.
    - If special-status bumble bees are observed, watch any special-status bumble bees present and observe their flight patterns. Attempt to track their movements between foraging areas and the nest.
    - Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat.
    - If floral resources or other vegetation preclude observance of the nest, small areas of vegetation may be removed via hand removal, line trimming, or mowing to a height of no less than 4 inches to assist with locating the nest.
    - Look for concentrated special-status bumble bee activity.
    - Listen for the humming of a nest colony.
    - If bumble bees are observed, attempt to photograph the individual and identify it to species.
- The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed

bumble bee activity, a list of bumble bee species observed, a description of any vegetation removed to facilitate the survey, and their determination of if survey observations suggest a special-status bumble bee nest(s) may be present or if construction activities could otherwise harm special-status bumble bees. The report shall be submitted to the City of Davis prior to the commencement of construction activities.

- If no bumble bees are located during the pre-construction survey or the bumble bees located are definitively identified as common (i.e., not special-status) species, then no further mitigation or coordination with CDFW is required.
- If any sign(s) of a bumble bee nest is observed, and/or if it cannot be established the species present is not a special-status bumble bee, then construction shall not commence until either 1) the bumble bees present are identified as common (i.e., not special status) by a qualified biologist, or 2) the completion of coordination with CDFW to identify appropriate mitigation measures, which may include but not be limited to: waiting until the colony active season ends, establishment of nest buffers, or obtaining an Incidental Take Permit (ITP) from CDFW (see below).
- If, after coordination with CDFW, impacts to special-status bumble bees cannot be avoided, the Applicant shall obtain an ITP from CDFW, and the applicant shall implement all conditions identified in the ITP. Mitigation required by the ITP may include but will not be limited to, the Project Applicant translocating nesting substrate in accordance with the latest scientific research to another suitable location (i.e., a location that supports similar or better floral resources as the impact area), enhancing floral resources on areas of the Project site that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.

7.5 Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp are not a covered species under the Yolo HCP. Under either the Proposed Project Alternative or the Biological Resource Preservation Alternative, at least one wetland occupied by vernal pool tadpole shrimp would be impacted. If occupied aquatic habitat is impacted, the Project proponent shall consult with the USFWS regarding impacts to vernal pool tadpole shrimp associated with the proposed Project prior to the City of Davis approval of any permit authorizing construction. The Project proponent shall obtain and comply with any conditions of the appropriate take authorization from the USFWS. The conditions in this take authorization may include, but will not be limited to fencing off avoided habitat, worker awareness trainings, preservation, restoration, or enhancement of habitat on- or off-site to compensate for indirect and/or direct effects; purchase of habitat credits (the mitigation ratio for habitat preservation is generally 2:1) from an agency-approved mitigation/ conservation bank; working with a local land trust to preserve land; or any other method acceptable to USFWS.

7.6 Monarch Butterfly

Monarch butterfly is not a covered species under the Yolo HCP. Monarch butterfly has been proposed for listing as threatened under the ESA, but no decision on listing has been published. If, at the time of project implementation, it is not an ESA candidate or ESA listed, and it does not fall into any of the other "special-status" categories defined in Section 3.0, then it would not qualify for protections under CEQA and no mitigation is necessary. Furthermore, as this is a candidate species, appropriate mitigation measures are still being developed and refined for this species. We have developed the following measure based on current literature and research. If a different mitigation measure is determined to be more appropriate, that can be submitted to the City of Davis and USFWS at that time for review and approval.

If construction occurs during the time when milkweed plants may host monarch eggs or caterpillars (approximately mid-March through late September), a pre-construction survey shall be conducted by a qualified biologist no earlier than 15 days prior to construction within the proposed impact area and a 50-foot buffer in accessible areas. The biologist shall comprehensively search the survey area for milkweed plants, and all milkweed plants found shall be surveyed for monarch eggs, larvae (i.e., caterpillars), and chrysalises. Additionally, other plants immediately adjacent to milkweed plants shall also be searched for chrysalises. If no eggs, caterpillars, or chrysalises are detected, no additional mitigation measures are necessary.

If eggs, caterpillars or chrysalises are found, the plants shall be avoided with a 50-foot buffer until metamorphosis is completed and adult butterflies emerge and voluntarily leave the host plant. If the eggs, larvae, or chrysalises cannot be avoided, all eggs, larvae, and chrysalises, including the portion of the plant to which they are attached, will be translocated to an alternative location. That location must be a minimum of 50 feet outside of the impact area and contain a similarly sized or larger population of larval host plants. The portions of the plants supporting eggs or chrysalises shall be tied to the live stem of the avoided larval host plant while caterpillars will be placed directly on a stem or leaf of a larval host plant. Should the species be listed under FESA in the future, coordination with USFWS shall be conducted prior to translocation.

7.7 Western Spadefoot

Western spadefoot is not a covered species under the Yolo HCP. Western spadefoot are proposed for federal listing as threatened under the ESA, but no decision on listing has been published.

Prior to construction, the Applicant shall survey all suitable aquatic habitat within the Project site (including features proposed for avoidance) by sampling the features thoroughly with dipnets during March or early April, when spadefoot tadpoles would be present. This aquatic component of the survey has already been completed concurrent with the vernal pool branchiopod surveys and does not need to be repeated. In addition, one nocturnal acoustic survey of all areas within 300 feet of suitable aquatic habitat will be conducted during the spring prior to proposed construction. Acoustic surveys consist of walking through the area and listening for the distinctive snore-like call of this species. Timing and methodology for the aquatic and acoustic surveys shall be based on those described in *Distribution of the Western Spadefoot (Spea hammondii) in the Northern Sacramento Valley of California, with Comments on Status and Survey Methodology* (Shedd 2017). If both the aquatic survey and the nocturnal acoustic survey are negative, no further mitigation is necessary.

If western spadefoot are identified within the Study Area during the surveys and the species is not a federally-listed species or candidate species and is still a California Species of Special Concern, the following mitigation measure will be conducted: The tadpoles (as many as are reasonably possible to capture) shall be captured and relocated either to aquatic habitat to be avoided on-site (and implement the fencing requirement outlined below), or to an off-site open space preserve with suitable habitat in the vicinity of the Project Area. If western spadefoot are observed within aquatic habitat proposed for avoidance, then the applicant may either: relocate the tadpoles to an off-site open space preserve with suitable habitat in the vicinity of the Project Area, or install silt fence along the edge of the proposed impact area within 300 feet of the occupied aquatic habitat to prevent metamorphosed individuals from dispersing into the construction area.

If western spadefoot are identified within the Study Area during the surveys and the species is a federally-listed species or a candidate for listing the following mitigation measure will be conducted: The Project proponent shall consult with the USFWS regarding impacts to western spadefoot from the proposed Project. The Project proponent shall obtain and comply with any conditions of the appropriate take authorization from the USFWS. The conditions in this take authorization may include, but will not be limited to fencing off avoided habitat, worker awareness trainings, preservation, restoration, or enhancement of habitat on- or off-site to compensate for indirect and/or direct effects; purchase of habitat credits from an agency-approved mitigation/conservation bank; working with a local land trust to preserve land; or any other method acceptable to USFWS.

7.8 Nesting Raptors and Other Birds

For special-status bird species not covered by the Yolo HCP, the following nest survey requirements apply if construction activities take place during the typical bird breeding/nesting season (February 15 through August 31).

A pre-construction nesting bird survey shall be conducted by the Project Biologist throughout the Project and all accessible areas within a 500-foot radius of proposed construction areas, no more than 14 days prior to the initiation of construction. If there is a break in construction activity of more than 14 days, then subsequent surveys shall be conducted.

If active raptor nests are found, no construction activities shall take place within 500 feet of the nest until the young have fledged. If active songbird nests are found, a 100-foot no disturbance buffer will be established. These no-disturbance buffers may be reduced if a smaller, sufficiently protective buffer is approved by the City after taking into consideration the natural history of the species of bird nesting, the proposed activity level adjacent to the nest, the nest occupants' habituation to existing or ongoing activity, and nest concealment (i.e., whether there are visual or acoustic barriers between the proposed activity and the nest). A biologist may visit the nest as needed to determine when the young have fledged the nest and are independent of the site or the nest can be left undisturbed until the end of the nesting season.

A report summarizing the survey(s) shall be provided to the City within 30 days of the completed survey and is valid for one construction season. If no nests are found, no further mitigation is required.

If the nest buffer is reduced, but construction activities cause a nesting bird to do any of the following in a way that would be considered a result of construction activities: vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the exclusionary buffer shall be increased such that activities are far enough from the nest to stop this agitated behavior. The revised no-disturbance buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist in consultation with the City.

Construction activities may only resume within the no-disturbance buffer after a follow-up survey by the biologist has been conducted and a report has been prepared indicating that the nest (or nests) are no longer active, and that no new nests have been identified.

7.9 Roosting Bats

The Yolo HCP does not cover bats. It is recommended that a pre-construction roosting bat survey be conducted by a qualified biologist within 14 days prior to any tree removal that will occur during the breeding season (April through August). If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required. If roosting bats are found, exclusion shall be conducted by the qualified biologist in coordination with CDFW. Methods may include acoustic monitoring, evening emergence surveys, and the utilization of two-step tree removal supervised by the qualified biologist. Two-step tree removal involves removal of all branches that do not provide roosting habitat on the first day, and then the next day cutting down the remaining portion of the tree. Building exclusion methods may include such techniques as installation of passive one-way doors, or the installation of netting when the bats are not present to prevent their reoccupation. Once the bats have been excluded, tree or building removal may occur.

7.10 Tree Removal

The Tree Ordinance requires that a tree inventory be conducted throughout the Study Area, and mitigation for impacts to "city trees", "street trees", and "trees of significance", all of which may occur within the Study Area. If any of these will be impacted, they must be mitigated in accordance with the Tree Ordinance. Final mitigation requirements will be determined by the City of Davis on a case-by-case basis and may include the following options:

- Incorporate existing healthy trees into the design of the Project;
- Replanting trees on-site;
- Replanting trees off-site in city-owned open space or park; or
- Payment to the Tree Preservation Fund In lieu of Replacement.

7.11 Program Study Areas

As summarized in **Tables 1 and 2** above, the Program Study Areas are comprised of 2.7 acres of California Annual Grassland, 2.3 acres of Urban, 1.3 acre of Urban Ruderal, 1.2 acre of Vegetated Corridor, 0.6 acre of Barren-Anthropogenic, and 0.2 acre of Valley Foothill Riparian. Within the Western Program Area are 0.104

acre of seasonal wetland, 0.091 acre of wetland ditch, and 0.053 acre of intermittent drainage. Additionally, as detailed in **Table 3**, 28 trees have been inventoried within the Program Study Area. These terrestrial and aquatic resources represent potential habitat for the following species:

- Heckard's pepper-grass (CRPR List 1B.2)
- Little mousetail (CRPR List 1B.3)
- Baker's navarretia (CRPR List 1B.1)
- Bearded popcornflower (CRPR List 1B.1)
- Saline clover (CRPR List 1B.2)
- Crotch’s bumblebee (California candidate for listing)
- Monarch butterfly (Federally proposed as threatened)
- Vernal pool fairy shrimp (Federally threatened)
- Valley elderberry longhorn beetle (Federally threatened)
- Vernal pool tadpole shrimp (Federally endangered)
- Western spadefoot (Federallyproposed as threatened and California species of special concern)
- Northwestern pond turtle (Federally proposed as threatened and California species of special concern)
- Burrowing owl (California candidate for listing and California species of special concern)
- Swainson’s hawk (California threatened)
- White-tailed kite (California fully protected species)
- Pallid bat (California species of special concern, Western Bat Working Group High Priority)
- Silver-haired bat (Western Bat Working Group Medium Priority)
- Hoary bat (Western Bat Working Group Medium Priority)

Depending on the ultimate development proposal, impacts within the Program Study Areas could impact up to 2.7 acres of California Annual Grassland, 2.3 acres of Urban Land Cover, 1.3 acre of Urban Ruderal Land Cover, 1.2 acre of Vegetated Corridor, 0.6 acre of Barren-Anthropogenic Land Cover, 0.2 acre of Valley Foothill Riparian, 0.104 acre of seasonal wetland, 0.091 acre of wetland ditch, and 0.053 acre of intermittent drainage. Mitigation measures that may apply to potential future development within the Program Study Areas include the following:

- **Section 7.1 – Yolo HCP Covered Species**
- **Section 7.2 – Aquatic Resources,**
- **Section 7.3 – Special-Status Plants,**
- **Section 7.4 – Crotch’s Bumblebee,**
- **Section 7.6 – Monarch Butterfly,**
- **Section 7.7 – Western Spadefoot,**
- **Section 7.8 – Nesting Raptors and Other Birds,**
- **Section 7.9 – Roosting Bats, and**
- **Section 7.10 – Tree Removal**.

8.0 REFERENCES

Airola, D.A., D. Ross, C.W. Swarth, D. Lasprugato, R.J. Meese, and M.C. Marshall. 2016. *Breeding Status of the Tricolored Blackbird in the Grassland-Dominated Region of the Sierra Nevada, California in 2016*. Central Valley Bird Club Bulletin, Volume 19, Number 4, Winter 2016.

Audubon California. 2025. *Working Land Series: Making a good home for the Grasshopper Sparrows*. Viewed at: https://ca.audubon.org/sites/default/files/workinglands_grasshopper_051012.pdf (Accessed 27 February 2025).

California Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines*. Dated April 1993.

California Department of Fish and Game (CDFG). 1995. *Staff Report on Burrowing Owl Mitigation*. Dated 25 September 1995.

California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*. Dated 7 March 2012.

California Native Plant Society (CNPS), Rare Plant Program. 2024. *Inventory of Rare and Endangered Plants* online edition, v9.5 California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed January 2024].

California Natural Diversity Database (CNDDB). 2024. *RareFind 5*. California Department of Fish and Wildlife. January 2024.

Eng, L., D. Belk, and C. Eriksen. 1990. *Californian Anostraca: Distribution, Habitat, and Status*. Journal of Crustacean Biology 10(2):247-277.

Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, Inc. Eureka, CA.

Fugate, M. 1992. *Speciation in the fairy shrimp genus* Branchinecta *(Crustacea: Anostraca) from North America*. Ph.D. thesis, University of California, Riverside.

Holt, D.W., and S.M. Leasure. 2006. Short-eared Owl (*Asio flammeus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/062

Jennings, M. R., and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern* in Jennings, W.B. (1996). "*Status of amphibians*." Sierra Nevada Ecosystem Project, Final Report to Congress, 2, 921-944.

Jepson Flora Project (eds.). 2024. *Jepson eFlora*, http://ucjeps.berkeley.edu/eflora/ [accessed in January 2024]

Meese, R.J. 2014. *Results of the 2014 Tricolored Blackbird Statewide Survey*. University of California, Davis. Dated 31 July 2014.

Moyle, P. B. 2002. *Inland Fishes of California*. University of California Press, Berkeley, Los Angeles, and London.

Osborne, J. L., A. P. Martin, C. R. Shortall, A. D. Todd, D. Goulson, M. E. Knight, R. J. Hale, and R. A. Sanderson. 2008. Quantifying and comparing bumble bee nest densities in gardens and countryside habitats. Journal of Applied Ecology 45:784-792.

Richardson, L. 2014. Data Contributors. Available from http://www.leifrichardson.org/bbna.html.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society, Sacramento, CA. 1300 pp.

Shedd, J.O. 2017. *Distribution of the Western Spadefoot (Spea hammondii) in the Northern Sacramento Valley of California, with Comments on Status and Survey Methodology* (PDF Download Available). Available from: https://www.researchgate.net/publication/312153742_Distribution_of_the_Western_Spadefoot_Spea_hammondii_in_the_Northern_Sacramento_Valley_of_California_with_Comments_on_Status_and_Survey_Methodology [accessed14 February2018].

Shuford, David and Thomas Gardali, 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*. February.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture (NRCS). 2024. *Web Soil Survey*. Available online at http://websoilsurvey.nrcs.usda.gov/.

Talley, T. 2003. *Identifying the role of spatial, habitat quality and landscape properties in influencing the metapopulation dynamics of a rare, fragmented species*. Thesis proposal, introduction and objectives. 19 January 2003. Department of Environmental Science and Policy, University of California, Davis.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 1980. *Listing the Valley Elderberry Longhorn Beetle as a Threatened Species with Critical Habitat; Final Rule.* Federal Register Volume 45, Number 155 (August 8, 1980).

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 1984. *Valley Elderberry Longhorn Beetle Recovery Plan.* U. S. Fish and Wildlife Service, Portland, Oregon. 62 pp.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*. Dated July 9, 1999.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2003. *Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Final Rule*. Federal Register 68(151):46684-46867.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2005. *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Portland, Oregon. xxvi + 606 pages.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2006. *Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants, Final Rule.* Federal Register 71(28): 7118–7316

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2024. *IPaC Trust Resource Report for the Study Area.* Generated from http://ecos.fws.gov/ipac/ on 12 January 2024.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*. Dated May 2017.

U.S. Department of the Interior, National Park Service (NPS). 2023. *Inventory Surveys for Bats and California Spotted Owls at Devils Postpile National Monument*. Natural Resource Report NPS/DEPO/NRR—2023/2575. Dated October 2023.

U.S. Geological Survey (USGS). 2021. *"Davis, California"* 7.5-Minute Series Topographic Quadrangle Map. U.S. Geological Survey. Denver, Colorado.

Vickery, P. D. 2020. *Grasshopper Sparrow (*Ammodramus savannarum*), Version 1.0*. In Birds of the World (A. F. Poole and F. B. Gill, Editors). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.graspa.01 (Accessed 27 February 2025).

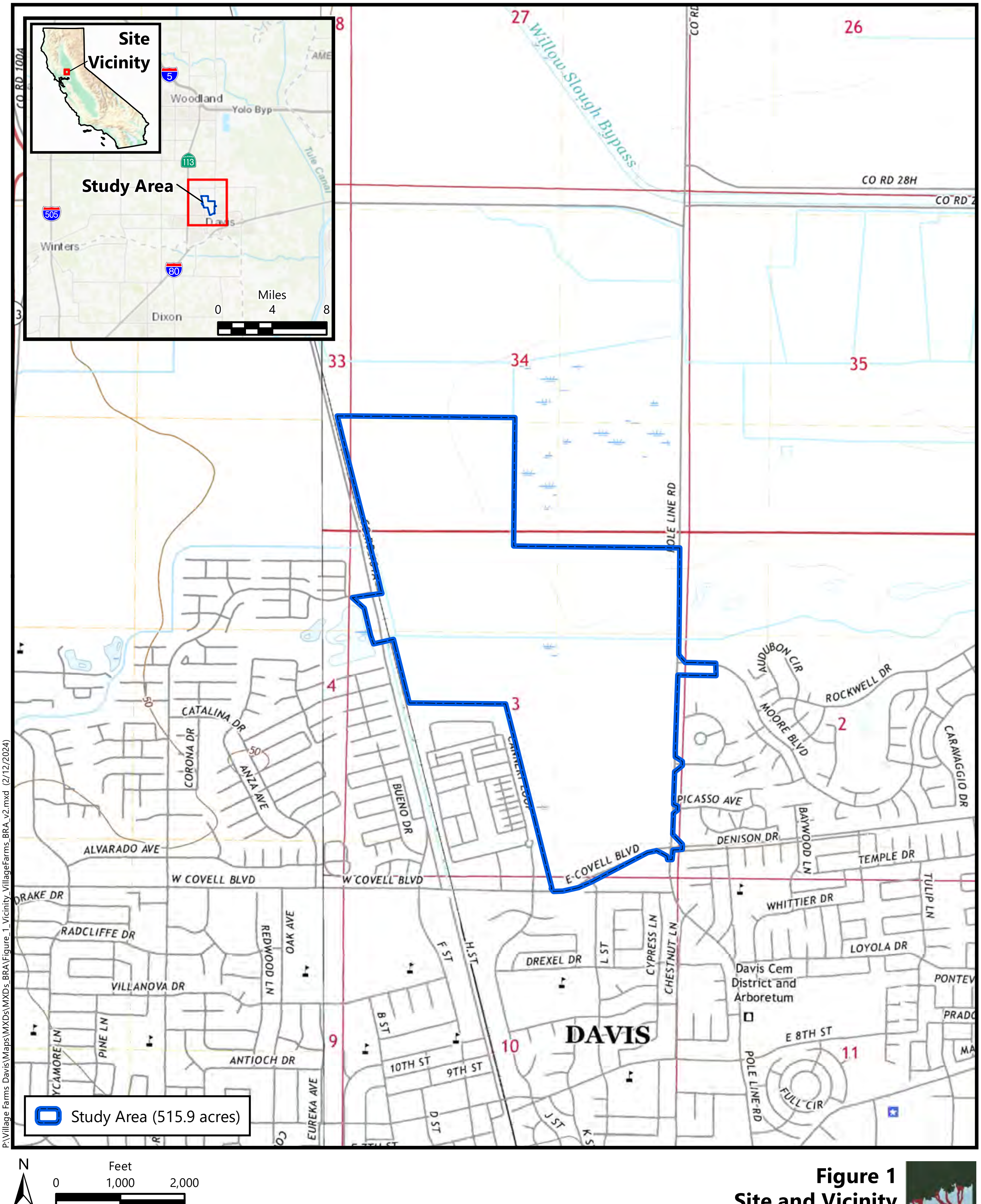
Williams, P. H., R. W. Thorp, L. L. Richardson, and S. R. Colla. 2014. The Bumble bees of North America: An Identification guide. Princeton University Press, Princeton.

Western Bat Working Group (WBWG). 2024. *Species Matrix and Species Accounts*. Accessed on-line at http://wbwg.org/ in January 2024.

Western Monarch Milkweed Mapper (WMMM). 2024. *Breeding western monarch database query for the Study Area.* Website: www.monarchmilkweedmapper.org/ [accessed January 2024].

Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Central for Food Safety. 2018. *A Petition to the State of California Fish and Game Commission to List the Crotch bumble bee (Bombus* *crotchii), Franklin's bumble bee (Bombus franklini), Suckley cuckoo bumble bee (Bombus suckleyi), and Western bumble bee (Bombus occidentalis occidentalis) as Endangered under the California Endangered Species Act.* Submitted in October 2018.

Figures



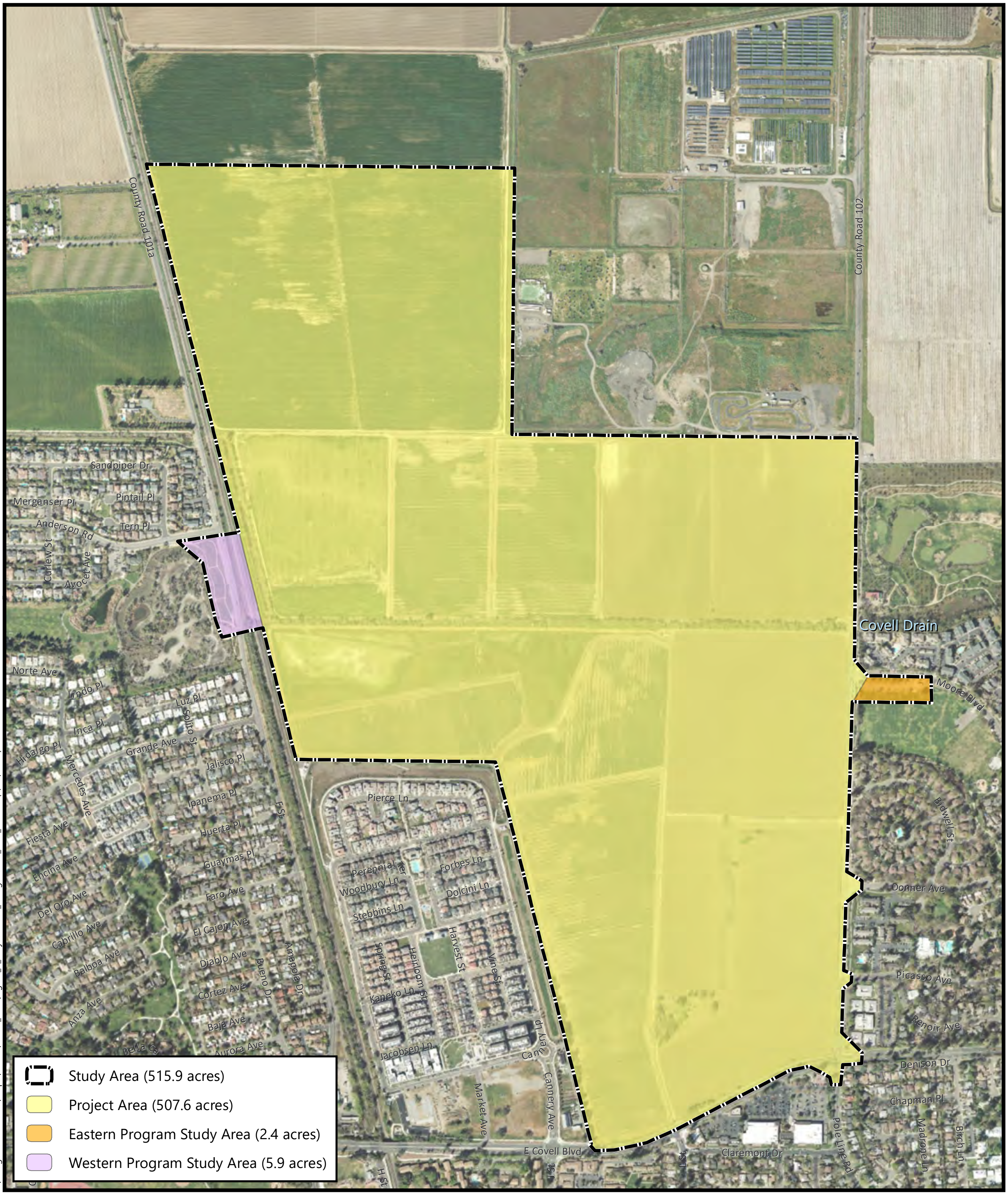
P:\Village Farms Davis\Maps\MXDs\MXDs_BRA\Figure_1_Vicinity_VillageFarms_BRA_v2.mxd (2/12/2024)

Source: *United States Geologic Survey*, 2021
"Davis, California" 7.5-Minute Topographic Quadrangle
Sections 33-34, Township 9 North, Range 2E, MDBM and
Sections 2-3, 10 Township 8 North, Range 2E, MDBM
Latitude (NAD83): 38.571593°, Longitude (NAD83): -121.738843°

Figure 1
Site and Vicinity

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING



P:\Village Farms Davis\Maps\MXDs\MXDs_BRA\Figure_2_ProjectAreas_VillageFarms_BRA_v1.mxd (2/13/2024)

N

Feet

0 500 1,000

Figure 2
Study Area Components

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG* 18 March 2022

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

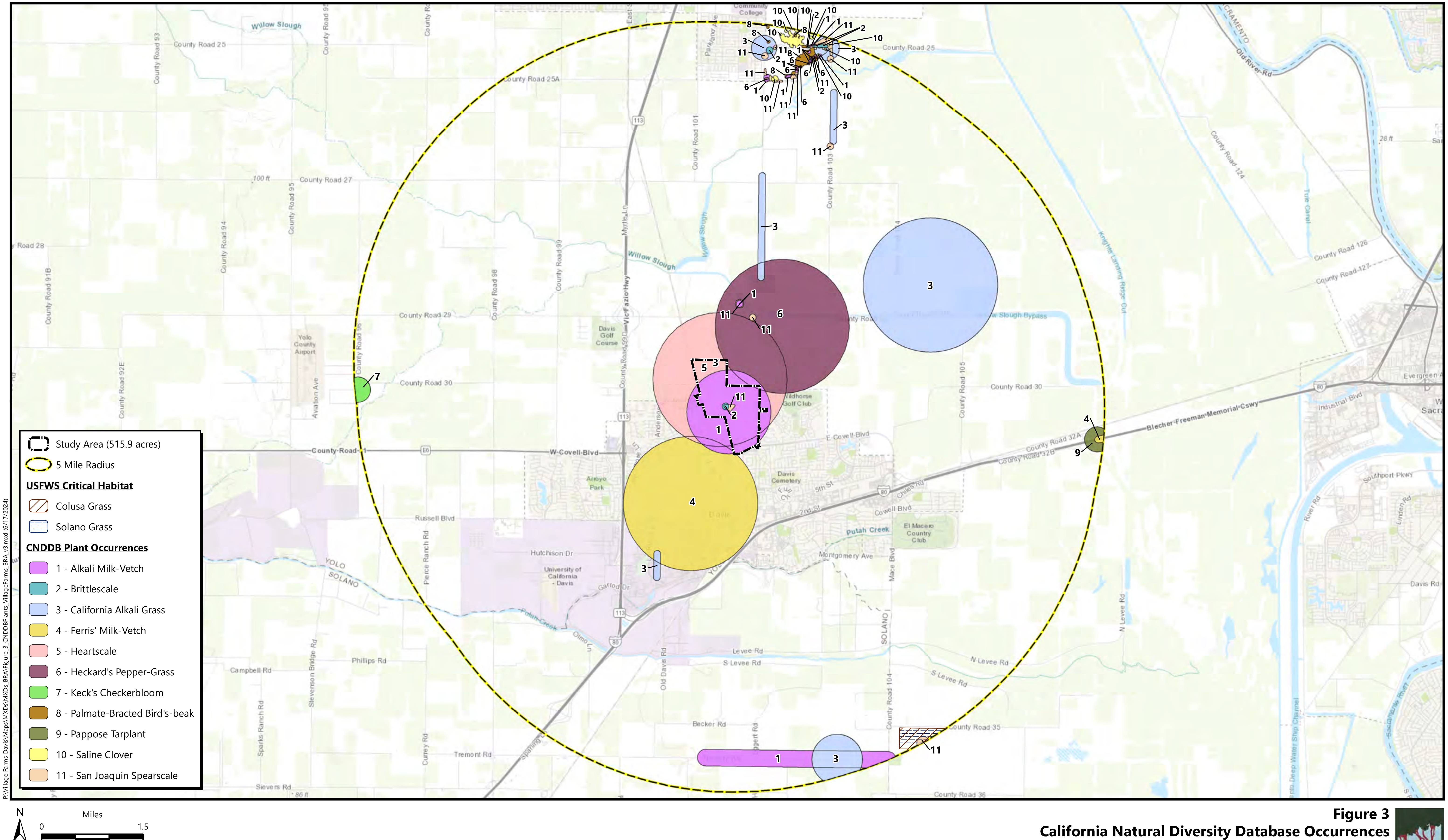
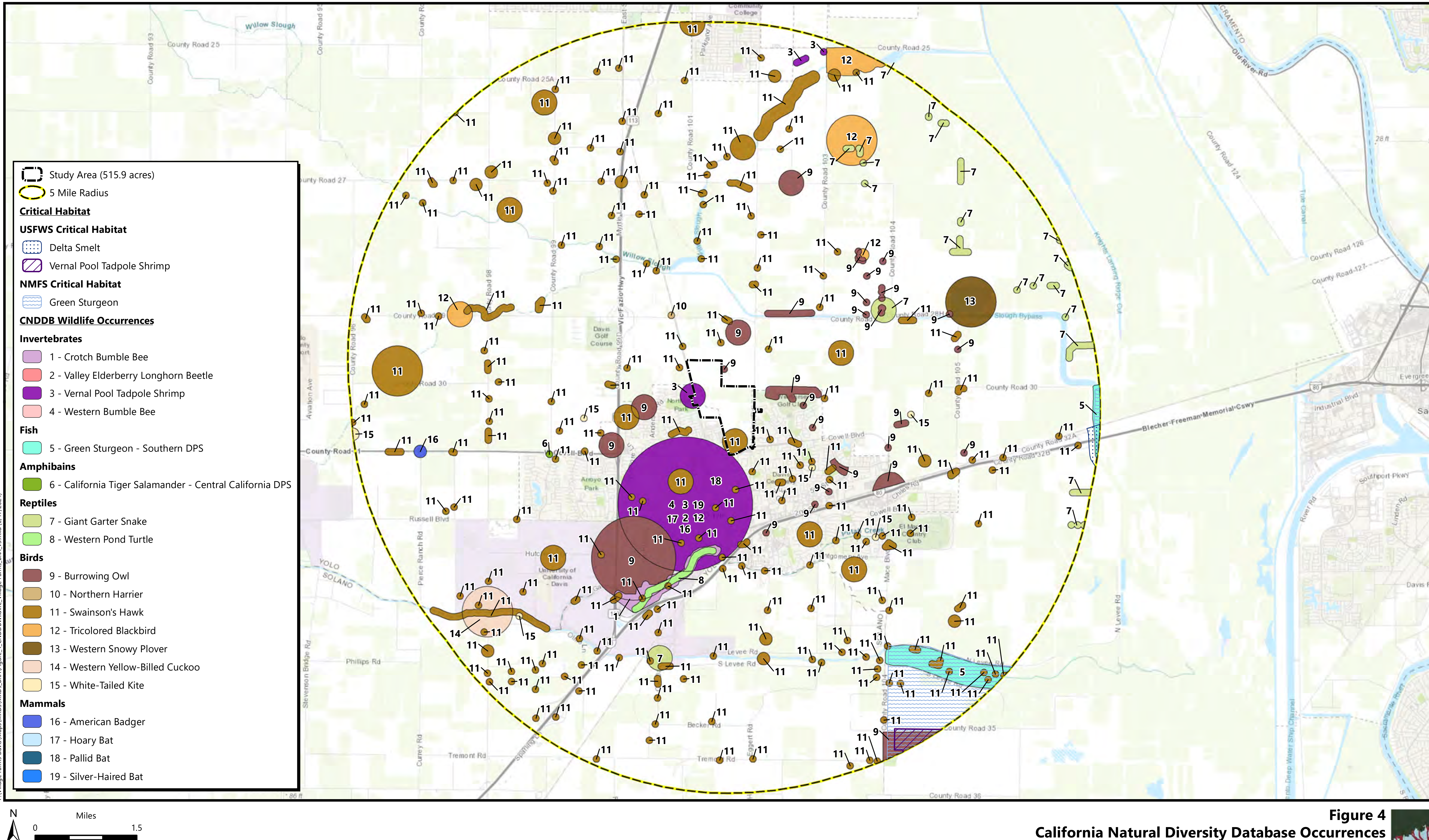


Figure 3
California Natural Diversity Database Occurrences of Plant Species and Critical Habitat

Source: *California Department of Fish and Wildlife*, June 2024
Basemap Source: *ESRI World Topography*

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING



P:\Village Farms Davis\Maps\MXDs\MXDs_BRA\Figure_4_CNDDBWildlife_Village Farms_BRA_v3.mxd (6/17/2024)

Figure 4
California Natural Diversity Database Occurrences of Wildlife Species and Critical Habitat

Source: *California Department of Fish and Wildlife*, June 2024
Basemap Source: *ESRI World Topography*

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

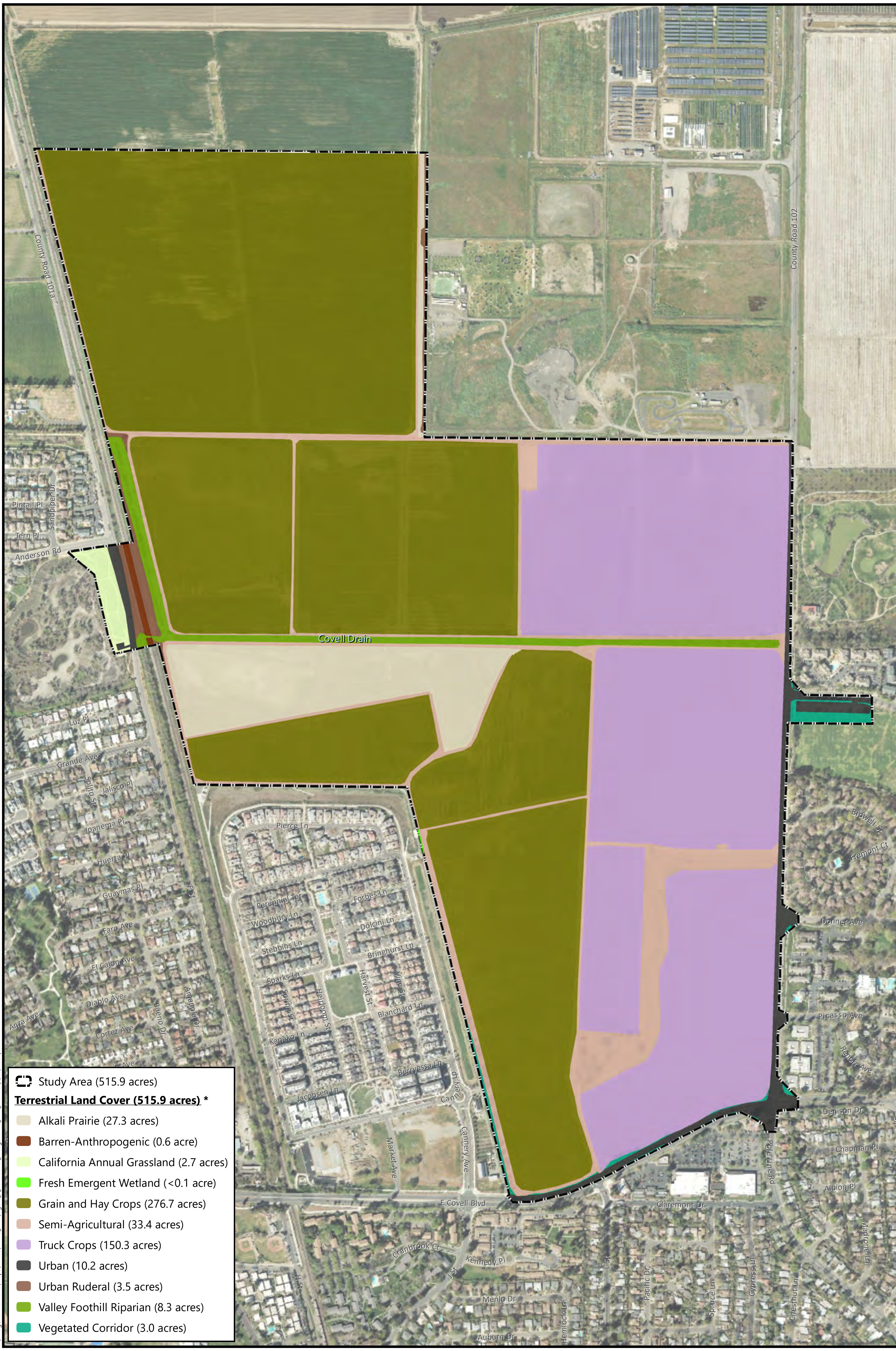


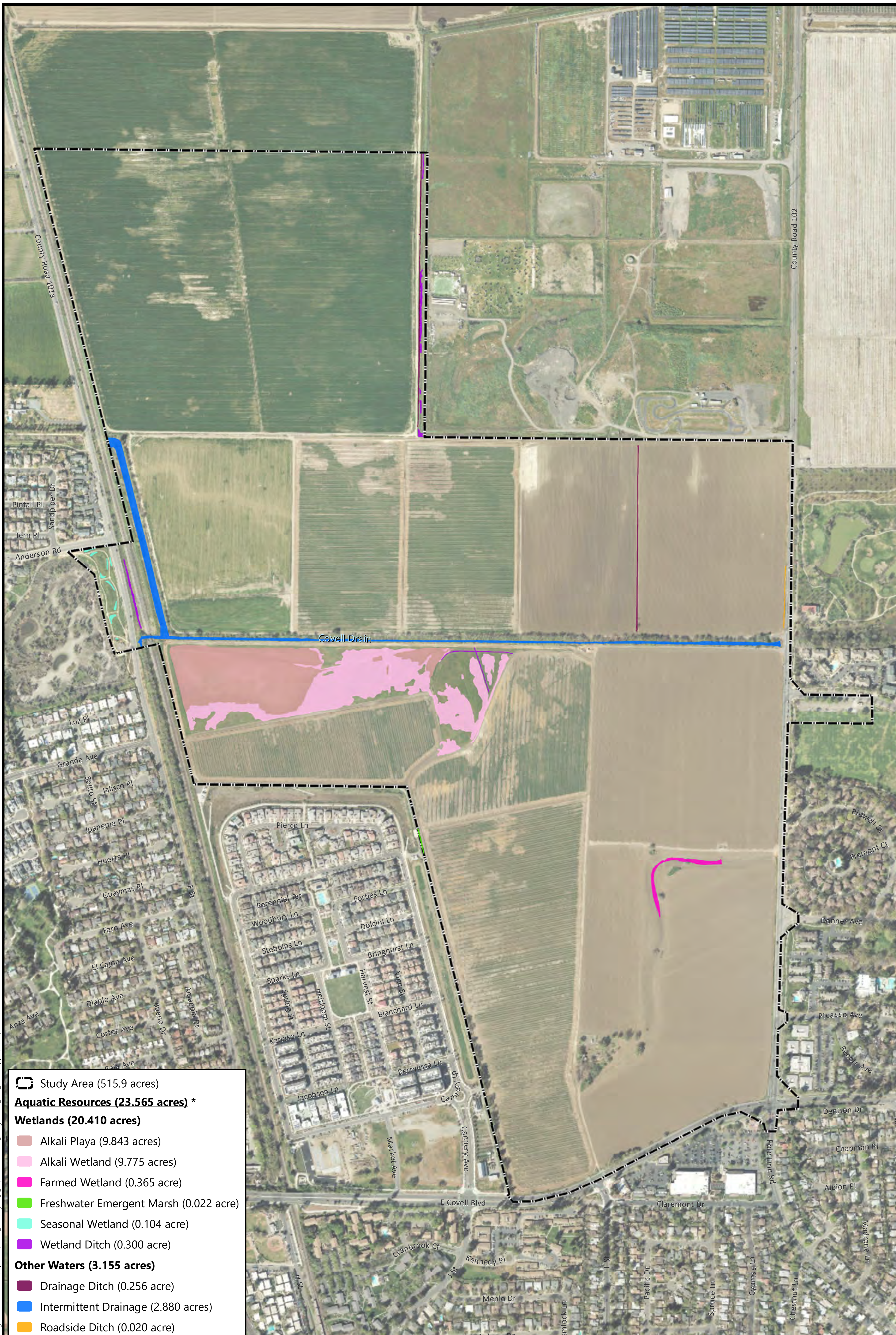
Figure 5
Yolo HCP Land Cover Types

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

* *Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022



P:\Village Farms Davis\Maps\MXDs\MXDs_BRA\Figure_6_AquaticResources_VillageFarms_BRA_v4.mxd (6/17/2024)

N

Feet

0 600

* *Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Figure 6
Aquatic Resources

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

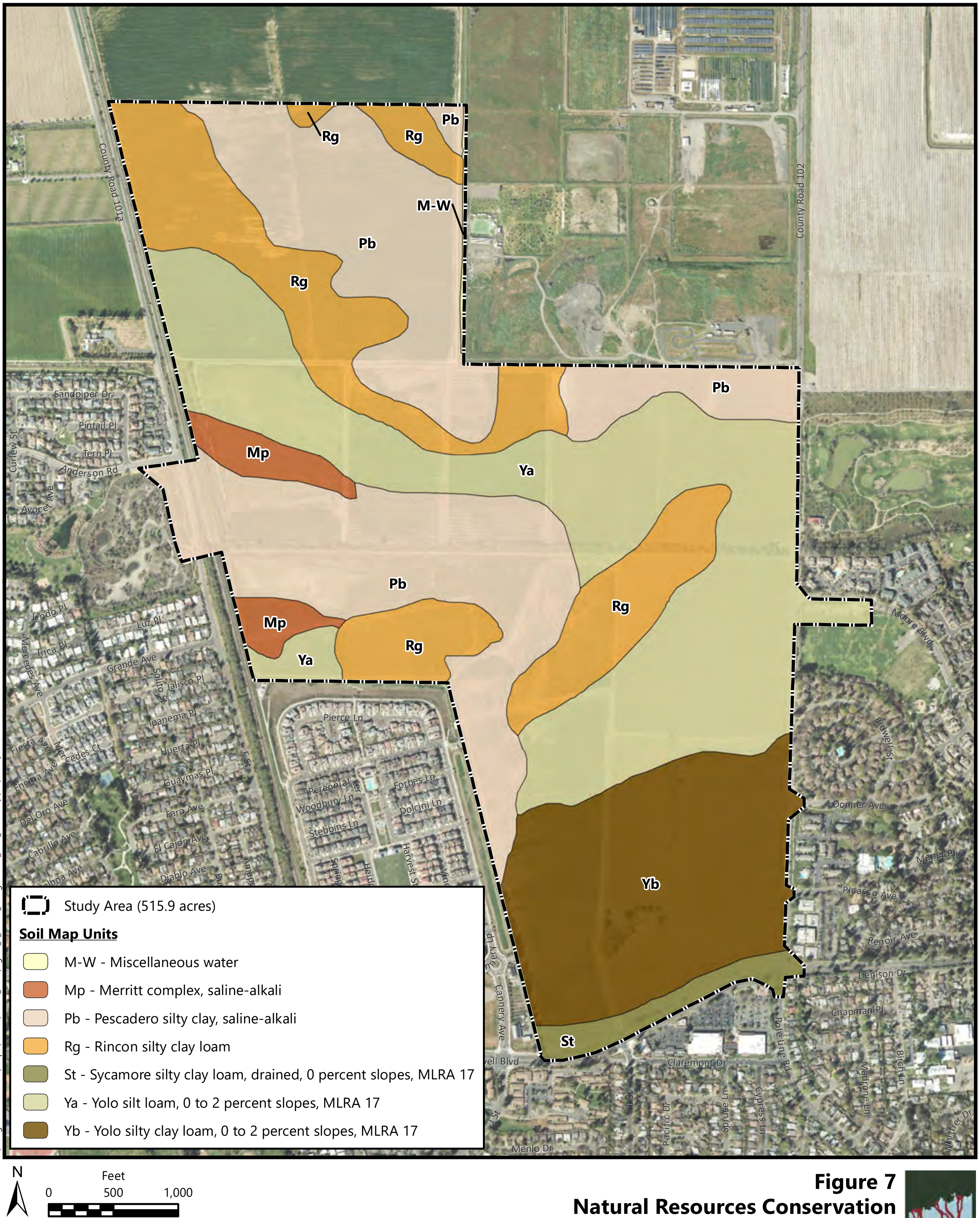


Figure 7
Natural Resources Conservation Service Soils

Village Farms
Davis, Yolo County, California

Soil Survey Source: *USDA, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for Yolo County, California*
Aerial Source: *ESRI/SACOG* 18 March 2022

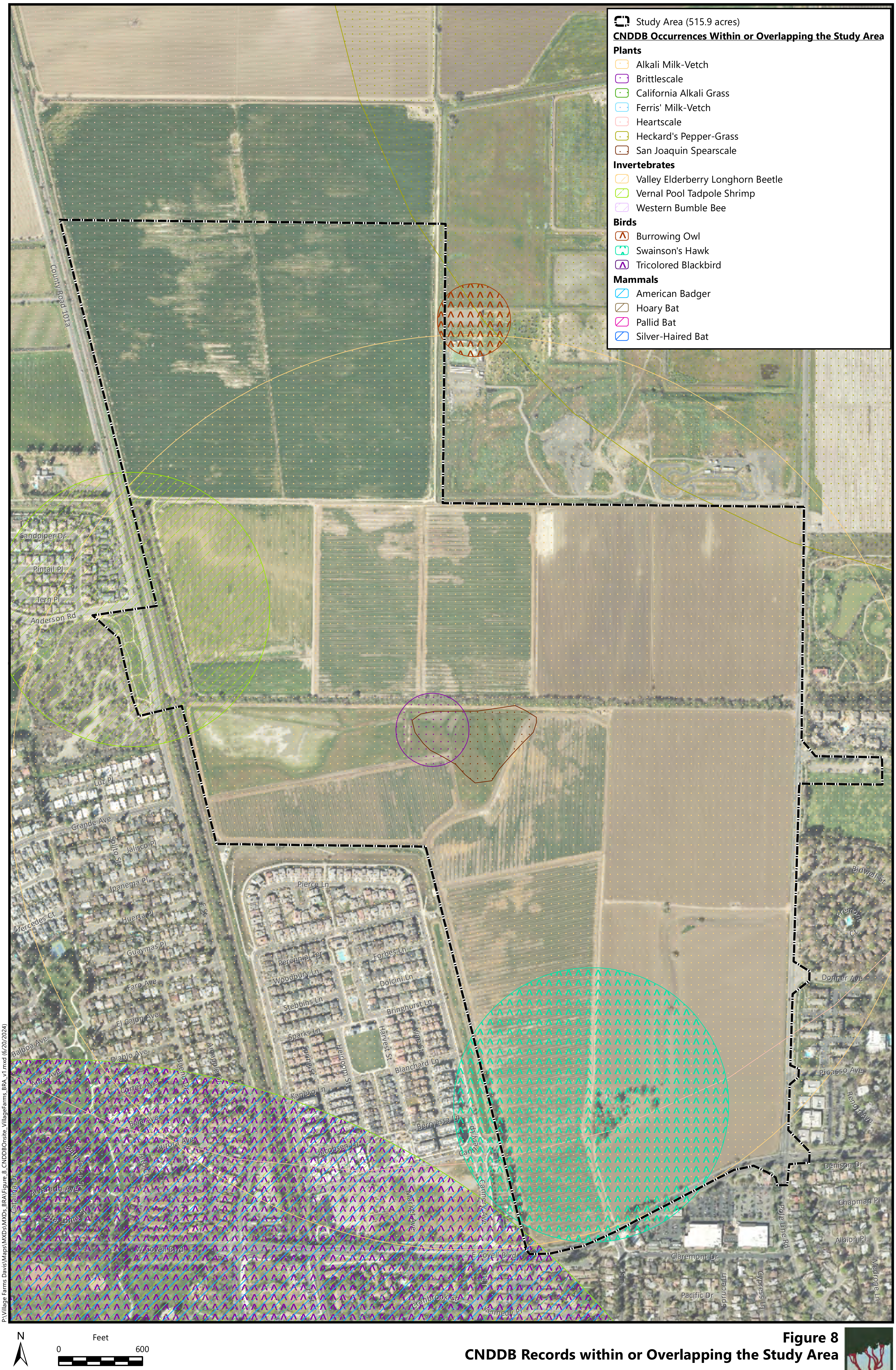


Figure 8
CNDDB Records within or Overlapping the Study Area

Source: *California Department of Fish and Wildlife*, June 2024
Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Village Farms Davis
Davis, Yolo County, California

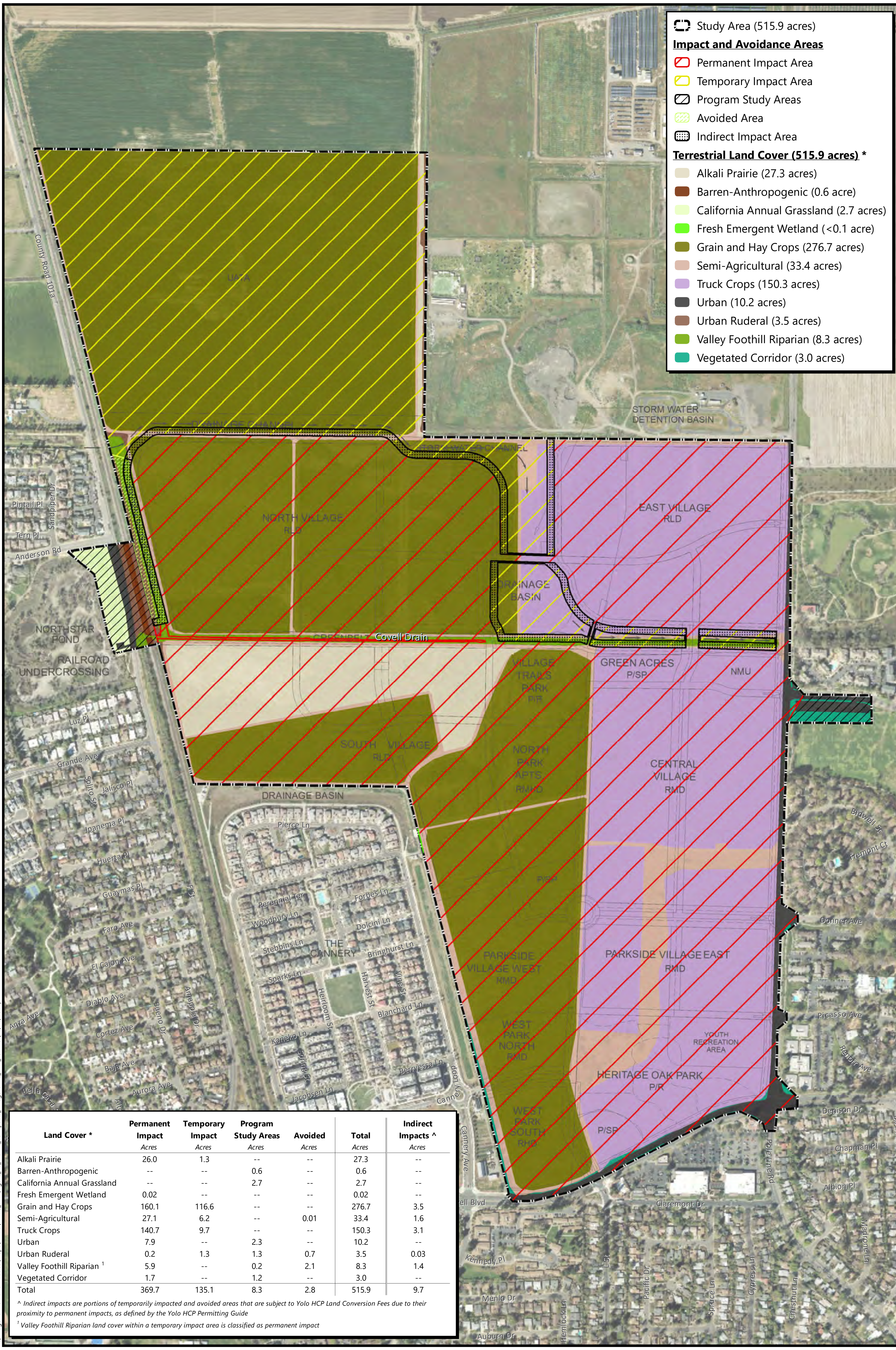
MADRONE ECOLOGICAL CONSULTING

Figure 9
Special Status Species Documented by Madrone

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022



Land Cover *	Permanent Impact	Temporary Impact	Program Study Areas	Avoided	Total	Indirect Impacts ^
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Alkali Prairie	26.0	1.3	--	--	27.3	--
Barren-Anthropogenic	--	--	0.6	--	0.6	--
California Annual Grassland	--	--	2.7	--	2.7	--
Fresh Emergent Wetland	0.02	--	--	--	0.02	--
Grain and Hay Crops	160.1	116.6	--	--	276.7	3.5
Semi-Agricultural	27.1	6.2	--	0.01	33.4	1.6
Truck Crops	140.7	9.7	--	--	150.3	3.1
Urban	7.9	--	2.3	--	10.2	--
Urban Ruderal	0.2	1.3	1.3	0.7	3.5	0.03
Valley Foothill Riparian [1]	5.9	--	0.2	2.1	8.3	1.4
Vegetated Corridor	1.7	--	1.2	--	3.0	--
Total	369.7	135.1	8.3	2.8	515.9	9.7

^ Indirect impacts are portions of temporarily impacted and avoided areas that are subject to Yolo HCP Land Conversion Fees due to their proximity to permanent impacts, as defined by the Yolo HCP Permitting Guide

[1] Valley Foothill Riparian land cover within a temporary impact area is classified as permanent impact

P:\Village Farms Davis - 23065\Maps\MXDs\MXDs_BRA\Figure_10_PrefAlt_LCImpacts_VillageFarms_BRA_v3.mxd (12/12/2024)

N

Feet

0 600

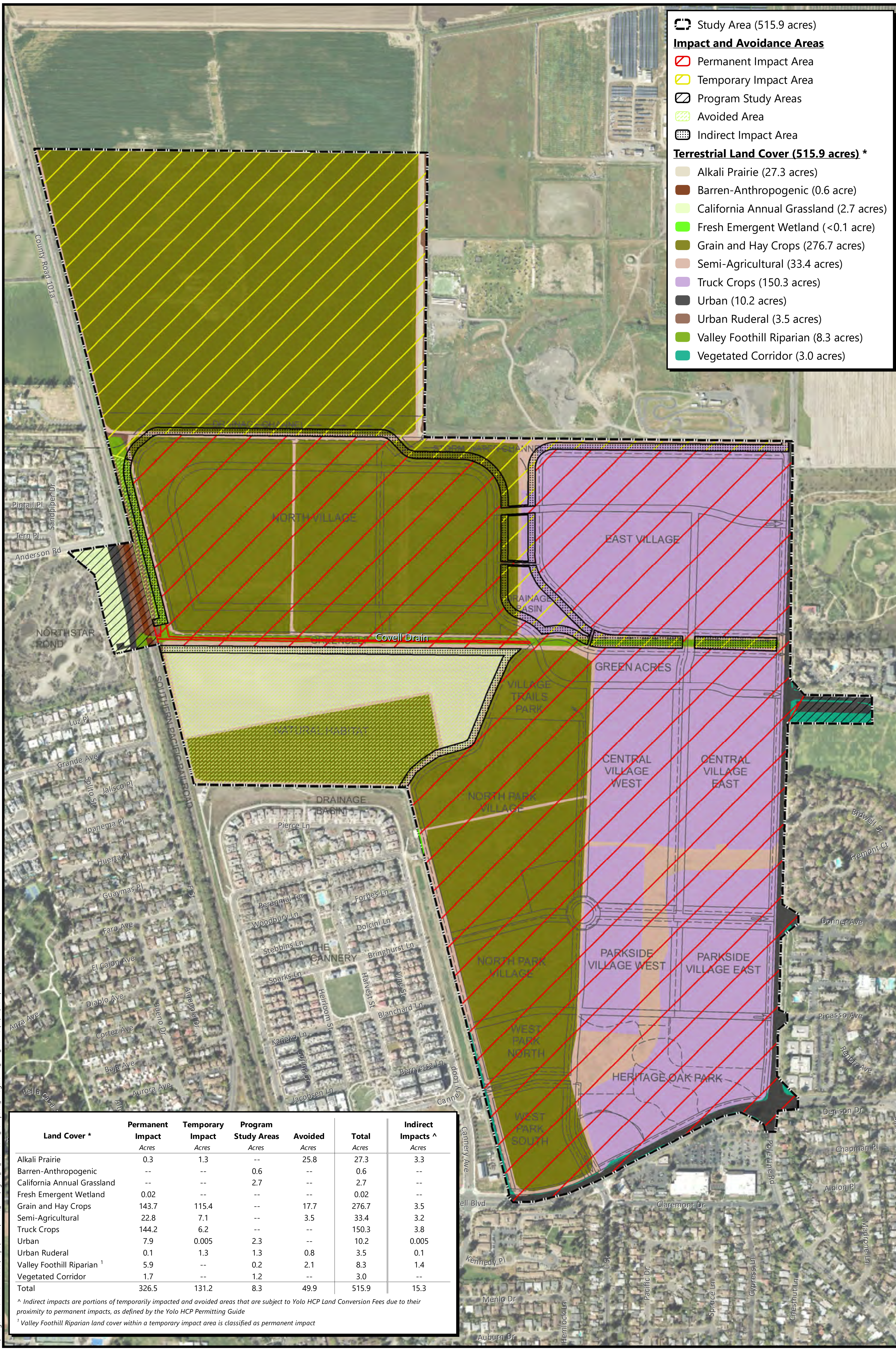
** Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Figure 10
Land Cover Impacts Associated with the Proposed Project Alternative

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING



Land Cover *	Permanent Impact	Temporary Impact	Program Study Areas	Avoided	Total	Indirect Impacts ^
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Alkali Prairie	0.3	1.3	--	25.8	27.3	3.3
Barren-Anthropogenic	--	--	0.6	--	0.6	--
California Annual Grassland	--	--	2.7	--	2.7	--
Fresh Emergent Wetland	0.02	--	--	--	0.02	--
Grain and Hay Crops	143.7	115.4	--	17.7	276.7	3.5
Semi-Agricultural	22.8	7.1	--	3.5	33.4	3.2
Truck Crops	144.2	6.2	--	--	150.3	3.8
Urban	7.9	0.005	2.3	--	10.2	0.005
Urban Ruderal	0.1	1.3	1.3	0.8	3.5	0.1
Valley Foothill Riparian [1]	5.9	--	0.2	2.1	8.3	1.4
Vegetated Corridor	1.7	--	1.2	--	3.0	--
Total	326.5	131.2	8.3	49.9	515.9	15.3

^ Indirect impacts are portions of temporarily impacted and avoided areas that are subject to Yolo HCP Land Conversion Fees due to their proximity to permanent impacts, as defined by the Yolo HCP Permitting Guide

[1] Valley Foothill Riparian land cover within a temporary impact area is classified as permanent impact

P:\Village Farms Davis - 23065\Maps\MXDs\MXDs_BRA\Figure_11_ResPresAlt_LCImpacts_VillageFarms_BRA_v2.mxd (12/12/2024)

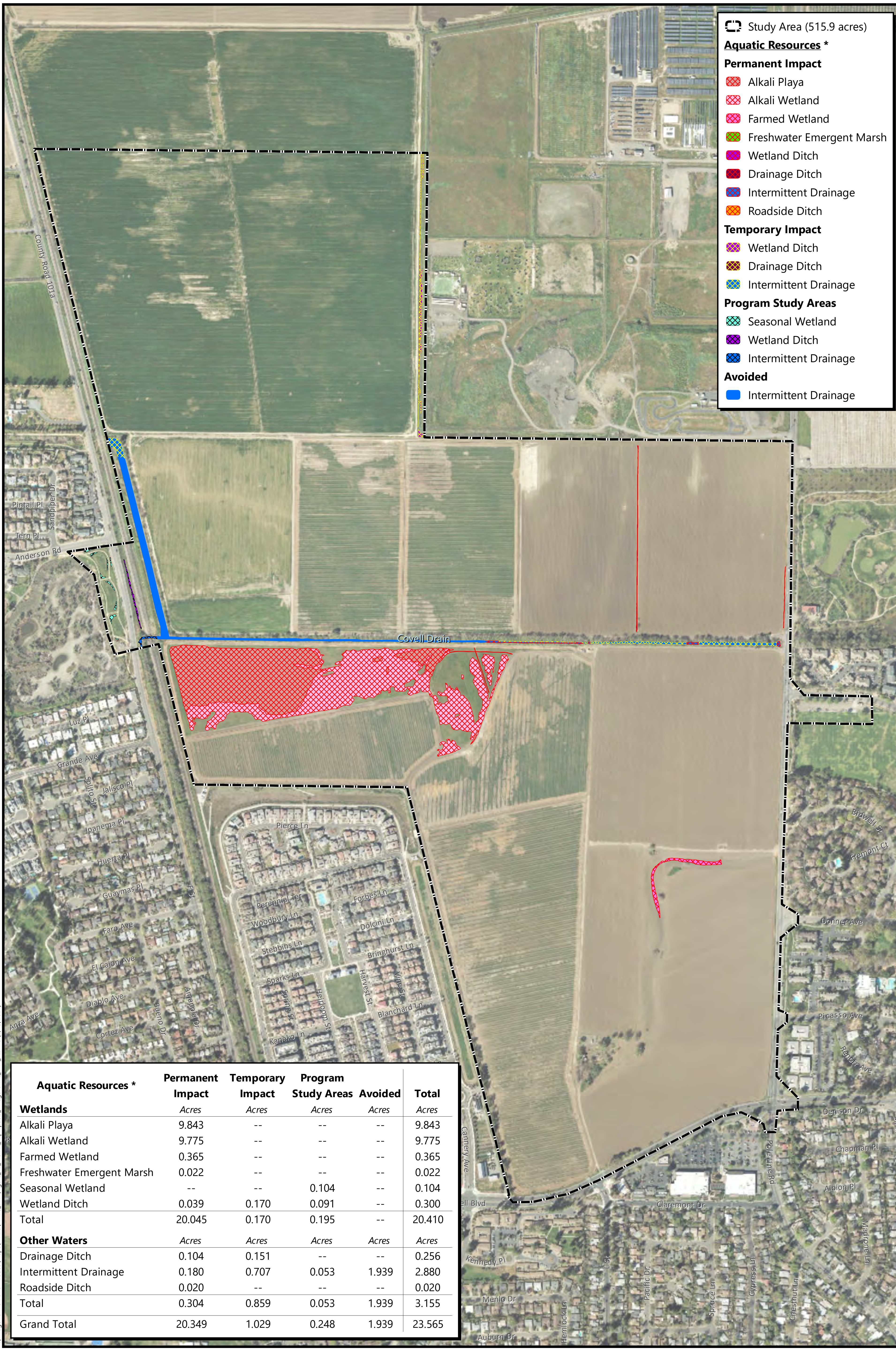
Figure 11
Land Cover Impacts Associated with the Biological Resource Preservation Alternative

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

** Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022



Aquatic Resources *	Permanent Impact	Temporary Impact	Program Study Areas	Avoided	Total
Wetlands	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Alkali Playa	9.843	--	--	--	9.843
Alkali Wetland	9.775	--	--	--	9.775
Farmed Wetland	0.365	--	--	--	0.365
Freshwater Emergent Marsh	0.022	--	--	--	0.022
Seasonal Wetland	--	--	0.104	--	0.104
Wetland Ditch	0.039	0.170	0.091	--	0.300
Total	20.045	0.170	0.195	--	20.410
Other Waters	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Drainage Ditch	0.104	0.151	--	--	0.256
Intermittent Drainage	0.180	0.707	0.053	1.939	2.880
Roadside Ditch	0.020	--	--	--	0.020
Total	0.304	0.859	0.053	1.939	3.155
Grand Total	20.349	1.029	0.248	1.939	23.565

P:\Village Farms Davis - 23065\Maps\MXDs\MXDs_BRA\Figure_12_PrefAlt_AqImpacts_VillageFarms_BRA_v2.mxd (9/13/2024)

N

Feet

0 600

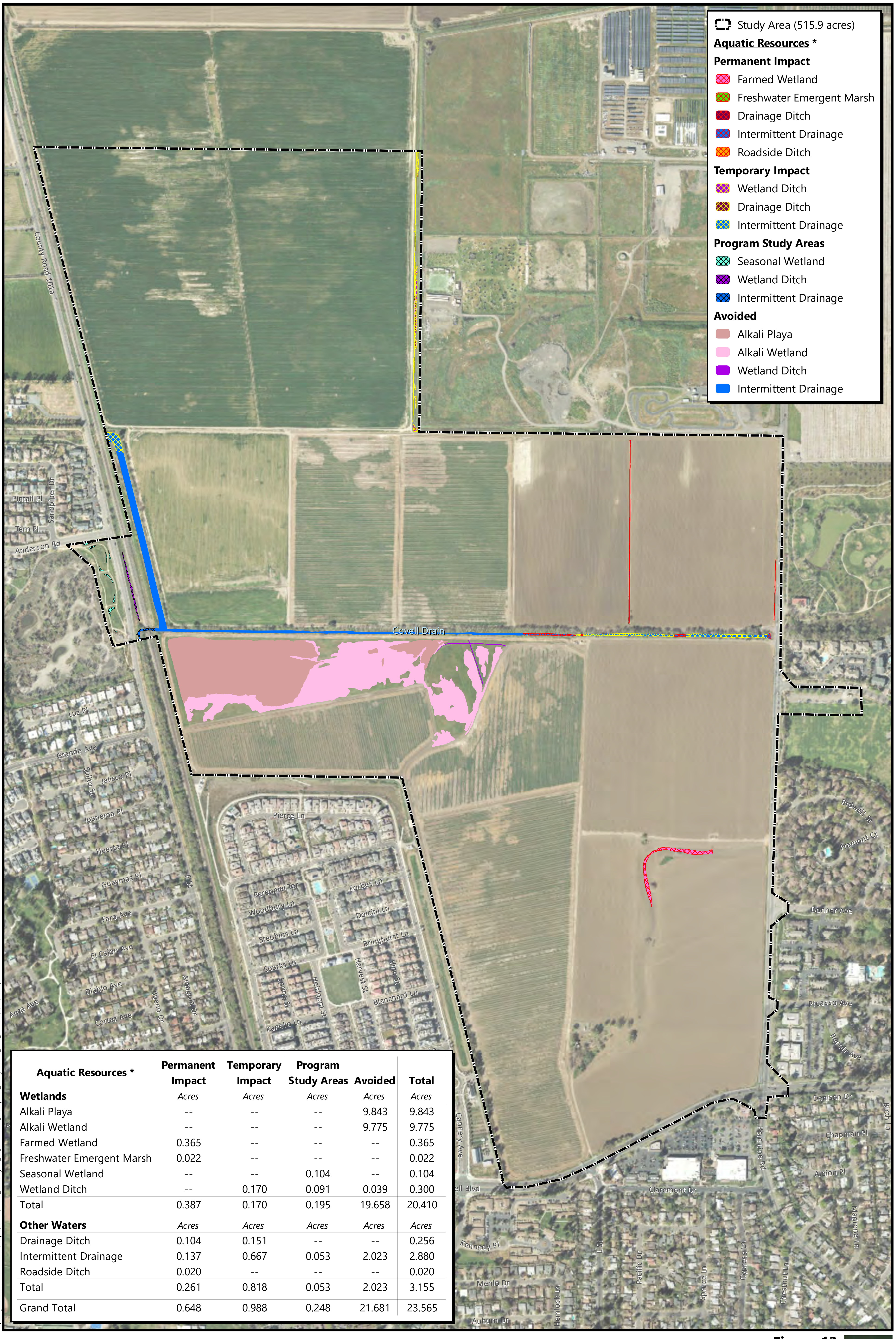
** Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Figure 12
Aquatic Resource Impacts Associated with the Proposed Project Alternative

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING



Aquatic Resources *	Permanent Impact	Temporary Impact	Program Study Areas	Avoided	Total
Wetlands	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Alkali Playa	--	--	--	9.843	9.843
Alkali Wetland	--	--	--	9.775	9.775
Farmed Wetland	0.365	--	--	--	0.365
Freshwater Emergent Marsh	0.022	--	--	--	0.022
Seasonal Wetland	--	--	0.104	--	0.104
Wetland Ditch	--	0.170	0.091	0.039	0.300
Total	0.387	0.170	0.195	19.658	20.410
Other Waters	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Drainage Ditch	0.104	0.151	--	--	0.256
Intermittent Drainage	0.137	0.667	0.053	2.023	2.880
Roadside Ditch	0.020	--	--	--	0.020
Total	0.261	0.818	0.053	2.023	3.155
Grand Total	0.648	0.988	0.248	21.681	23.565

P:\Village Farms Davis - 23065\Maps\MXDs\MXDs_BRA\Figure 13_ResPresAlt_AqImpacts_VillageFarms_BRA_v1.mxd (9/13/2024)

N

Feet

0 600

** Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Figure 13
Aquatic Resource Impacts Associated with the Biological Resource Preservation Alternative

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis - 23065\Maps\MXDs\MXDs_BRA\Figure_14_PrefAlt_SpeciesImpacts_VillageFarms_BRA_v2.mxd (8/6/2024)

N

Feet

0 600

Figure 14
Special-Status Species Impacts Associated with the Proposed Project Alternative

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

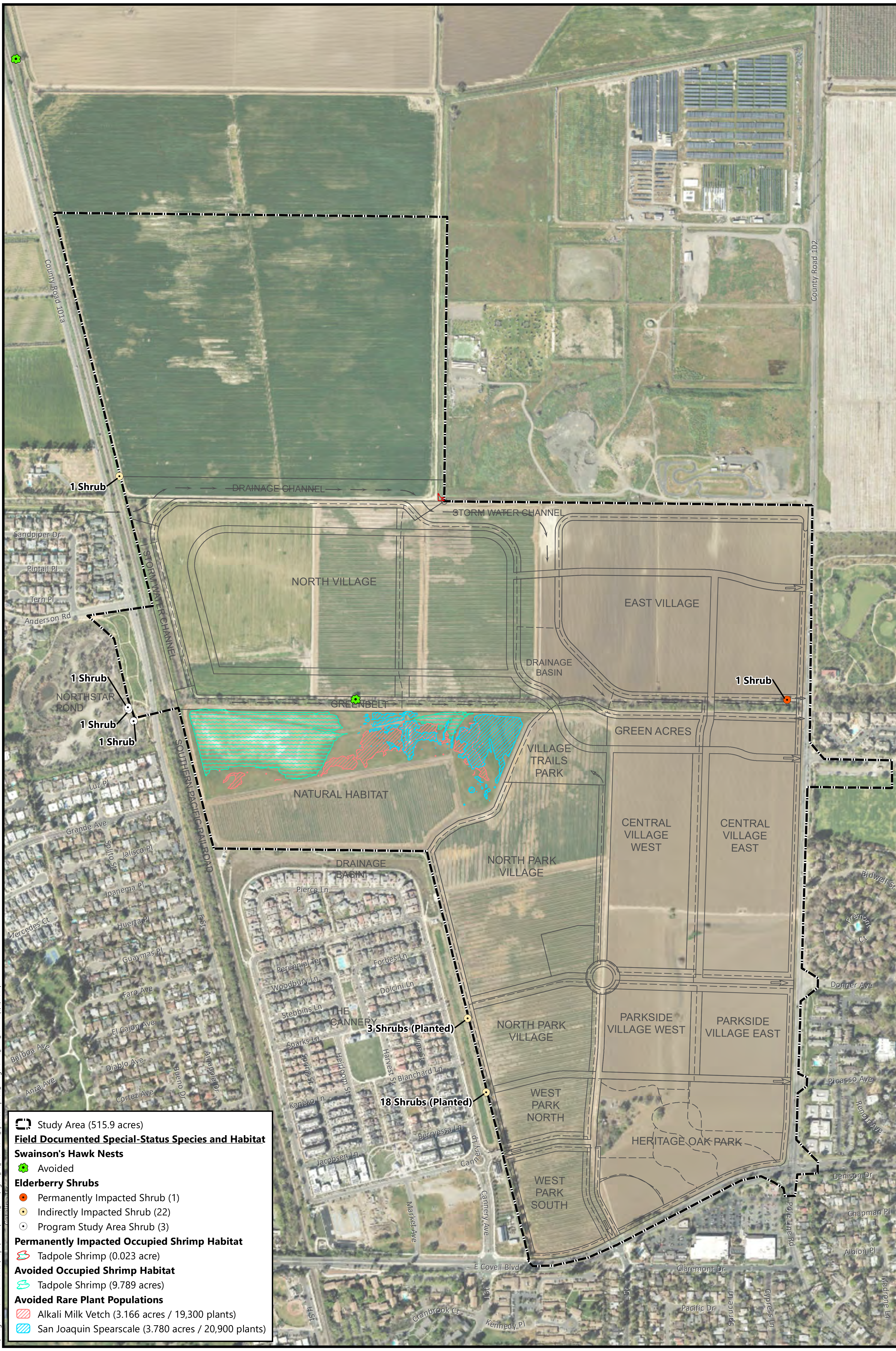


Figure 15
Special-Status Species Impacts Associated with the Biological Resource Preservation Alternative

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Attachments

Attachment A. Proposed Project Alternative Land Use Plan

Attachment B. Biological Resource Preservation Alternative Land Use Plan

Attachment C. IPaC Trust Resource Report for the Study Area

Attachment D. CNPS Inventory of Rare and Endangered Plants Query for the "Davis, California" USGS Quadrangle and Eight Surrounding Quadrangles

Attachment E. Wildlife List

Attachment F. 2022-2023 Wet Season and Dry Season Branchiopod Survey 90-Day Report for Village Farms Davis

Attachment G. Burrowing Owl Survey Report for Village Farms Davis

Attachment H. Swainson's Hawk Survey Report for Village Farms Davis

Attachment I. Arborist Survey Report for Village Farms Davis

Attachment J. Giant Garter Habitat Assessment for Village Farms Davis

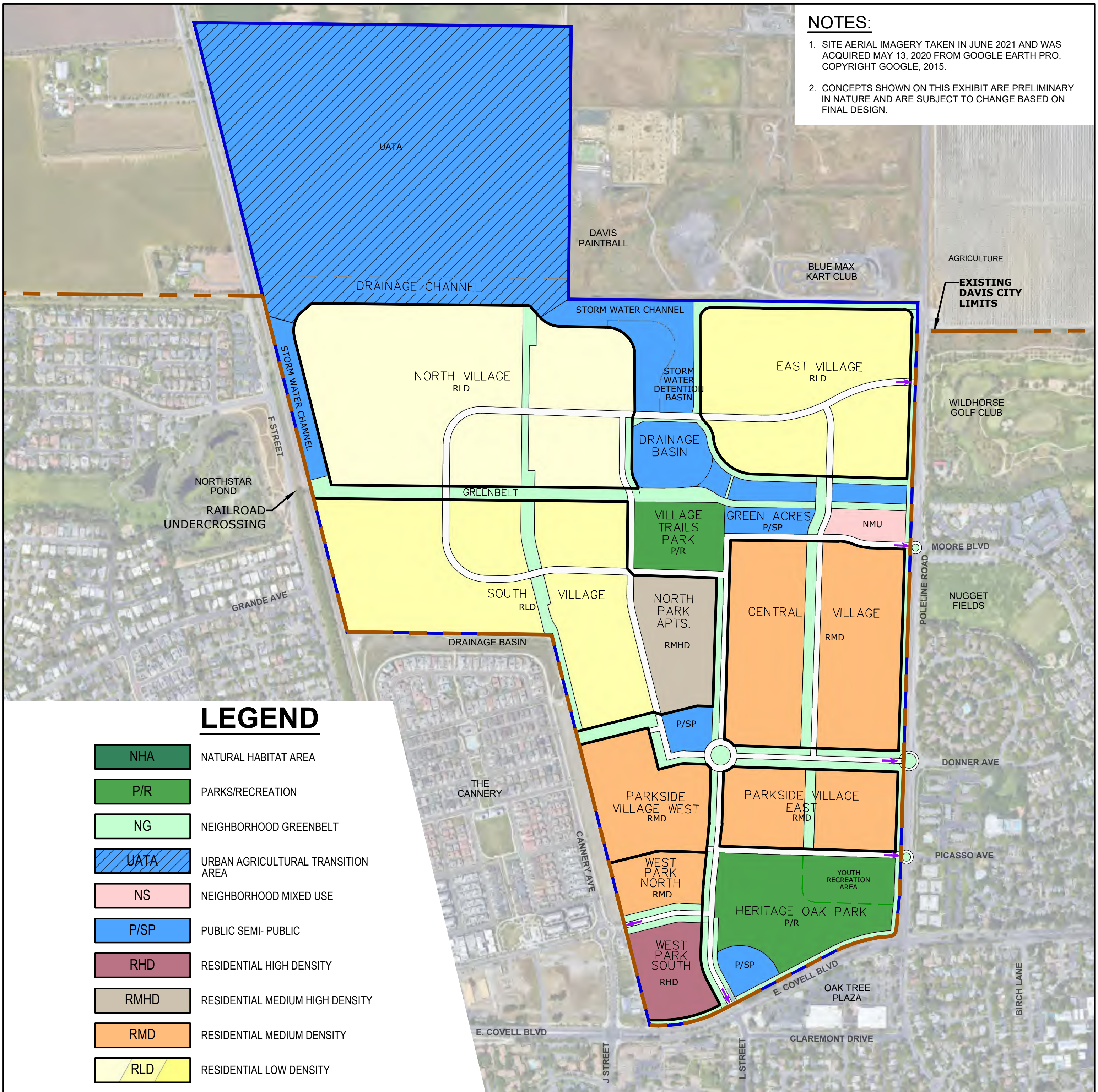
Attachment K. Tree Inventory Exhibit

Attachment L. Tree Impact Exhibits

Attachment M. Yolo HCP Avoidance and Minimization Measures

Attachment A

Proposed Project Alternative
Land Use Plan



NOTES:

1. SITE AERIAL IMAGERY TAKEN IN JUNE 2021 AND WAS ACQUIRED MAY 13, 2020 FROM GOOGLE EARTH PRO. COPYRIGHT GOOGLE, 2015.
2. CONCEPTS SHOWN ON THIS EXHIBIT ARE PRELIMINARY IN NATURE AND ARE SUBJECT TO CHANGE BASED ON FINAL DESIGN.

LEGEND

NHA	NATURAL HABITAT AREA
P/R	PARKS/RECREATION
NG	NEIGHBORHOOD GREENBELT
UATA	URBAN AGRICULTURAL TRANSITION AREA
NS	NEIGHBORHOOD MIXED USE
P/SP	PUBLIC SEMI- PUBLIC
RHD	RESIDENTIAL HIGH DENSITY
RMHD	RESIDENTIAL MEDIUM HIGH DENSITY
RMD	RESIDENTIAL MEDIUM DENSITY
RLD	RESIDENTIAL LOW DENSITY
	MAJOR ROADS
	DAVIS CITY LIMITS
	PROPERTY BOUNDARY/USE AREA

NORTH VILLAGE	NEIGHBORHOOD NAME
RLD	LAND USE DESIGNATION

CUNNINGHAM ENGINEERING

VILLAGE FARMS DAVIS

LAND USE PLAN

0 500 1000

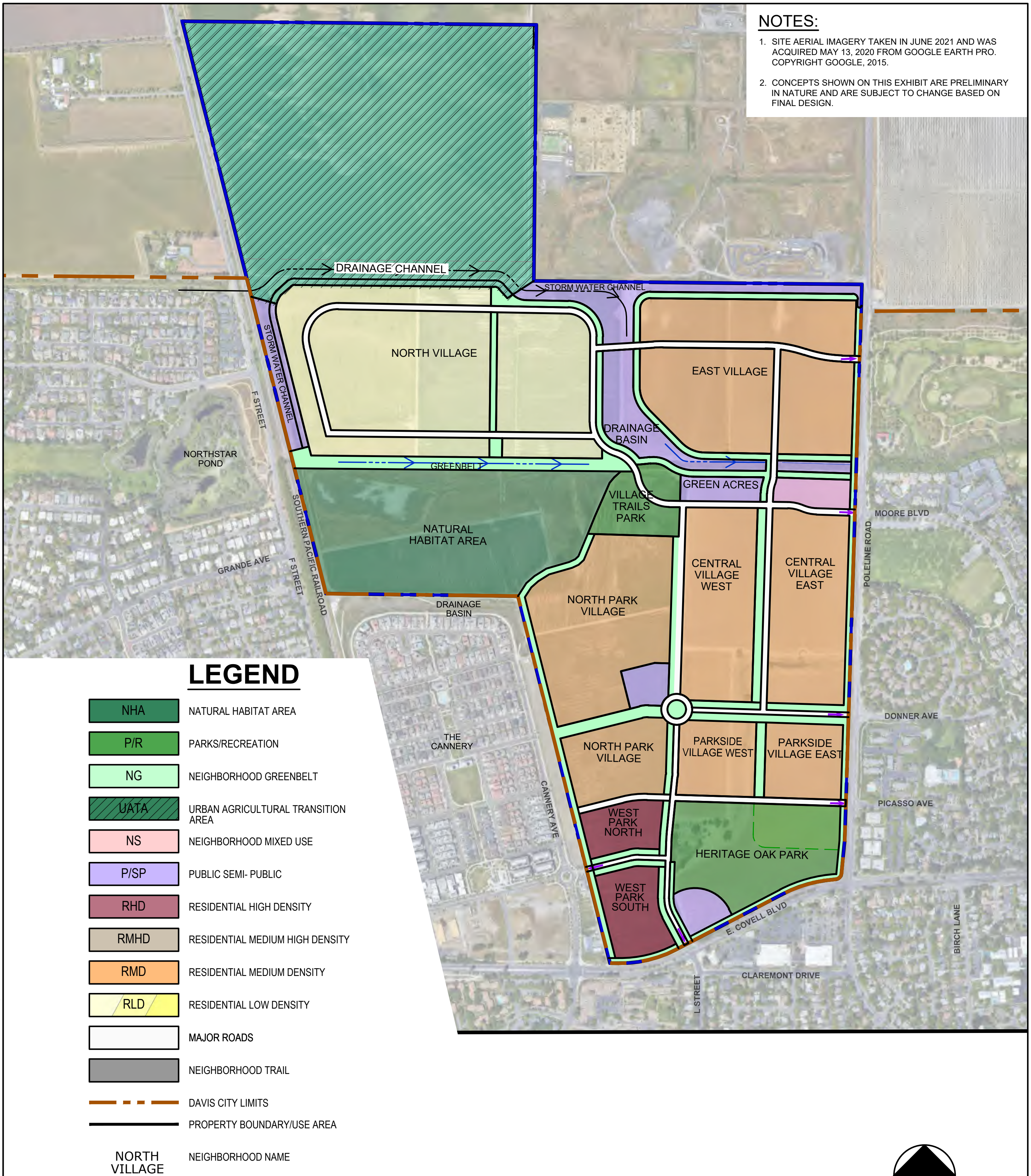
SCALE: 1" = 1000'

DATE: 04/25/24

S:\Projects\1900\1902 Village Farms\AutoCAD\1902-01 Due Diligence\EXHIBITS\LUP\1902-01 LUP.dwg – 8.5x11 6/26/2024 – 3:18PM Plotted by: Brian

Attachment B

Biological Resource Preservation Alternative
Land Use Plan



CUNNINGHAM ENGINEERING

VILLAGE FARMS DAVIS - BIOLOGICAL RESOURCE PRESERVATION ALTERNATIVE LAND USE PLAN

0 500 1000
SCALE: 1" = 1000'

DATE: 06/21/24

S:\Projects\1900\1902 Village Farms\AutoCAD\1902-01 Due Diligence\EXHIBITS - ALTERNATIVE 1\LUP-ALT 1\1902-01 LUP-ALT 1.dwg - 8.5x11 - 6/26/2024 - 2:22PM Plotted by: Brian

Attachment C

IPaC Trust Resource Report for the Study Area

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.

NOT FOR CONSULTATION

Location

Yolo 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

NOT FOR CONSULTATION

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] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

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. IPaC only shows species that are regulated by USFWS (see FAQ).

NOT FOR CONSULTATION

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Birds

NAME	STATUS
Western Snowy Plover *Charadrius nivosus nivosus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened
Northwestern Pond Turtle *Actinemys marmorata* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

NOT FOR CONSULTATION

Western Spadefoot Spea hammondii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp Branchinecta conservatio Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

NOT FOR CONSULTATION

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.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON

NOT FOR CONSULTATION

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

NOT FOR CONSULTATION

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

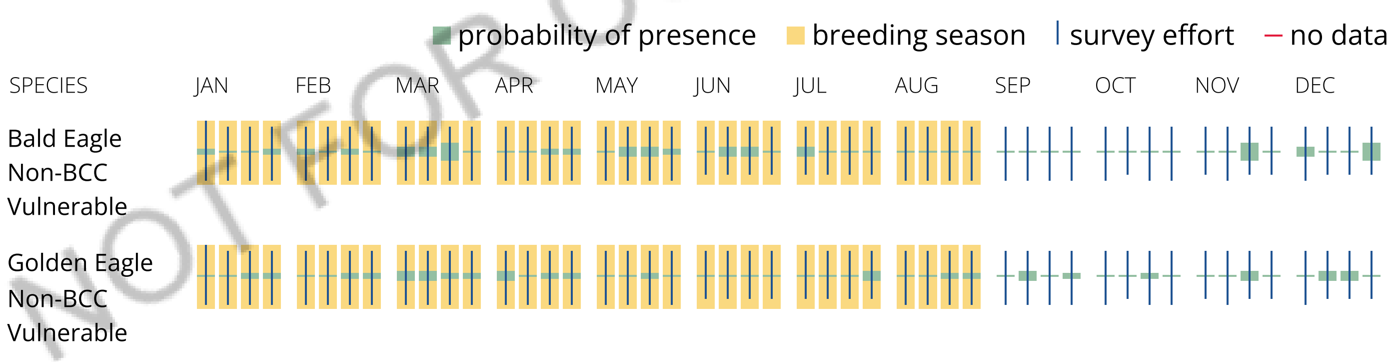
Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network (AKN)]. The AKN data is based on a growing collection of [survey, banding, and citizen science datasets] and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act] requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator (RAIL) Tool].

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

NOT FOR CONSULTATION

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Black Swift Cypseloides niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10

NOT FOR CONSULTATION

Black Tern Chlidonias niger — Breeds May 15 to Aug 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3093

Black Turnstone Arenaria melanocephala — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cassin's Finch Carpodacus cassinii — Breeds May 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9462

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

NOT FOR CONSULTATION

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Mountain Plover Charadrius montanus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

NOT FOR CONSULTATION

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Willet Tringa semipalmata — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events

NOT FOR CONSULTATION

for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

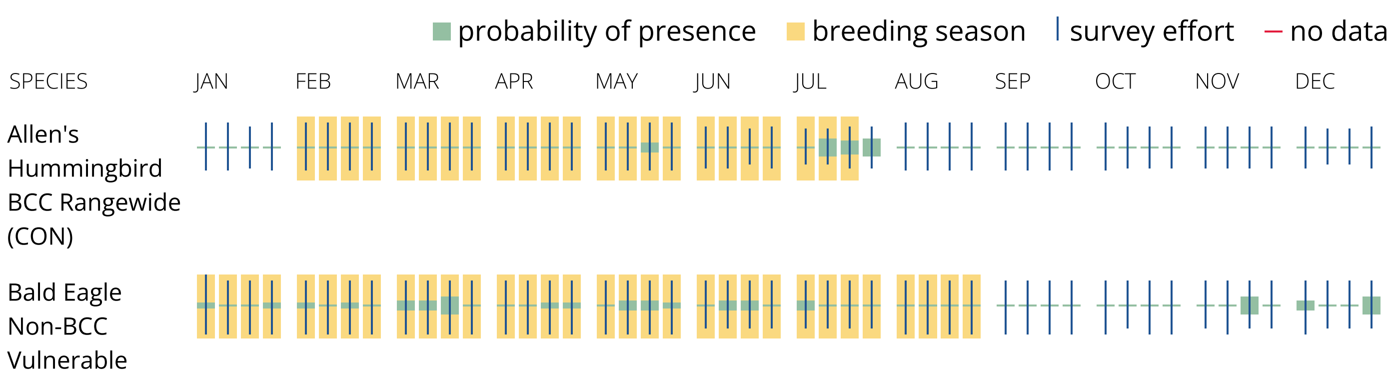
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION

Belding's Savannah Sparrow
BCC - BCR

Black Swift
BCC Rangewide (CON)

Black Tern
BCC Rangewide (CON)

Black Turnstone
BCC Rangewide (CON)

Bullock's Oriole
BCC - BCR

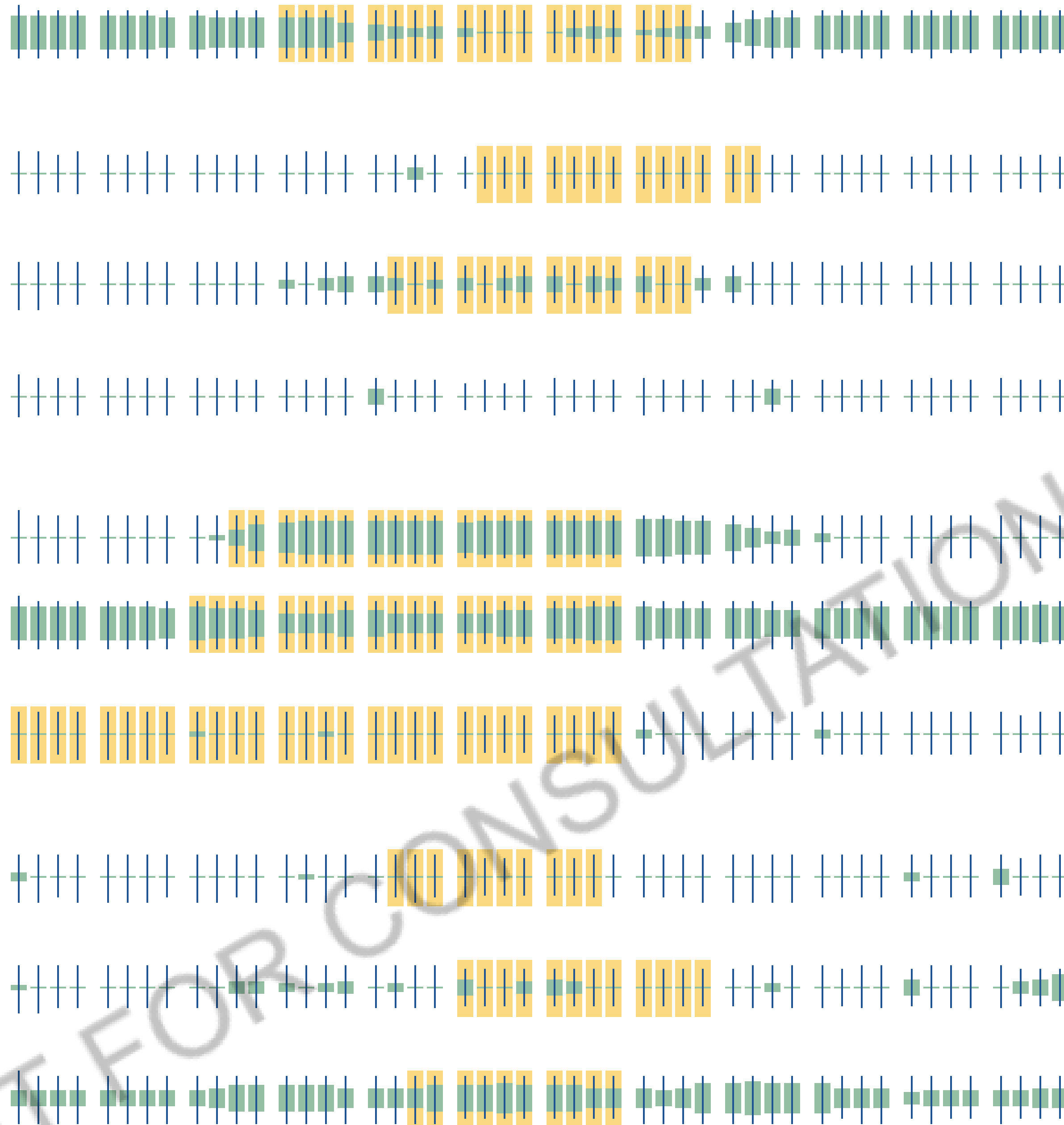
California Gull
BCC Rangewide (CON)

California Thrasher
BCC Rangewide (CON)

Cassin's Finch
BCC Rangewide (CON)

Clark's Grebe
BCC Rangewide (CON)

Common Yellowthroat
BCC - BCR



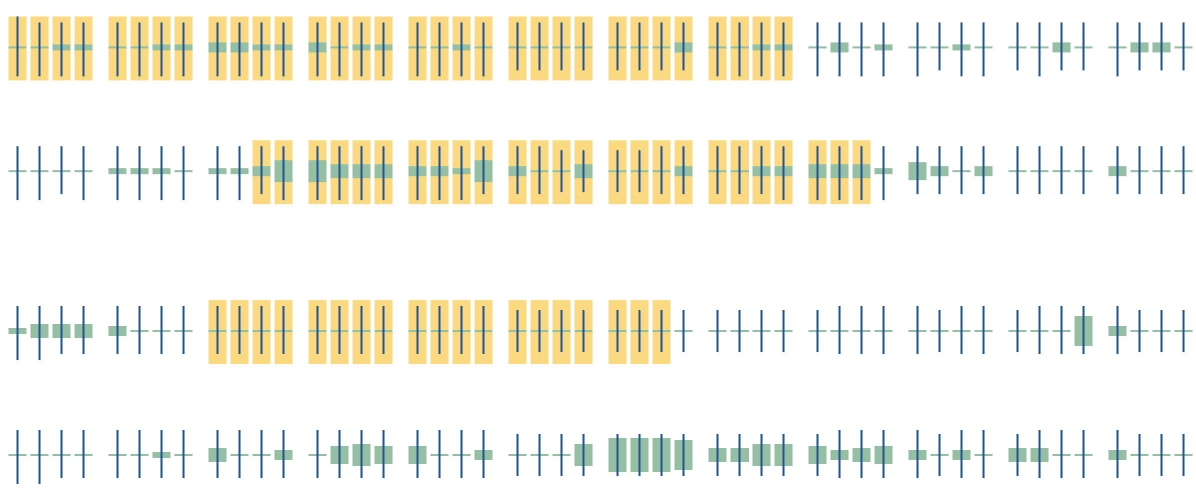
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Golden Eagle
Non-BCC Vulnerable

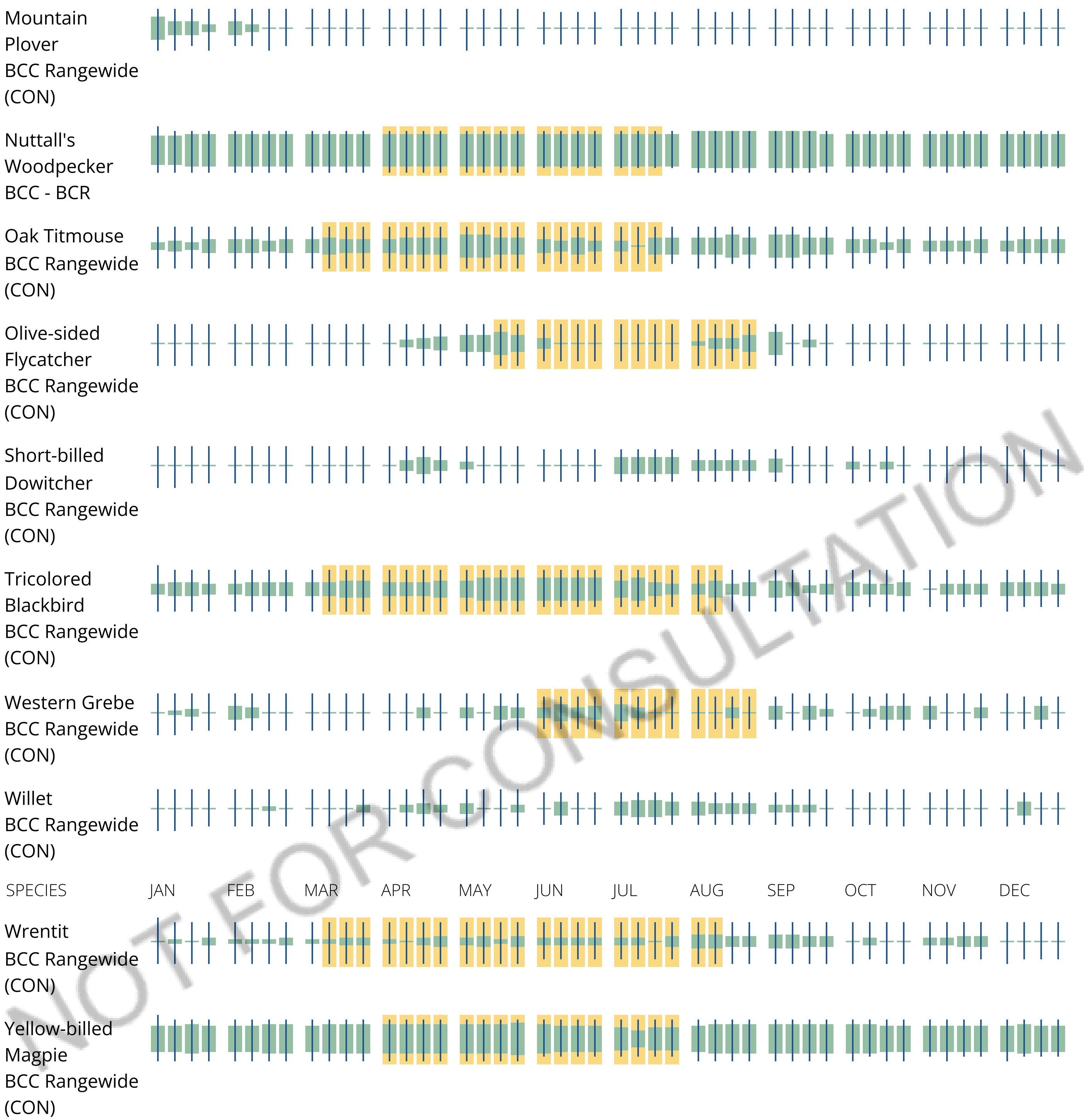
Lawrence's Goldfinch
BCC Rangewide (CON)

Long-eared Owl
BCC Rangewide (CON)

Marbled Godwit
BCC Rangewide (CON)



NOT FOR CONSULTATION



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

NOT FOR CONSULTATION

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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 NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

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

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

NOT FOR CONSULTATION

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1Kx
- PEM1A
- PEM1Ax

FRESHWATER FORESTED/SHRUB WETLAND

- PFOAx

FRESHWATER POND

PUSKx

RIVERINE

R2UBFx

R5UBFx

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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.

NOT FOR CONSULTATION

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.

Attachment D

CNPS Inventory of Rare and Endangered Plants Query for the “Davis, California” USGS Quadrangle and Eight Surrounding Quadrangles

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

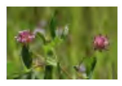
Search Results

23 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3**] , 9-Quad include [**3812155:3812165:3812145:3812147:3812167:3812157:3812166:3812156:3812146**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	Yes	1994-01-01	No Photo Available
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2009 Zoya Akulova
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1		1994-01-01	 Dean Wm. Taylor 1997
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 © 2016 John Doyen
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	2016-09-13	No Photo Available

Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2G3	S2S3	1B.2	Yes	1974-01-01	 © 2015 Steve Matson
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	None	None	G4T1	S1	1B.2	Yes	1994-01-01	 2018 Jennifer Buck
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	Yes	1994-01-01	 © 2015 Aaron Schusteff
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
Neostapfia colusana	Colusa grass	Poaceae	annual herb	May-Aug	FT	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	No Photo Available
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available

Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001-01-01	 © 2005 Dean Wm Taylor
Tuctoria mucronata	Crampton's tuctoria or Solano grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

Showing 1 to 23 of 23 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 12 January 2024].

Attachment E

Wildlife List

Wildlife Species Observed within the Village Farms Davis Study Area
23 and 25 August, 3 October, 7 November, and 14 December 2023; and 17 and 23 January, 7 February, 21 and 26 March; 3, 4, 9, 11, 12, 19, and 22 April 2024

Species Name	Common name
Birds	
Aeronautes saxatalis	White-throated swift
Agelaius phoeniceus	Red-winged blackbird
Aix sponsa	Wood duck
Anas platyrhynchos	Mallard
Anser albifrons	Greater white-fronted goose
Anthus rubescens	American pipit
Aphelocoma californica	California scrub jay
Ardea alba	Great egret
Ardea herodias	Great blue heron
Branta canadensis	Canada goose
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Buteo swainsoni	Swainson's hawk
Calypte anna	Anna's hummingbird
Cathartes aura	Turkey vulture
Charadrius vociferus	Killdeer
Circus hudsonius	Northern harrier
Cistothorus palustris	Marsh wren
Colaptes auratus	Northern flicker
Columba livia	Rock pigeon
Corthylio calendula	Ruby-crowned kinglet
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Dryobates nuttallii	Nuttall's woodpecker
Dryobates pubescens	Downy woodpecker
Elanus leucurus	White-tailed kite
Euphagus cyanocephalus	Brewer's blackbird
Falco sparverius	American kestrel
Gallinago delicata	Wilson's snipe
Haemorhous mexicanus	House finch
Hirundo rustica	Barn swallow
Icterus bullockii	Bullock's oriole
Junco hyemalis	Dark-eyed junco
Larus delawarensis	Ring-billed gull

Wildlife Species Observed within the
Village Farms Davis Study Area
23 and 25 August, 3 October, 7 November, and 14 December 2023; and
17 and 23 January, 7 February, 21 and 26 March;
3, 4, 9, 11, 12, 19, and 22 April 2024

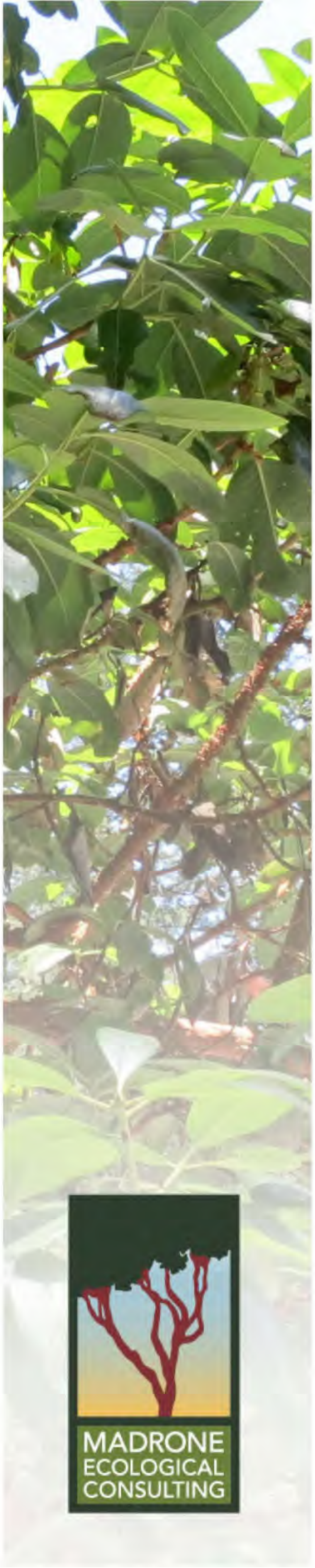
Species Name	Common name
Meleagris gallopavo	Wild turkey
Melozone crissalis	California towhee
Mimus polyglottos	Northern mockingbird
Molothrus ater	Brown-headed cowbird
Passer domesticus	House sparrow
Passerculus sandwichensis	Savannah sparrow
Petrochelidon pyrrhonota	Cliff swallow
Pica nuttalli	Yellow-billed magpie
Psaltriparus minimus	Bushtit
Quiscalus mexicanus	Great-tailed grackle
Regulus calendula	Ruby-crowned kinglet
Sayornis nigricans	Black phoebe
Sayornis saya	Say’s phoebe
Setophaga coronata	Yellow-rumped warbler
Sialia mexicana	Western bluebird
Spatula clypeata	Northern shoveler
Spinus psaltria	Lesser goldfinch
Spinus tristis	American goldfinch
Sturnella neglecta	Western meadowlark
Sturnus vulgaris	European starling
Tachycineta bicolor	Tree swallow
Thryomanes bewickii	Bewick’s wren
Tringa melanoleuca	Greater yellowlegs
Troglodytes aedon	House wren
Tyrannus verticalis	Western kingbird
Zenaida macroura	Mourning dove
Zonotrichia atricapilla	Golden-crowned sparrow
Zonotrichia leucophrys	White-crowned sparrow
Mammals	
Canis latrans	Coyote
Lepus californicus	Black-tailed jackrabbit
Otospermophilus beecheyi	California ground squirrel
Sciurus griseus	Western gray squirrel
Sylvilagus audubonii	Desert cottontail

Wildlife Species Observed within the
Village Farms Davis Study Area
23 and 25 August, 3 October, 7 November, and 14 December 2023; and
17 and 23 January, 7 February, 21 and 26 March;
3, 4, 9, 11, 12, 19, and 22 April 2024

Species Name	Common name
Reptiles	
Sceloporus occidentalis	Western fence lizard
Amphibians	
Anaxyrus boreas	Western toad
Pseudacris sierrae	Sierran chorus frog

Attachment F

2022-2023 Wet Season and Dry Season Branchiopod Survey 90-Day Report for Village Farms Davis



2023-2024 Dry-Season & Wet-Season Branchiopod Survey 90-Day Report

Village Farms Davis
(RP-Village Farms-2023-1019)

Yolo County, California
28 June 2024

I certify that the information in this survey report and attached exhibits fully and accurately represents my work:

Dustin Brown

Prepared for:

North Davis Land Company, LLC
3500 Anderson Road
Davis, CA 95616

Recommended Citation:

Madrone Ecological Consulting, Inc. (Madrone). 2024. *2023-2024 Dry-Season & Wet-Season Branchiopod Survey 90-Day Report, Village Farms Davis (RP-Village Farms-2023-1019)*. Prepared for North Davis Land Company, LLC. Published on 28 June 2024.

CONTENTS

2023-2024 Dry-Season & Wet-Season Branchiopod Survey 90-Day Report Village Farms Davis

1.0 OBJECTIVE

The purpose of this report is to summarize the results of protocol-level surveys for listed large vernal pool branchiopods conducted by Madrone Ecological Consulting (Madrone) within the Village Farms Davis Project Area (Study Area) during the 2023-2024 dry-season and wet-season. Target species included the federally endangered conservancy fairy shrimp (*Branchinecta conservatio*) and vernal pool tadpole shrimp (*Lepidurus packardi*), as well as the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*). Dry-season and wet-season surveys were conducted under the authority of U.S. Fish and Wildlife Service (USFWS) Recovery Permits for Dustin Brown (TE85084C-0) of Section 10(a)(1)(A) of the ESA, 16 U.S. Code 1531 et seq. and in accordance with the 13 November 2017 *Survey Guidelines for the Listed Large Branchiopods* (Guidelines) (USFWS 2017). Authorization to conduct dry-season and wet-season surveys was issued by the USFWS via e-mail to Dustin Brown on 19 October 2023 under USFWS reference number RP-Village Farms-2023-1019.

2.0 LOCATION

The approximately 515.9-acre Study Area is located largely north of Covell Boulevard, east of County Road 101A, and west of Pole Line Road in north Davis, Yolo County, California. The Study Area is located in portions of Sections 33-34, Township 9 North, Range 2 East, and Sections 2-3, 10 Township 8 North, Range 2 East (MDB&M) of the "Davis, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

3.0 METHODS AND MATERIALS

All potential large vernal pool branchiopod habitat was sampled within the Study Area. Potential habitat for federally listed large branchiopods is defined as any seasonally inundated depression that, on average, ponds water at a sufficient depth and duration for a listed large branchiopod to complete its lifecycle. Habitats that swiftly flow water (e.g., creeks, streams, ditches, and ephemeral drainages) or habitats that are semi-to-permanently inundated and support perennial populations of predators (e.g., bullfrogs, fish, and crayfish) generally do not provide suitable habitat for listed large branchiopods (USFWS 2017). **Figure 2** shows all potential branchiopod habitat within the Study Area.

3.1 Dry-Season Survey

Dry soil/substrate was collected from the top 1 to 3 centimeters with a hand spade from the lowest topographic areas within each sampled feature. Wherever possible, substrate samples were collected in chunks to avoid damaging branchiopod eggs. The number and volume of soil/substrate samples collected was proportionate to the size of the sampled feature pursuant with the requirements summarized in Table 1 of the Guidelines (USFWS 2017). Soil/substrate samples were transferred to liter-sized plastic bags and marked with the project name, aquatic feature number, and collection date for transport to Madrone's laboratory. Madrone senior biologist Dustin Brown collected soil samples on 26 October 2023 and 18 June

2024 from 26 potential habitat features including wetland ditches, seasonal wetlands, alkali playas, a farmed wetland, and four additional habitat features that ponded water or appeared to be potential habitat but were not on the aquatic resources map for the Study Area. Mr. Brown processed the soil samples in the lab by stirring non-iodized salt with lukewarm tap water in a large container. Soils/substrate samples collected from each aquatic feature were individually placed into the brine solution, and manually worked by hand to reduce soil structure. Floating organic material was decanted into either a 710-micron-diameter pore-size sieve stacked atop a 150-micron-diameter pore-size sieve. The soil material was processed through the top sieve by flushing it with lukewarm tap water while gently rubbing it with a soft-bristle brush. The organic material retained from the 150-micron-diameter pore-size sieve was then removed and thinly spread into plastic petri dishes.

All sieved fractions were microscopically inspected for the presence of large branchiopod eggs by Mr. Brown. Soil samples were prepared and inspected pursuant to the Guidelines (USFWS 2017) and the special terms and conditions of Mr. Brown's Take Permit (TE85084C-0). If present, total egg abundance information for each sampled feature was reported in terms of: low abundance (estimate of 1-10 eggs/sampled feature); medium abundance (estimate of 11-50 eggs/sampled feature); and high abundance (estimate of more than 50 eggs/sampled feature).

Scanning electron micrographs of eggs (Gilchrist 1978, Hill and Shepard 1998, Mura 1991) are used to identify and compare any branchiopod eggs observed within the soil samples. Evidence of other aquatic invertebrates encountered was also noted on the lab data sheet. **Attachment A** contains the Dry-Season Lab Data Sheet, which lists sampled aquatic features.

3.2 Wet-Season Survey

Field surveys were conducted by Mr. Brown approximately every 14 days between 12 December 2023 and 30 April 2024, in accordance with the Guidelines (USFWS 2017). All potential habitat was visually inspected for the presence of large vernal pool branchiopods throughout the sampling sessions. Sampling methods for inundated features were implemented as follows. All potential large vernal pool branchiopod habitat was sampled with a 3-foot long dip net equipped with a 8-inch D-ring and 650-micron mesh. Sampling involved making a series of pulls by extending the net out and pulling it back in a sweeping motion. The net was examined for the presence of large vernal pool branchiopods and then cleaned of debris between pulls. The number of pulls made in each feature was commensurate to feature size and ponding depth. In addition, all potential habitat was visually inspected for the presence of large vernal pool branchiopods throughout the sampling sessions. Air temperature, water temperature, and hydrology/ponding was measured and recorded during the sampling sessions. **Attachment B** contains the wet-season data sheets with the above-described field data. **Attachment C** includes photos of the sampled pools.

4.0 GENERAL SITE CONDITIONS AND HABITATS

The Study Area is largely comprised of active agricultural fields with interspersed farm roads. Covell Drain, along with its associated non-native riparian corridor, cuts from east to west across the Study Area. The agricultural fields are planted annually. For the 2024 season, they have been planted in wheat, tomatoes, and corn. One of the fields south of Covell Drain contains a large alkali playa/alkali wetland complex. As a result, this field is not farmed, but vegetation is managed for fire hazard reduction. An additional strip running along much of the northeast boundary of the Study Area (adjacent to the paintball park) has also been mapped as Alkali Prairie. A portion of Covell Drain on the western side of the site is wider than the east-to-west section of Covell Drain, and supports some emergent vegetation. The remainder of Covell Drain is almost entirely unvegetated below the dense riparian canopy. Various areas around most of the edges of the Study Area are occupied by dense non-native forbs. The farm roads within the Study Area are well maintained, as was the mostly demolished rural residence in the southern portion of the Study Area. An extension of the site along the western edge crosses County Road 101A and incorporates an area that was recently restored with native grasses, constructed wetlands, and planted native shrubs. The Study Area is very flat and is almost entirely at approximately 36 to 44 feet above mean sea level.

Surrounding properties to the west, south and east are urban residential, commercial, and a golf course. To the northeast is a recreational paintball park, and the remaining properties to the north are largely agricultural.

Madrone conducted an Aquatic Resources Delineation throughout the Study Area in accordance with U.S. Army Corp of Engineers protocol. The aquatic resources mapped are shown on **Figure 2** as well as four additional habitat features that were sampled during the branchiopod surveys but were not mapped as aquatic resources. These four additional habitat features are not considered aquatic resources by the USACE because they fail to meet the three-criteria definition (hydric soils, hydrophytic vegetation, and wetland hydrology) of a wetland. However, as required by the USFWS protocols, these features were included in the surveys because they ponded during high magnitude and/or prolonged rain events and thus may represent potential habitat for federally-listed vernal pool branchiopods.

A total 26 potential habitat features totaling 11.148 acres were sampled, including four alkali playas, one farmed wetland, nine seasonal wetlands, eight wetland ditches, and four additional habitat features (shown on Figure 2 as AH-1 through 4). The aquatic resources located within the Study Area that are not potential habitat due to high flows during rain events or no ponding of water included one roadside ditch (RD-1), one intermittent drainage (Covell Drain, ID-1), two drainage ditches (DD-1 and 2), one freshwater emergent marsh (FM-1), and six alkali wetlands (AW-1 through 6).

5.0 FINDINGS

Eggs from the federally-endangered vernal pool tadpole shrimp were identified during the dry season survey in two features (WD-6 and AP-2) and vernal pool tadpole shrimp were observed during the wet season surveys within three features (WD-6, AP-2, and AP-1) (**Figure 2**). Occupied habitat for vernal pool tadpole shrimp totaled 9.812 acres. No conservancy fairy shrimp, vernal pool fairy shrimp, or other federally-listed large branchiopods were detected.

Aquatic organisms observed during the dry season surveys included insect exoskeletons, micro-turbellaria cysts, ostracod carapaces, Cladocera eggs, and collembola. Aquatic organisms observed during the wet season included micro-turbellaria, Cladocera, Copepoda, Ostracoda, Dytiscidae, Chironomidae, Culicidae, Corixid, Notonectid, and Sierran treefrog (*Pseudacris sierra*).

6.0 REFERENCES

Eng. L.L., D. Belk, and C.H. Erikson. 1990. *California Anostraca: Distribution, Habitat and Status*. Journal of Crustacean Biology 10(2): 247-277.

Eriksen, C.H., and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas.* Mad River Press, Inc., Eureka, California.

Gilchrist, B. M. 1978. *Scanning electron microscope studies of the egg shell in some Anostraca* (Crustacea: Branchiopod). Cell Tiss. Res. 193: 337-351.

Helm, B. P. 1999. *Feeding ecology of Linderiella occidentalis (Dodds) (Crustacea: Anostraca)*. Doctoral thesis. University of California, Davis. 158 pp.

Hill, R. E., and W. D. Shepard. 1998. *Observation on the identification of California Anostraca cysts*. Hydrobiologia 359: 113-123.

Mura, G. 1991. *SEM morphology of resting eggs in the species of the genus Branchinecta from North America*. J. Crust. Biol. 11: 432-436.

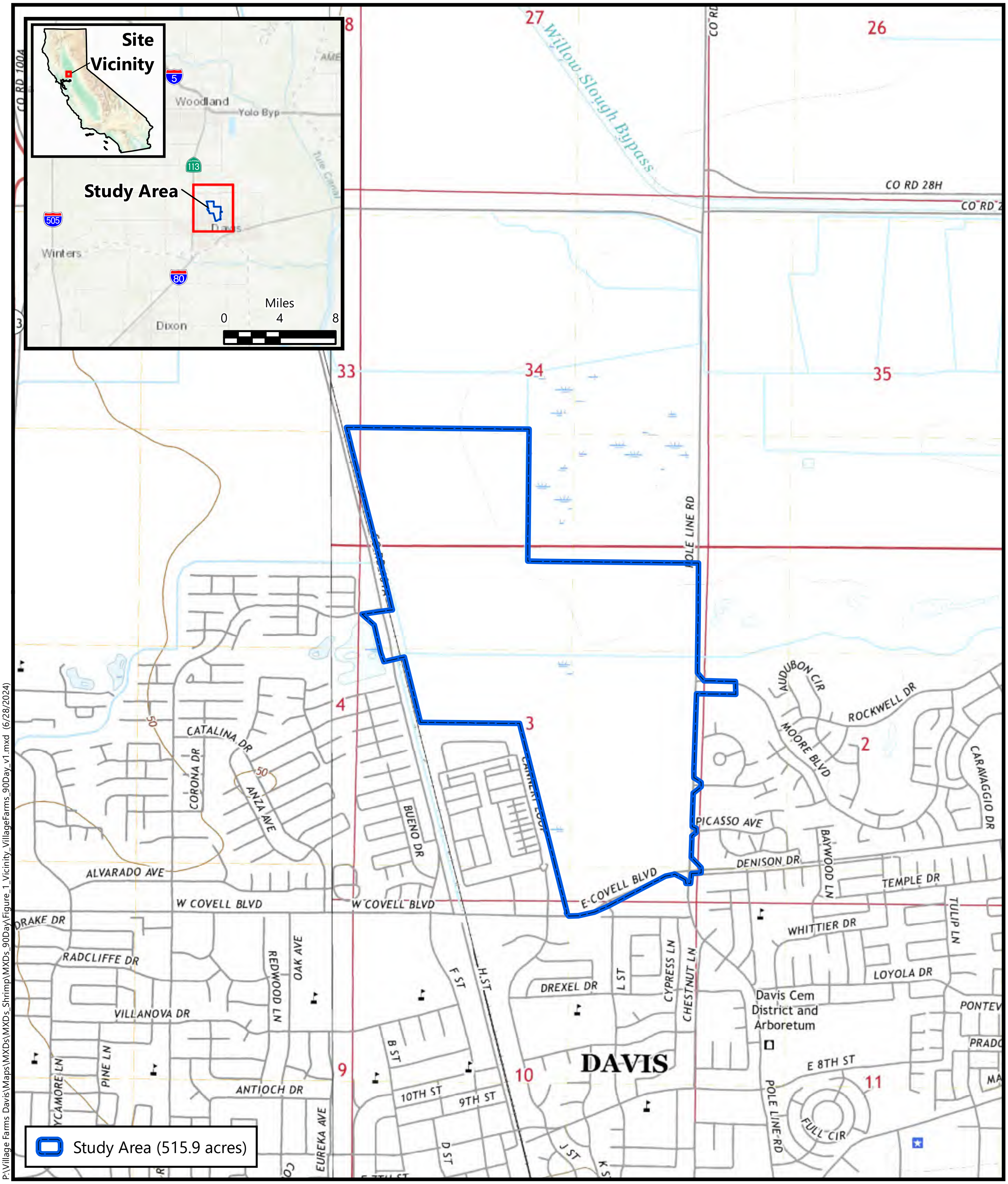
Patton, S.E. 1984. *The Life History Patterns and the Distribution of Two Anostraca*, *Linderiella occidentalis* and *Branchinecta sp.* MS Thesis, California University, Chico. 50 pp.

U.S. Department of the Interior, Geological Survey (USGS). 1978. H*ydrologic Unit Map, State of California*. Geological Survey. Reston, Virginia.

U.S. Geological Survey (USGS). 2021. "*Davis, California" 7.5-Minute Series Topographic Quadrangle Map*. U. S. Geological Survey. Denver, Colorado.

U.S. Department of the Interior, Fish and Wildlife Service. 2017. *Survey Guidelines for the Listed Large Branchiopods.* Sacramento, California. Revised 13 November 2017.

Figures



P:\Village Farms Davis\Maps\MXDs\MXDs_90Day\MXDs_Shrimp\MXDs_90Day\Figure_1_Vicinity_VillageFarms_90Day_v1.mxd (6/28/2024)

N

Feet
0 1,000 2,000

Source: *United States Geologic Survey*, 2021
"Davis, California" 7.5-Minute Topographic Quadrangle
Sections 33-34, Township 9 North, Range 2E, MDBM and
Sections 2-3, 10 Township 8 North, Range 2E, MDBM
Latitude (NAD83): 38.571593°, Longitude (NAD83): -121.738843°

Figure 1
Site and Vicinity

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

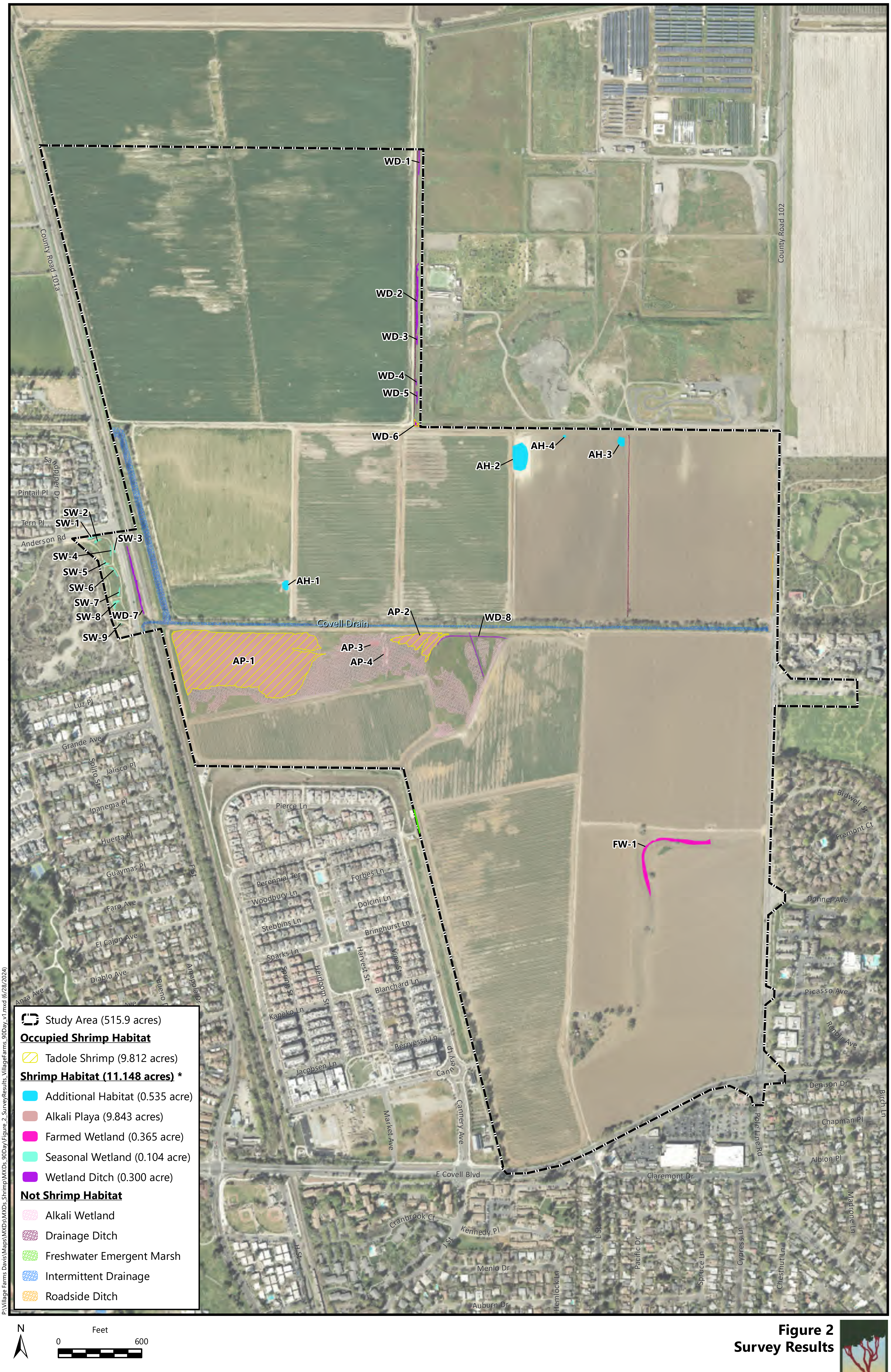


Figure 2
Survey Results

Village Farms Davis
Davis, Yolo County, California

* *Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Attachments

Attachment A

Dry-Season Lab Data Sheet

Dry Season Lab Data Sheet

Project Information		Biologist Information	
Project Name: Village Farms Davis	Quad: Davis, CA	Name of Person(s) Who Conducted the Following Tasks and Permit Number(s):	
USFWS Project Number: BP-Village Farms-2023-1019	Township: 9N, 8N	Soil Collection Conducted By: D. Brown	
County: Yolo	Range: 2E	Soil Processing Conducted By: D. Brown	
Lat: 38.571593	Section: 33-34, 2-3	Soil Analysis/Cysts ID Conducted By: D. Brown	
Long: -121.738843		Soil Collection Date: 10/26/2023, 6/18/2024	Soil Processing Date: 11/22/23, 12/4/23, 6/19/24

	Feature Number	Invertbrates Present (X) Insect Exo-Skeletons	Micro- Turbellaria Cysts	*Cladocera ephippia*	Ostracods Live/Cysts/ Carapaces	Copepods Live/Cysts	Number of Large Branchiopod Eggs *Branchinecta* sp.	*Lepidurus packardi*	*Linderiella occidentalis*	*Lynceus brachyurus*	*Cyzicus californicus*	Hydracarina Live	Nematoda	Collembola	Other Species	Comments
	WD-6	X	X	X	X			X Low Density						X		1ℓ soil, 8 plates
	AH-1	X			X											1ℓ soil, 5 plates
	AH-2	X			X									X		1ℓ soil, 6 plates
	AP-1	X	X	X	X									X		4ℓ soil, 22 plates
	FW-1	X		X	X									X		2ℓ soil, 10 plates
6/18	AP-2	X	X	X	X			X Low Density								1ℓ soil, 8 plates
	AP-3	X	X	X	X									X		1ℓ soil, 6 plates
	AP-4	X	X	X	X											1ℓ soil, 5 plates
	SW-1	X	X	X	X									X		1ℓ soil, 3 plates
	SW-2	X	X	X	X									X		1ℓ soil, 4 plates
6/19	SW-3	X	X	X	X											1ℓ soil, 6 plates
	SW-4	X	X	X	X									X		1ℓ soil, 5 plates
	SW-5	X	X	X	X									X		1ℓ soil, 5 plates
	SW-6	X	X	X	X											1ℓ soil, 4 plates
	SW-7	X	X	X	X									X		1ℓ soil, 6 plates
	SW-8	X	X	X	X									X		1ℓ soil, 4 plates
	SW-9	X	X	X	X											1ℓ soil, 4 plates

Dry Season Lab Data Sheet

Project Information			Biologist Information	
Project Name: Village Farms Davis	Quad: Davis, CA		Name of Person(s) Who Conducted the Following Tasks and Permit Number(s):	
USFWS Project Number: RP-Village Farms-2023-1019	Township: 9N, 8N		Soil Collection Conducted By: D. Brown TE850846-0	
County: Yolo	Range: 2E		Soil Processing Conducted By: D. Brown	
Lat: 38.571593	Section: 33-34, 2-3		Soil Analysis/Cysts ID Conducted By: D. Brown	
Long: -121.738843			Soil Collection Date: 6/18/2024	Soil Processing Date: 6/20/2024

Feature Number	Invertbrates Present (X)														Comments
						Number of Large Branchiopod Eggs									
	Insect Exo-Skeletons	Micro- Turbellaria Cysts	*Cladocera ephippia*	Ostracods Live/Cysts/ Carapaces	Copepods Live/Cysts	*Branchinecta* sp.	*Lepidurus packardi*	*Linderiella occidentalis*	*Lynceus brachyurus*	*Cyzicus californicus*	Hydracarina Live	Nematoda	Collembola	Other Species	
WD-1	X	X	X	X									X		1 l soil, 6 plates
WD-2	X		X	X									X		1 l soil, 4 plates
WD-3	X	X		X									X		1 l soil, 5 plates
WD-4	X	X	X	X									X		1 l soil, 6 plates
WD-5	X	X											X		1 l soil, 5 plates
WD-7	X			X									X		1 l soil, 5 plates
WD-8	X	X											X		1 l soil, 4 plates
AH-3	X	X	X	X											1 l soil, 3 plates
AH-4	X	X	X	X											1 l soil, 3 plates

Attachment B

Wet-Season Data Sheets

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 12/12/2024 **Weather Conditions:** Overcast **Permit #:** TE85084C-0

Start Time: 1010 **Start Air Temperature (°~~C~~):** 56° F **Permitted Biologist** D. Brown

End Time: 1345 **End Air Temperature (°~~C~~):** 59° F **Assisted By:** –

					Crustacea										Insecta													Herps		Habitat Condition				Land Use				
									Large Branchiopods						Coleoptera			Diptera			Hemiptera			Odonata							Disturbed					Grazed		
Feature No.	Water Temperature (°C)	Present Ponded Depth (cm)	Current % Surface Area	Micro-Turbellaria	Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera	Gastropoda	Hydracaini	*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
	All	features		dry																																		

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance =** (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 12/28/2023 **Weather Conditions:** Partly cloudy **Permit #:** TE 850846-0

Start Time: 1545 **Start Air Temperature (°~~C~~):** 62°F **Permitted Biologist:** D. Brown

End Time: 1700 **End Air Temperature (°C):** 60°F **Assisted By:** -

					Crustacea										Insecta													Herps		Habitat Condition				Land Use				
									Large Branchiopods						Coleoptera			Diptera			Hemiptera			Odonata							Disturbed					Grazed		
Feature No.	Water Temperature (°C)	Present Ponded Depth (cm)	Current % Surface Area	Micro-Turbellaria	Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera	Gastropoda	Hydracaini	*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
	All	features		dry																																		

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*
Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)
Hydrology: S = saturated, N/P = not ponded
X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 1/10/2024 **Weather Conditions:** Overcast, 3-8mph **Permit #:** TE85084C-0

Start Time: 1540 **Start Air Temperature (°C):** 9 **Permitted Biologist:** D. Brown

End Time: 1640 **End Air Temperature (°C):** 9 **Assisted By:** –

Feature No.	Water Temperature (°C)	Present Ponded Depth (cm)	Current % Surface Area	Micro-Turbellaria	Crustacea										Insecta											Gastropoda	Hydracaini	Herps		Habitat Condition				Land Use				
									Large Branchiopods						Coleoptera			Diptera			Hemiptera			Odonata							Disturbed					Grazed		
					Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera			*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
All Features Dry																																						

Large Branchiopods: BRLY = *Branchinecta lynchi,* BRME = *Branchinecta mesovallensis,* LIOC = *Linderiella occidentalis,* LEPA = *Lepidurus packardi,* CYCA = *Cyzicus californicus,* LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 1/24/24 **Weather Conditions:** Showers, 1-5mph **Permit #:** TE85084C-0

Start Time: 0930 **Start Air Temperature (°C):** 55°F **Permitted Biologist:** D. Brown

End Time: 1225 **End Air Temperature (°C):** 58°F **Assisted By:** Lily Kalachik

Feature No.	Water Temperature (°F)	Present Ponded Depth (cm)	Current % Surface Area	Micro-Turbellaria	Crustacea				Large Branchiopods					
					Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR
AP-2	54	6	90	X										
AP-4	54	15	100	NAIO										
AP-1	54	3	40	NAIO										
SW-8	54	4	50	NAIO										
SW-7	55	2	60	NAIO										
SW-6	55	4	50	NAIO										
SW-5	55		60	NAIO										
	All other features dry													

Feature No.	Insecta: Coleoptera			Diptera			Hemiptera			Odonata				Herps		Habitat Condition	Disturbed			Land Use		Grazed		
	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera	Gastropoda	Hydracaini	*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
AP-2							X																	
AP-4																								
AP-1																								
SW-8																								
SW-7																								
SW-6																								
SW-5																								

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's) NAIO = No Aquatic Invertebrates Observed

Page 1 of 1

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 2/7/2024 **Weather Conditions:** 50°F, 5-8mph, Overcast/Showers **Permit #:** TE 850846-0

Start Time: 0845 hrs **Start Air Temperature (~~°C~~):** 50° F **Permitted Biologist:** D. Brown

End Time: 1250 hrs **End Air Temperature (°C):** 51° F **Assisted By:** –

					Crustacea										Insecta													Herps		Habitat Condition				Land Use					
									Large Branchiopods						Coleoptera			Diptera			Hemiptera			Odonata							Disturbed					Grazed			
Feature No.	Water Temperature (~~°C~~ °F)	Present Ponded Depth (~~cm~~ in.)	Current % Surface Area	Micro-Turbellaria	Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera	Gastropoda	Hydracaini	*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy	
AH-3	46	8	100	X																												X		X					
AH-4	46	10	90	NAIO																												X		X					
WD-6	46	18	100	X			X	X											X			X										X		X					
SW-1	46	12	100			X		X											X											X				X					
SW-2	47	10	100	NAIO																										X				X					
SW-3	46	11	100	X															X											X				X					
SW-4	47	9	100	X				X											X											X				X					
SW-5	47	10	100	X		X		X											X											X				X					
SW-6	47	9	100	X				X											X											X				X					
SW-7	47	10	100	X		X		X											X											X				X					
SW-8	47	12	100	X				X											X											X				X					
AP-1	48	14	100	X			X	X														X											X		X				Playa/Dry #4
AP-4	48	16	100	X			X	X														X											X		X				
AP-2	48	8	100	X			X	X														X											X		X				
FW-1	48	8	100	X																													X		X				Dry #5

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's) NAIO = no aquatic invertebrates observed

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 2/21/2024 **Weather Conditions:** Overcast, 4-8 mph **Permit #:** TE 850846-0

Start Time: 1005 **Start Air Temperature (°~~C~~):** 48°F **Permitted Biologist** D. Brown

End Time: 1400 **End Air Temperature (°~~C~~):** 51°F **Assisted By:** –

					Crustacea										Insecta													Herps		Habitat Condition				Land Use				
									Large Branchiopods						Coleoptera			Diptera			Hemiptera			Odonata							Disturbed					Grazed		
Feature No.	Water Temperature (°~~C~~F)	Present Ponded Depth (~~cm~~ in)	Current % Surface Area	Micro-Turbellaria	Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera	Gastropoda	Hydracaini	*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
AH-3		Ø																																				
AH-4	47	8	50	X			X								X																	X		X				
WD-6	48	12	60	X			X	X							X			X											eggs			X		X				
SW-1	49	8	70	X		X		X							X				X											X				X				
SW-2	49	9	90	X		X		X							X				X										eggs	X				X				
SW-4	49	7	90	X				X							X				X											X				X				
SW-3	48	9	90	X				X							X				X											X				X				
SW-5	44	9	95	X			X	X							X				X										eggs	X				X				
SW-6	46	9	100	X			X	X							X															X				X				
SW-7	48	9	90	X			X	X																					eggs	X				X				
SW-8	49	9	100	X			X	X							X														eggs	X				X				
AP-1	49	9	90	X		X	X	X							X							X											X		X			
AP-4	50	14	80	X		X	X	X							X							X											X		X			
AP-2	51	7	95	X		X	X	X							X			X				X											X		X			
FW-1	50	7	70	X		X		X							X						X																	

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 3/7/2024 **Weather Conditions:** Partly Cloudy, 10-20mph **Permit #:** TE85084C-0

Start Time: 1035 **Start Air Temperature (~~°C~~):** 51° F **Permitted Biologist:** D. Brown

End Time: 1500 **End Air Temperature (~~°C~~):** 62° F **Assisted By:** –

Feature No.	Water Temperature (°F)	Present Ponded Depth (in)	Current % Surface Area	Micro-Turbellaria	Crustacea: Amphipoda	Crustacea: Cladocera	Crustacea: Copepoda	Crustacea: Ostracoda	Large Branchiopods: BRLY	Large Branchiopods: BRME	Large Branchiopods: CYCA	Large Branchiopods: LEPA	Large Branchiopods: LIOC	Large Branchiopods: LYBR	Insecta: Coleoptera: Dytiscidae	Insecta: Coleoptera: Hydrophilidae	Insecta: Coleoptera: Haliplidae	Insecta: Diptera: Chironomidae	Insecta: Diptera: Culicidae	Insecta: Ephemeroptera	Insecta: Hemiptera: Corixidae	Insecta: Hemiptera: Notonectidae	Insecta: Limnephilidae	Insecta: Odonata: Zygoptera	Insecta: Odonata: Anisoptera	Gastropoda	Hydracaini	Herps: *Bufo boreas*	Herps: *Pseudacris sierra*	Habitat Condition: Undisturbed	Habitat Condition: Disturbed: Tire Ruts	Habitat Condition: Disturbed: Garbage	Habitat Condition: Disturbed: Plowed or Disked	Land Use: Fallow	Land Use: Agriculture	Land Use: Grazed: Light	Land Use: Grazed: Moderate	Land Use: Grazed: Heavy
AH-3		Ø																																				
AH-4	53	3	30	X			X	X							X				X													X		X				
WD-6	50	8	20	X			X	X				X 2			X			X											L-100s A-1s			X		X				
SW-1	61	6	40	X		X		X							X				X											X				X				
SW-2	58	8	70	X		X		X							X				X										L 1's	X				X				
SW-4	57	6	70	X				X							X				X											X				X				
SW-3	56	8	80	X				X							X				X										eggs	X				X				
SW-5	55	8	90	X			X	X							X				X										L 1's	X				X				
SW-6	56	8	90	X				X							X														L 10s	X				X				
SW-7	55	9	90	X			X	X							X				X										L 100s	X				X				
SW-8	56	10	90	X			X	X							X														E 100's L 100s	X				X				
AP-1	55	9	90	X		X	X	X				X 7			X			X			X	X							E-10's L-10's				X		X			
AP-4	55	13	70	X		X	X	X							X						X												X		X			
AP-2	60	6	90	X		X	X	X				X 1			X			X			X								L 1's				X		X			
FW-1	61	4	10	X		X	X	X							X						X												X		X			

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 3/21/2024 **Weather Conditions:** Clear, 5-10 mph **Permit #:** TE 85084C-0

Start Time: 1430 **Start Air Temperature (~~°C~~):** 60°F **Permitted Biologist** D. Brown

End Time: 1645 **End Air Temperature (~~°C~~):** 70°F **Assisted By:** –

					Crustacea										Insecta													Herps		Habitat Condition				Land Use				
									Large Branchiopods						Coleoptera			Diptera			Hemiptera			Odonata							Disturbed					Grazed		
Feature No.	Water Temperature (°F)	Present Ponded Depth (in.)	Current % Surface Area	Micro-Turbellaria	Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera	Gastropoda	Hydracaini	*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
AP-2	71	4	30	X		X		X							X			X				X							L 10's				X		X			
AP-4	69	11	20	X		X		X							X							X											X		X			
AP-1	70	7	65	X		X	X	X				2			X			X			X	X							L 100's				X		X			
WD-6	–	0	0									17 dead																				X		X				
		All other features dry																																				

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 4/3/2024 **Weather Conditions:** Clear **Permit #:** TE 85084C-0

Start Time: 0810 **Start Air Temperature (°~~C~~):** 63° F **Permitted Biologist** D. Brown

End Time: 0949 **End Air Temperature (°~~C~~):** 71° F **Assisted By:** —

					Crustacea										Insecta													Herps		Habitat Condition				Land Use				
									Large Branchiopods						Coleoptera			Diptera			Hemiptera			Odonata							Disturbed					Grazed		
Feature No.	Water Temperature (°F)	Present Ponded Depth (in.)	Current % Surface Area	Micro-Turbellaria	Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera	Gastropoda	Hydracaini	*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
AP-2	58	4	20	X		X		X							X							X							1's				X		X			
AP-4	59	10	10	X		X		X							X																		X		X			
AP-1	58	6	40	X		X	X	X				4			X			X			X	X							100's				X		X			
			All other features dry																																			

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 4/16/2024 **Weather Conditions:** Partly Cloudy, light breeze **Permit #:** TE 850846-0

Start Time: 1210 **Start Air Temperature (°~~C~~):** 68°F **Permitted Biologist:** D. Brown

End Time: 1405 **End Air Temperature (°~~C~~):** 73°F **Assisted By:** —

Feature No.	Water Temperature (°~~C~~)	Present Ponded Depth (~~cm~~ in)	Current % Surface Area	Micro-Turbellaria	Crustacea				Large Branchiopods						Insecta: Coleoptera			Diptera			Hemiptera			Odonata		Gastropoda	Hydracaini	Herps		Habitat Condition	Disturbed			Land Use		Grazed		
					Amphipoda	Cladocera	Copepoda	Ostracoda	BRLY	BRME	CYCA	LEPA	LIOC	LYBR	Dytiscidae	Hydrophilidae	Haliplidae	Chironomidae	Culicidae	Ephemeroptera	Corixidae	Notonectidae	Limnephilidae	Zygoptera	Anisoptera			*Bufo boreas*	*Pseudacris sierra*	Undisturbed	Tire Ruts	Garbage	Plowed or Disked	Fallow	Agriculture	Light	Moderate	Heavy
AP-2	64	4	3	X		X		X							X							X											X		X			
AP-4	65	9	1	X				X							X				X			X											X		X			
AP-1	66	8	15	X		X		X							X				X			X							X				X		X			

All other features were dry

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance** = (1's, 10's, 100's, 1000's)

Wet Season Survey Data Sheet

MADRONE ECOLOGICAL CONSULTING

Project Name: Village Farms Davis

Survey Date: 4/30/2024 **Weather Conditions:** Clear **Permit #:** TE850846-0

Start Time: 10:15 am **Start Air Temperature (°F):** 71° F **Permitted Biologist** D. Brown

End Time: 12:15 pm **End Air Temperature (°F):** 79° F **Assisted By:** —

Feature No.	Water Temperature (°F)	Present Ponded Depth (in)	Current % Surface Area	Micro-Turbellaria	Crustacea: Amphipoda	Crustacea: Cladocera	Crustacea: Copepoda	Crustacea: Ostracoda	Large Branchiopods: BRLY	Large Branchiopods: BRME	Large Branchiopods: CYCA	Large Branchiopods: LEPA	Large Branchiopods: LIOC	Large Branchiopods: LYBR	Insecta – Coleoptera: Dytiscidae	Coleoptera: Hydrophilidae	Coleoptera: Haliplidae	Diptera: Chironomidae	Diptera: Culicidae	Ephemeroptera	Hemiptera: Corixidae	Hemiptera: Notonectidae	Limnephilidae	Odonata: Zygoptera	Odonata: Anisoptera	Gastropoda	Hydracaini	Herps: *Bufo boreas*	Herps: *Pseudacris sierra*	Habitat Condition: Undisturbed	Disturbed: Tire Ruts	Disturbed: Garbage	Disturbed: Plowed or Disked	Land Use: Fallow	Agriculture	Grazed: Light	Grazed: Moderate	Grazed: Heavy
AP-1	66	2	1		NAIO							X-Carapaces																										
			All other features Dry																																			

Large Branchiopods: BRLY = *Branchinecta lynchi*, BRME = *Branchinecta mesovallensis*, LIOC = *Linderiella occidentalis*, LEPA = *Lepidurus packardi*, CYCA = *Cyzicus californicus*, LYBR = *Lynceus brachyurus*

Land Use: Grazed (C = cattle, H = horse, S = sheep, O = other)

Hydrology: S = saturated, N/P = not ponded

X = species present, **Large Branchiopods abundance =** (1's, 10's, 100's, 1000's) NAIO = No Aquatic Invertebrates Observed

Attachment C

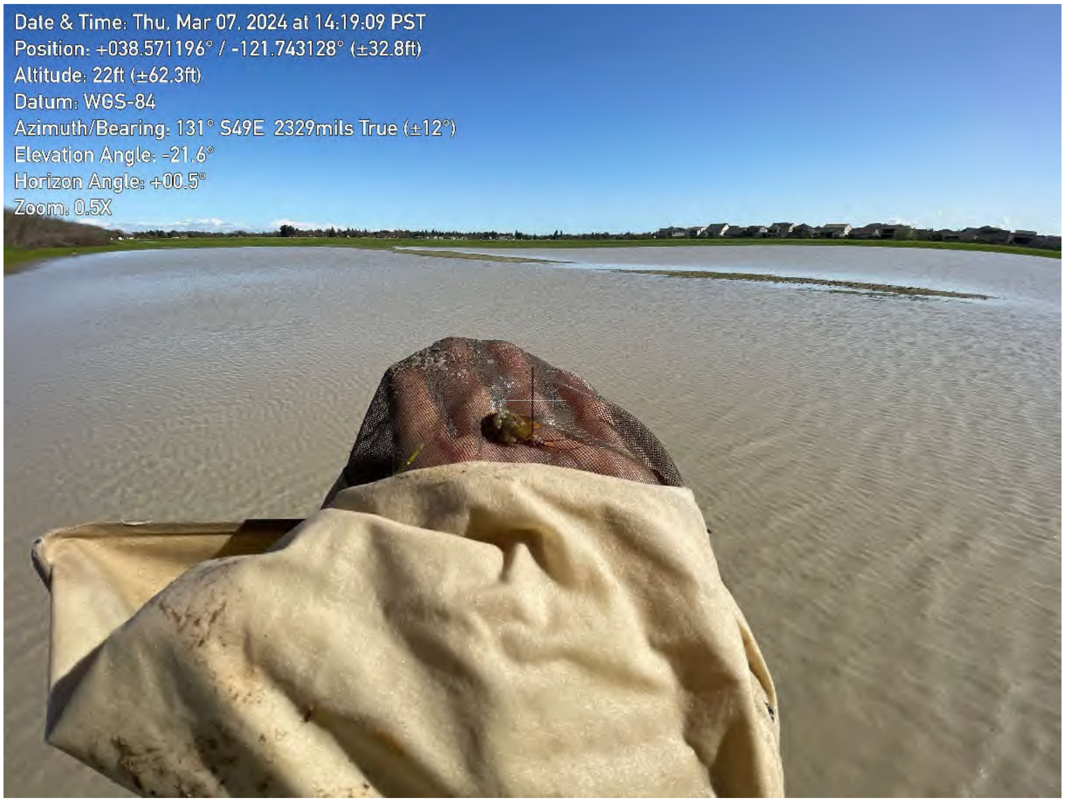
Representative Photographs

Photograph 1. WD-6 Facing east on 7 February 2024. Vernal pool tadpole shrimp present

Photograph 2. AH-3 Facing southwest on 7 February 2024

Photograph 3. SW-2 Facing west on 7 March 2024

Photograph 4. AP-1 Facing east on 7 March 2024. Vernal pool tadpole shrimp present



Photograph 5. Vernal pool tadpole shrimp on AP-1 on 7 March 2024

Photograph 5. FW-1 Facing south on 7 March 2024

Photograph 7. Representative photo of the Study Area. Facing north on 7 March 2024

Photograph 8. AP-2 just after drying down on 16 April 2024. Vernal pool tadpole shrimp present

Photograph 9. AP-1 Facing southwest on 16 April 2024. Vernal pool tadpole shrimp present

Photograph 10. AP-1 Facing southwest on 30 April 2024 during last wet season survey. Vernal pool tadpole shrimp present

Photograph 11. Vernal pool tadpole shrimp identified within WD-6 on 7 March 2024.

Attachment G

Burrowing Owl Survey Report for Village Farms Davis

MADRONE ECOLOGICAL CONSULTING

8421 Auburn Blvd., Suite 248
Citrus Heights, CA 95610
www.madroneeco.com
(916) 822-3230

28 June 2024

John Whitcombe
North Davis Land Company, LLC
3500 Anderson Road
Davis, CA 95616

Village Farms Davis, City of Davis, Yolo County, California – Results of Protocol-Level Breeding Season and Non-Breeding Season Burrowing Owl Surveys

Dear Mr. Whitcombe,

This letter report presents the methods and results of protocol-level breeding season and non-breeding season surveys for burrowing owl (*Athene cunicularia*), a California species of special concern, on the Village Farms Davis Project (Project). A total of four breeding season surveys and four non-breeding season surveys were conducted by Madrone Ecological Consulting (Madrone). The surveys were conducted in accordance with the California Department of Fish and Wildlife's (CDFW) 7 March 2012 *Staff Report on Burrowing Owl Mitigation* (Staff Report; CDFW 2012). Madrone biologist Matt Shaffer conducted the surveys for the approximately 515.9-acre Project, as well as a 500-foot buffer off the Project (Survey Area).

The Survey Area (Project area plus buffer area) is located in the northern portion of the City of Davis, Yolo County, California. The site is bordered to the west and south by high-density residential development, and to the east by residential development and the Wildhorse Golf Course. A recreational paintball park and agricultural land bound the site to the north. The Project is located within Sections 33 and 34, Township 9 North, Range 2 East; and Sections 2, 3, and 10, Township 8 North, Range 2 East (MDB&M) of the "Davis, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

The four non-breeding season surveys were conducted on the following dates: 3 October, 7 November, and 14 December 2023; and 17 January 2024. The breeding season surveys were conducted on the following dates: 21 March, 9 April, 14 May, and 20 June 2024. In accordance with the Staff Report, all of the surveys were conducted from early-morning to early-afternoon, and were performed in appropriate temperature and weather conditions when possible. Mr. Shaffer surveyed the Project area on foot, walking transects spaced 20 meters apart. All accessible areas within 500 feet of the Project area were also surveyed on foot, while inaccessible areas were scanned using binoculars (8x42).

No burrowing owls or evidence of burrowing owls were observed within the Survey Area. Large complexes of active ground squirrel (*Otospermophilus beecheyi*) burrows are located throughout the site, particularly along the berms adjacent to Covell Drain and along the western edge of the Project. In addition, old irrigation piping and debris piles occur within the southern portion of the site. Although these areas represent potential burrowing owl habitat, no evidence of use by burrowing owls, such as whitewash (excrement), pellets, feathers, and/or insect shells was observed. Ground squirrel burrow habitat within the Survey Area generally featured low or minimal vegetation during the non-breeding season surveys; however, vegetative growth had become extensive and robust (typically several feet high) by late spring during the breeding season surveys. Burrowing owls generally prefer non-thatchy vegetation less than 12 inches in height, as it increases their ability to detect predators from the ground; as such, these features have a reduced likelihood of use by burrowing owls during the breeding season. A list of all bird species observed within the Survey Area throughout the breeding and non-breeding season surveys has been included as **Attachment A**.

If you have any questions or require additional information, please contact me at (916) 822-3230 or bwatson@madroneeco.com.

Sincerely,

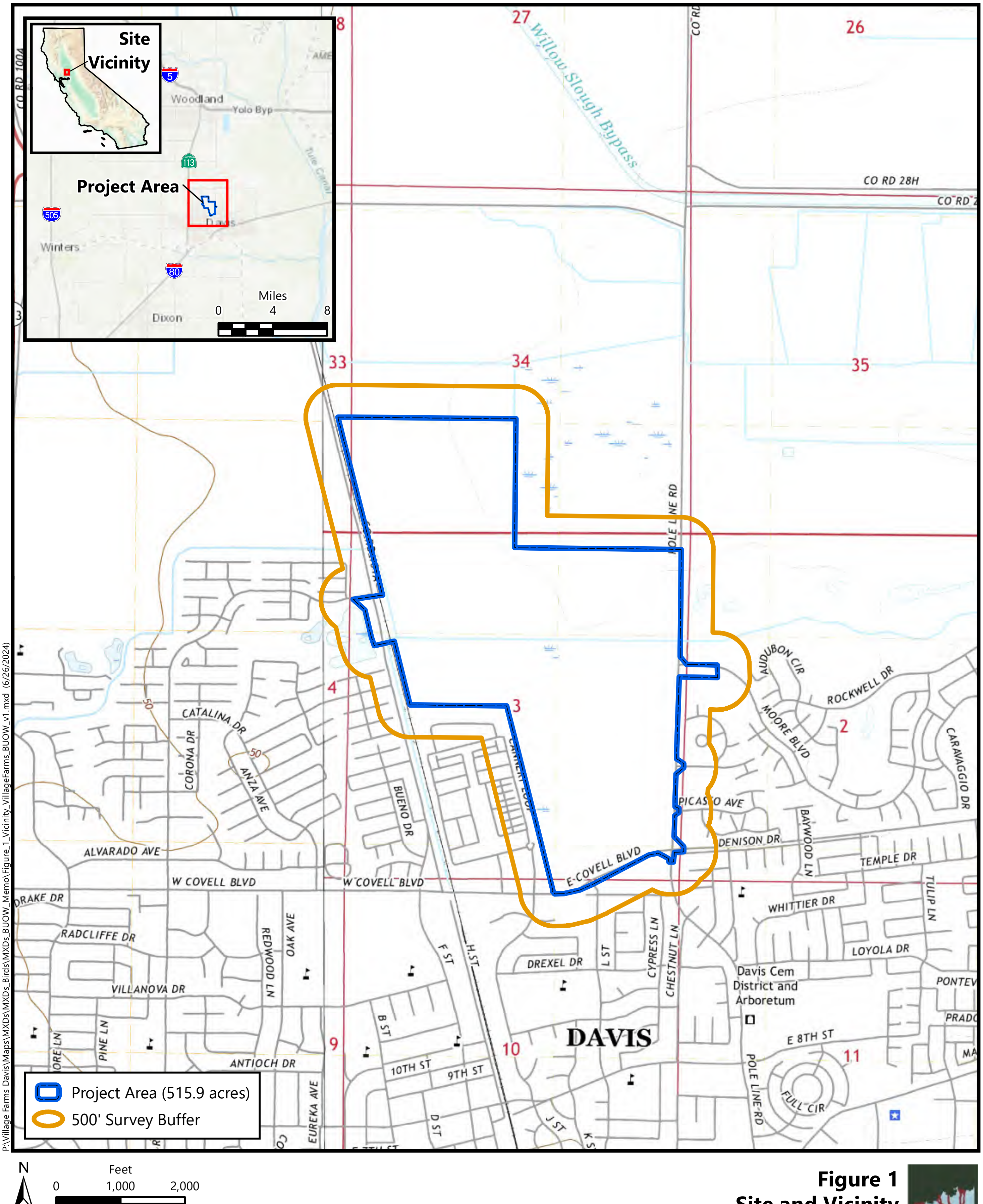
Ben Watson
Principal

References:

California Department of Fish and Wildlife (CDFW). 2012. *Staff Report on Burrowing Owl Mitigation*. Dated 7 March 2012.

U.S. Geological Survey (USGS). 2021. *"Davis, California"* 7.5-Minute Series Topographic Quadrangle Map. U.S. Geological Survey. Denver, Colorado.

Figures



P:\Village Farms Davis\Maps\MXDs\MXDs_Birds\MXDs_BUOW_Memo\Figure_1_Vicinity_VillageFarms_BUOW_v1.mxd (6/26/2024)

Source: *United States Geologic Survey*, 2021
"Davis, California" 7.5-Minute Topographic Quadrangle
Sections 33-34, Township 9 North, Range 2E, MDBM and
Sections 2-3, 10 Township 8 North, Range 2E, MDBM
Latitude (NAD83): 38.571593°, Longitude (NAD83): -121.738843°

Figure 1
Site and Vicinity

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

Attachments

Attachment A: List of Bird Species Observed within the Survey Area

Attachment A

List of Bird Species Observed within the Survey Area

Bird Species Observed within the
Village Farms Davis Project
3 October, 7 November, and 14 December 2023; 17 January, 21 March, 9 April, 14 May, and 20 June 2024

Species Name	**Common name**
Aeronautes saxatalis	White-throated swift
Agelaius phoeniceus	Red-winged blackbird
Aix sponsa	Wood duck
Anas platyrhynchos	Mallard
Anser albifrons	Greater white-fronted goose
Anthus rubescens	American pipit
Aphelocoma californica	California scrub jay
Ardea alba	Great egret
Ardea herodias	Great blue heron
Branta canadensis	Canada goose
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Buteo swainsoni	Swainson's hawk
Calypte anna	Anna's hummingbird
Cathartes aura	Turkey vulture
Charadrius vociferus	Killdeer
Circus hudsonius	Northern harrier
Cistothorus palustris	Marsh wren
Colaptes auratus	Northern flicker
Columba livia	Rock pigeon
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Dryobates nuttallii	Nuttall's woodpecker
Dryobates pubescens	Downy woodpecker
Elanus leucurus	White-tailed kite
Euphagus cyanocephalus	Brewer's blackbird
Falco sparverius	American kestrel
Gallinago delicata	Wilson's snipe
Haemorhous mexicanus	House finch
Hirundo rustica	Barn swallow
Icterus bullockii	Bullock's oriole
Junco hyemalis	Dark-eyed junco
Larus delawarensis	Ring-billed gull
Meleagris gallopavo	Wild turkey
Melozone crissalis	California towhee
Mimus polyglottos	Northern mockingbird

Bird Species Observed within the
Village Farms Davis Project
3 October, 7 November, and 14 December 2023; 17 January, 21 March, 9 April, 14 May, and 20 June 2024

Species Name	**Common name**
Molothrus ater	Brown-headed cowbird
Myiarchus cinerascens	Ash-throated flycatcher
Passer domesticus	House sparrow
Passerculus sandwichensis	Savannah sparrow
Petrochelidon pyrrhonota	Cliff swallow
Pica nuttalli	Yellow-billed magpie
Psaltriparus minimus	Bushtit
Quiscalus mexicanus	Great-tailed grackle
Regulus calendula	Ruby-crowned kinglet
Sayornis nigricans	Black phoebe
Sayornis saya	Say’s phoebe
Setophaga coronata	Yellow-rumped warbler
Sialia mexicana	Western bluebird
Spatula clypeata	Northern shoveler
Spinus psaltria	Lesser goldfinch
Spinus tristis	American goldfinch
Sturnella neglecta	Western meadowlark
Sturnus vulgaris	European starling
Tachycineta bicolor	Tree swallow
Thryomanes bewickii	Bewick’s wren
Tringa melanoleuca	Greater yellowlegs
Troglodytes aedon	House wren
Tyrannus verticalis	Western kingbird
Tyto alba	Barn owl
Zenaida macroura	Mourning dove
Zonotrichia atricapilla	Golden-crowned sparrow
Zonotrichia leucophrys	White-crowned sparrow

Attachment H

Swainson's Hawk Survey Report
for Village Farms Davis

MADRONE ECOLOGICAL CONSULTING

8421 Auburn Blvd., Suite 248
Citrus Heights, CA 95610
www.madroneeco.com
(916) 822-3230

28 June 2024

John Whitcombe
North Davis Land Company, LLC
3500 Anderson Road
Davis, CA 95616

Village Farms Davis, City of Davis, Yolo County, California – Results of Protocol-Level Swainson's Hawk Surveys

Dear Mr. Whitcombe,

This letter report presents the methods and results of protocol-level surveys for Swainson's hawk (*Buteo swainsoni*), a California threatened species, on the Village Farms Davis Project (Project). A total of seven protocol-level surveys were conducted by Madrone Ecological Consulting (Madrone). The surveys were conducted in accordance with the Swainson's Hawk Technical Advisory Committee's 31 May 2000 *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Protocol, TAC 2000). Madrone biologist Matt Shaffer conducted the protocol-level surveys for the approximately 515.9-acre Project, as well as a 0.5-mile buffer off the Project (Survey Area).

The Survey Area (Project area plus buffer area) is located in the northern portion of the City of Davis, Yolo County, California. The site is bordered to the west and south by high-density residential development, and to the east by residential development and the Wildhorse Golf Course. A recreational paintball park and agricultural land bound the site to the north. The Project is located within Sections 33 and 34, Township 9 North, Range 2 East; and Sections 2, 3, and 10, Township 8 North, Range 2 East (MDB&M) of the "Davis, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

The seven protocol-level surveys were conducted on 17 January; 21 and 26 March; and 4, 9, 12, and 19 April 2024. In accordance with the Protocol, the surveys were conducted from early-morning to early-afternoon, and were performed in appropriate temperature and weather conditions when possible. Mr. Shaffer surveyed the Project area on foot and by vehicle, as well as all accessible areas within 0.5-mile of the Project area. Inaccessible areas were scanned using binoculars (8x42). In addition, stationary "sit and watch" surveying of suspect Swainson's hawk nesting areas was conducted utilizing a spotting scope capable of 48x magnification.

No Swainson's hawks were observed during the 17 January survey. This was expected since the survey was conducted to determine potential nest locations prior to Swainson's hawks migrating back to the area, and at a time when many potential nest trees do not have leaves (so old nests and potential nest locations are easier to identify). Throughout the six remaining surveys, many Swainson's hawks were observed within the Survey Area. Swainson's hawks were most commonly observed soaring and foraging over the agricultural fields on-site; however, several hawks were also observed displaying courtship and territorial behavior over large trees across the site. In addition, Swainson's hawks were observed copulating at several points during the surveys, and were seen perched within trees throughout the Survey Area.

Two active Swainson's hawk nests were observed within the Survey Area (**Figure 2**). One nest is located within a large valley oak (*Quercus lobata*) in the riparian stand along Covell Drain in the central portion of the Project area. A Swainson's hawk pair was observed refurbishing this nest, performing nesting displays, and copulating within the vicinity of the nest during the protocol-level surveys. Although incubation had not yet commenced by the final protocol-level survey on 19 April, a follow-up site visit on 14 May confirmed that the hawks were incubating on the nest. An additional site visit on 20 June confirmed the presence of at least one chick in the nest. A second active Swainson's hawk nest is located within a cottonwood (*Populus fremontii*) along County Road 101a, approximately 1,100 feet north of the northwest corner of the Project, within the Survey Area. Swainson's hawks were observed refurbishing this nest and copulating within the vicinity of the nest during the protocol-level surveys. Incubation was initially documented during the 19 April survey, and a follow-up site visit on 20 June confirmed the presence of at least one chick in the nest. A list of all bird species observed within the Survey Area throughout the protocol-level surveys has been included as **Attachment A**.

If you have any questions or require additional information, please contact me at (916) 822-3230 or bwatson@madroneeco.com.

Sincerely,

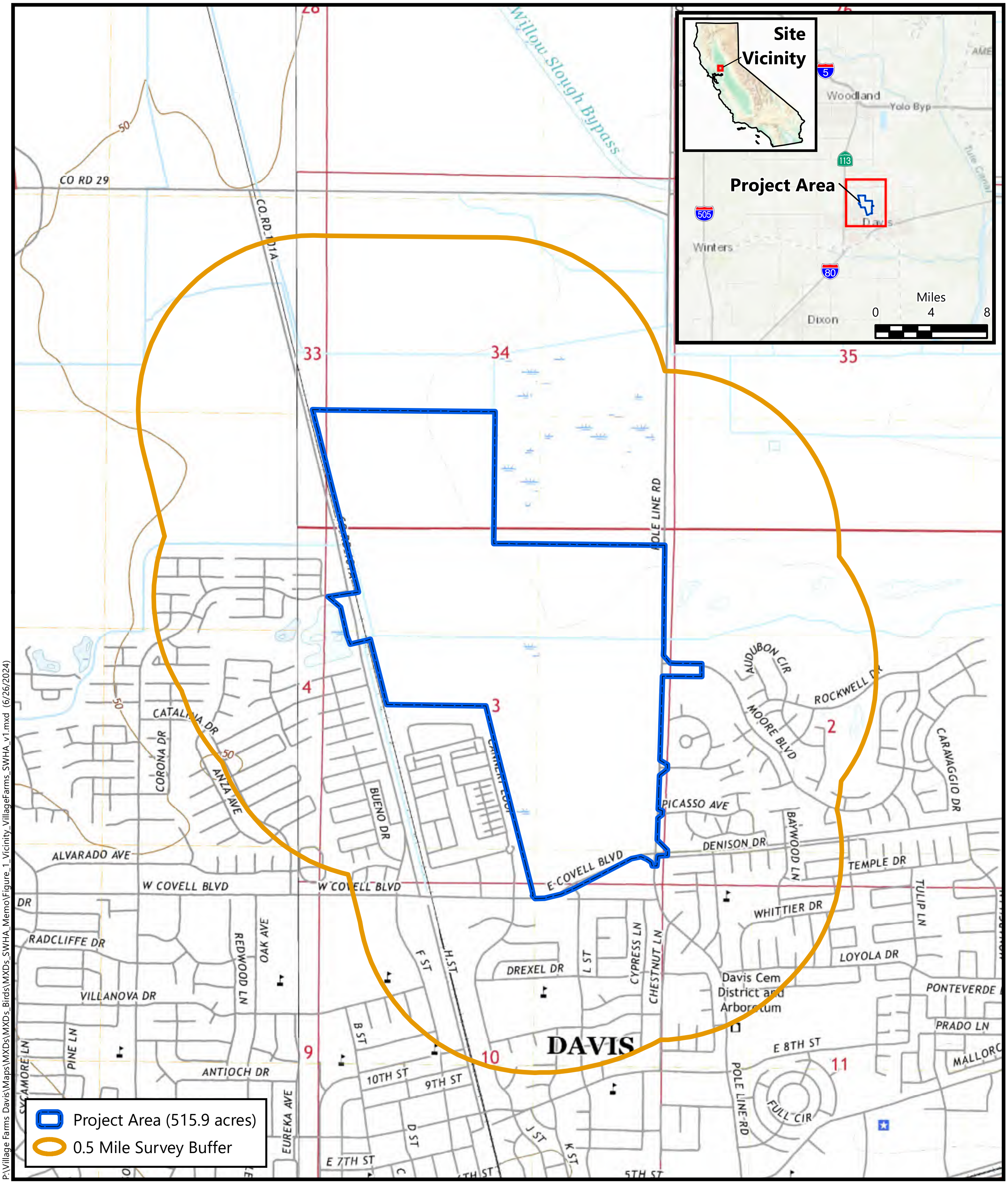
Ben Watson
Principal

References:

Swainson's Hawk Technical Advisory Committee (TAC). 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. Dated 31 May 2000.

U.S. Geological Survey (USGS). 2021. *"Davis, California"* 7.5-Minute Series Topographic Quadrangle Map. U.S. Geological Survey. Denver, Colorado.

Figures



N
Feet
0 1,000 2,000

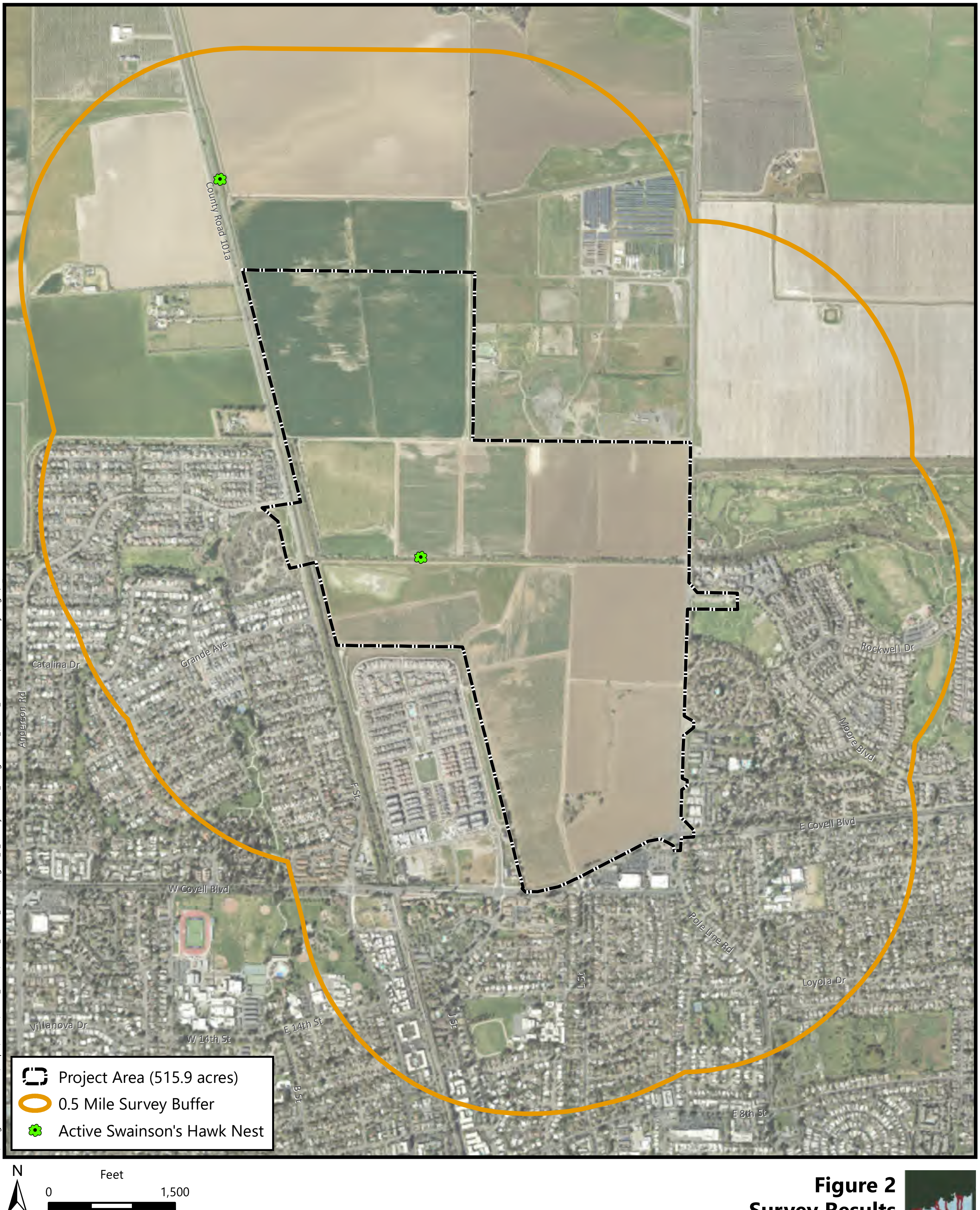
Source: *United States Geologic Survey*, 2021
"Davis, California" 7.5-Minute Topographic Quadrangle
Sections 33-34, Township 9 North, Range 2E, MDBM and
Sections 2-3, 10 Township 8 North, Range 2E, MDBM
Latitude (NAD83): 38.571593°, Longitude (NAD83): -121.738843°

Figure 1
Site and Vicinity

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Birds\MXDs_SWHA_Memo\Figure_1_Vicinity_VillageFarms_SWHA_v1.mxd (6/26/2024)



P:\Village Farms Davis\Maps\MXDs\MXDs_Birds\MXDs_SWHA_Memo\Figure_2_SurveyResults_VillageFarms_SWHA_v1.mxd (6/26/2024 - jswager)

Figure 2
Survey Results

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

Boundary Source: Cunningham Engineering
Aerial Source: ESRI/SACOG, 18 March 2022

Attachments

Attachment A. List of Bird Species Observed within the Survey Area

Attachment A

List of Bird Species Observed within the Survey Area

Bird Species Observed within the
Village Farms Davis Project
17 January; 21 and 26 March; 4, 9, 12, and 19 April 2024

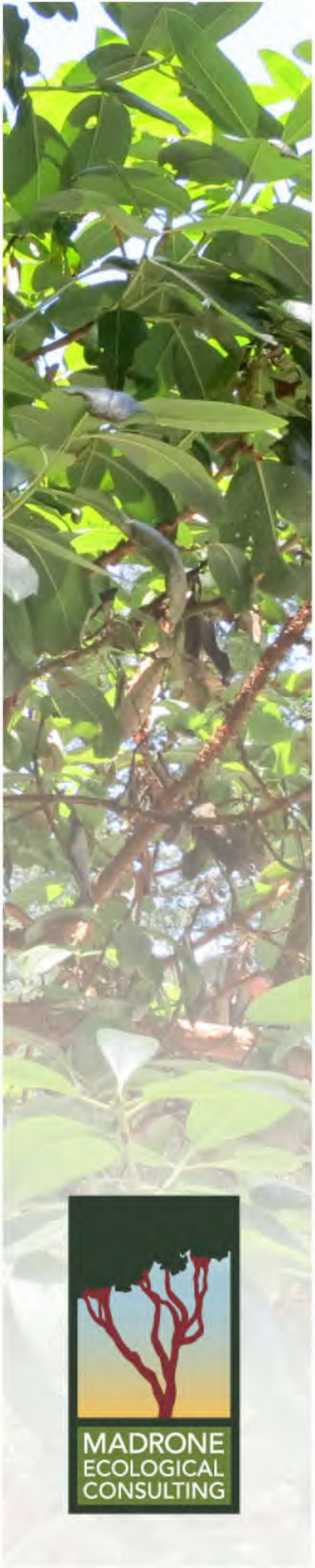
Species Name	Common name
Aeronautes saxatalis	White-throated swift
Agelaius phoeniceus	Red-winged blackbird
Aix sponsa	Wood duck
Anas platyrhynchos	Mallard
Anser albifrons	Greater white-fronted goose
Aphelocoma californica	California scrub jay
Ardea alba	Great egret
Ardea herodias	Great blue heron
Branta canadensis	Canada goose
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Buteo swainsoni	Swainson's hawk
Calypte anna	Anna's hummingbird
Cathartes aura	Turkey vulture
Charadrius vociferus	Killdeer
Circus hudsonius	Northern harrier
Colaptes auratus	Northern flicker
Columba livia	Rock pigeon
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Dryobates nuttallii	Nuttall's woodpecker
Elanus leucurus	White-tailed kite
Euphagus cyanocephalus	Brewer's blackbird
Falco sparverius	American kestrel
Gallinago delicata	Wilson's snipe
Haemorhous mexicanus	House finch
Hirundo rustica	Barn swallow
Icterus bullockii	Bullock's oriole
Junco hyemalis	Dark-eyed junco
Larus delawarensis	Ring-billed gull
Meleagris gallopavo	Wild turkey
Melozone crissalis	California towhee
Mimus polyglottos	Northern mockingbird
Molothrus ater	Brown-headed cowbird
Passer domesticus	House sparrow
Passerculus sandwichensis	Savannah sparrow
Petrochelidon pyrrhonota	Cliff swallow

Bird Species Observed within the
Village Farms Davis Project
17 January; 21 and 26 March; 4, 9, 12, and 19 April 2024

Species Name	**Common name**
Pica nuttalli	Yellow-billed magpie
Quiscalus mexicanus	Great-tailed grackle
Regulus calendula	Ruby-crowned kinglet
Sayornis nigricans	Black phoebe
Sayornis saya	Say’s phoebe
Setophaga coronata	Yellow-rumped warbler
Sialia mexicana	Western bluebird
Spatula clypeata	Northern shoveler
Spinus psaltria	Lesser goldfinch
Spinus tristis	American goldfinch
Sturnella neglecta	Western meadowlark
Sturnus vulgaris	European starling
Tachycineta bicolor	Tree swallow
Thryomanes bewickii	Bewick’s wren
Tringa melanoleuca	Greater yellowlegs
Troglodytes aedon	House wren
Tyrannus verticalis	Western kingbird
Zenaida macroura	Mourning dove
Zonotrichia atricapilla	Golden-crowned sparrow
Zonotrichia leucophrys	White-crowned sparrow

Attachment I

Arborist Survey Report for
Village Farms Davis



Arborist Survey Report

Village Farms Davis

City of Davis, Yolo County, California

26 June 2024

Prepared for:
North Davis Land Company, LLC
3500 Anderson Road
Davis, CA 95616

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone). 2024. *Arborist Survey Report for Village Farms Davis*. Prepared for North Davis Land Company, LLC. Published 26 June 2024.

CONTENTS

Arborist Survey Report
Village Farms Davis

1.0 INTRODUCTION

This report presents the results of an arborist survey conducted for the Village Farms Davis Property (Study Area) by Madrone Ecological Consulting, LLC (Madrone). The approximately 515.9-acre Study Area is located largely north of Covell Boulevard, east of County Road 101A, and west of Pole Line Road in north Davis, Yolo County, California. The Study Area is located in portions of Sections 33-34, Township 9 North, Range 2 East, and Sections 2-3, 10 Township 8 North, Range 2 East (MDB&M) of the "Davis, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

2.0 GENERAL SITE CONDITIONS AND HABITAT

The Study Area is largely comprised of active agricultural fields with interspersed farm roads (**Figure 2**). Covell Drain, along with its associated non-native riparian corridor, cuts from east to west across the Study Area. The agricultural fields are planted annually. For the 2024 season, they have been planted in wheat, tomatoes, and corn. One of the fields south of Covell Drain contains a large alkali playa/alkali wetland complex. As a result, this field is not farmed, but vegetation is managed for fire hazard reduction. The field containing the alkali playa/alkali wetland complex has been mapped as Alkali Prairie. An additional strip running along much of the northeast boundary of the Study Area (adjacent to the paintball park) has also been mapped as Alkali Prairie. A portion of Covell Drain on the western side of the site is wider than the east-to-west section of Covell Drain, and supports some emergent vegetation. The remainder of Covell Drain is almost entirely unvegetated below the dense riparian canopy. Various areas around most of the edges of the Study Area are occupied by dense non-native forbs and have been mapped as Urban Ruderal. The farm roads within the Study Area are well maintained and have been mapped as Semi-agricultural, consistent with Yolo HCP Land Cover types, as has the mostly demolished rural residence in the southern portion of the Study Area. An extension of the site along the western edge crosses County Road 101A and incorporates an area that was recently restored with native grasses, constructed wetlands, and planted native shrubs – this area has been mapped as California annual grassland. The Study Area is very flat and is almost entirely at approximately 36 to 44 feet above mean sea level.

Surrounding properties to the west, south and east are urban residential, commercial, and a golf course. To the northeast is a recreational paintball park, and the remaining properties to the north are largely agricultural.

2.1 Alkali Prairie

Alkali prairie occurs around the large alkali playa south of Covell Drain, and in an undisturbed strip along the northwestern borders of the Study Area. This community is dominated by salt grass (*Distichlis spicata*), but also supports a number of other halophytes, including Parry's rough tarplant (*Centromadia parryi ssp. rudis*) (a CRPR List 4 species), alkali heath (*Frankenia salina*), alkali weed (*Cressa truxillensis*), alkali mallow (*Malvella leprosa*), and several generalist non-native species, such as broad leaved pepper weed (*Lepidium latifolium*), stinkwort (*Dittrichia graveolens*), Mediterranean barley (*Hordeum marinum*), and Mediterranean beard grass (*Polypogon maritimus*).

2.2 Barren-Anthropogenic

The Union Pacific Railroad alignment was classified as "Barren-Anthropogenic". This area consists of an unvegetated rock railbed prism topped by railroad tracks.

2.3 California Annual Grassland Alliance

An area west of County Road 101A has recently been restored with native bunch grasses, small, constructed wetlands, large patches of milkweeds (*Asclepias* species), and a variety of native shrubs and sub-shrubs. This area was mapped as California annual grassland alliance as the best approximation of its current habitat value.

2.4 Freshwater Marsh Alliance

A small freshwater marsh has established along the western edge of the Study Area adjacent to the Cannery housing development. This feature supports a variety of perennial hydrophytes, including cattail (*Typha* species), tall nutsedge (*Cyperus eragrostis*), smartweed (*Persicaria* species), and Mediterranean beard grass (*Polypogon monspeliensis*).

2.5 Grain and Hay Crops

These agricultural fields were planted in wheat for the 2024 growing season, and as such have been classified as "Grain and Hay Crops". When not growing this crop, they remain fallow.

2.6 Semiagricultural

The margins of the agricultural fields, farm roads, and a prior rural residence on-site have been classified as "Semiagricultural". These areas consist of vegetated areas along the margins of the agricultural fields, along with ditches and dirt paths in association with the agricultural fields. Both native and non-native trees occur in association with the rural residence.

2.7 Truck Crops

These agricultural fields were planted in tomatoes and corn in 2024, and as such have been classified as "Truck Crops". When not growing these crops, they remain fallow.

2.8 Urban

Roadways, parking lots, and a pump facility were classified as Urban. These areas are dominated by pavement and buildings. There is some planted and manicured ornamental vegetation within the urban areas, but where aggregations of vegetation occur, it was mapped as Vegetated Corridor.

2.9 Urban Ruderal

Strips along the western and eastern edges of the Study Area have been classified as "Urban Ruderal". These areas all support dense, high-rank stands of non-native forbs including milk thistle (*Silybum marianum*), broad leaved pepperweed, black mustard (*Brassica nigra*), wild radish (*Raphanus sativus*), and stinkwort.

2.10 Valley Foothill Riparian

A strip of woody vegetation occurs along either side of Covell Drain. While this community is almost entirely comprised of non-native trees, it is riparian in nature, and has been classified as Valley Foothill Riparian for consistency with the Yolo HCP. This community is heavily dominated by wingnut (*Pterocarya* species) and Arizona ash (*Fraxinus velutina*), but also supports cigar tree (*Catalpa bignonioides*), Siberian elm (*Ulmus pumila*), Chinese elm (*Ulmus parvifolia*), Chinese tallow (*Triadica sebifera*), Bradford pear (*Pyrus calleryana*), and cork oak (*Quercus suber*). Occasional native trees also occur in this community including Valley oak (*Quercus lobata*), Northern California black walnut (*Juglans hindsii*), boxelder (*Acer negundo*), red willow (*Salix laevigata*) and black willow (*S. gooddingii*). Very little herbaceous vegetation is present in the understory of this community due to the relatively closed canopy.

2.11 Vegetated Corridor

A strip of planted trees along East Covell Boulevard and along the southwest edge associated with the adjacent development have been classified as "Vegetated Corridor". In addition, the Vegetated Corridor mapped in the eastern extension is comprised of a turf recreational field and trees around the associated parking area. These areas are surrounded by and associated with urban development, and consist of maintained non-native turf and landscaped ornamental trees and shrubs.

3.0 METHODOLOGY

The arborist survey was led by Madrone ISA Certified Arborist Daria Snider (#WE-8666A) with assistance from Madrone biologists Dustin Brown and Matt Shaffer. The survey was conducted on 31 May and 3, 4, 6, 7, and 21 June 2024. The inventory was conducted in accordance with the City of Davis Code Chapter 37 - Tree Planting, Preservation, and Protection (Tree Ordinance), with some deviations which were made in coordination with City staff. These deviations were made based on the very large number of non-native and invasive trees within a dense canopy along Covell Drain. Due to the number of trees in this area, and the fact they are primarily very fast-growing species and the trees present in this portion of the Study Area will likely change prior to issuance of a Tree Removal Permit from the City, it did not seem reasonable to inventory and tag all trees within this corridor at this time. Detailed tree data was collected as outlined below throughout all areas outside of the Covell Drain riparian corridor and for approximately half of the trees within the Covell Drain riparian corridor (Inventoried Area). Following discussions with City staff, based on the types and large numbers of trees in this area, the remaining trees within the Covell Drain riparian corridor (in the Tree Assessment Area, shown in **Attachment A**) were estimated by extrapolating the collected data to the remaining canopy area[1] to provide information to support the Biological Resources Assessment for the Project. It is understood that prior to the City issuing a grading permit, detailed tree inventory data will be required for all of the trees within the Study Area, including updating the tree data within the Inventoried Area and also completing a detailed tree inventory within the un-inventoried Tree Assessment Area in order to determine tree impacts and mitigation requirements at the time of Project construction.

Within the Inventoried Area, all trees with a Diameter at Breast Height (DBH) of 5 inches or more (as detailed below) were inventoried. As discussed above, tree information within the Tree Assessment Area was extrapolated based on detailed inventory results within the Inventoried Area. In accordance with the Tree Ordinance, a "tree" is defined as any woody perennial plant having one or several main stems commonly achieving ten or more feet in height and capable of being pruned to develop a branch free trunk at least nine feet in height. A number of woody plant species that are typically considered shrubs, but have been pruned into a tree shape were observed within the Study Area; however, in many cases, the branches/trunks were numerous and slender. As such, only plants with at least one trunk that was 5" DBH or greater were inventoried. All stems 3" in diameter or greater were recorded on inventoried trees.

For each tree inventoried, biologists nailed aluminum tags with a unique identification number into the trunk[2], recorded the tree identification number, tree species, DBH, approximate dripline radius, and general health and structure. The location of each tree was recorded with a GPS unit capable of sub-meter accuracy (Arrow 100). Note that the health and structure ratings recorded during the course of this survey may be used for general planning purposes, but shall not be considered to be a hazard assessment for public safety purposes.

The Tree Ordinance protects a number of different categories of trees, as follows: street trees, city trees, landmark trees, trees of significance, parking lot trees, and certain private trees. The following categories occur within the Study Area:

- Street Trees are "any tree planted and/or maintained by the city, or recorded as a street tree, adjacent to a street or within a city easement or right-of-way on private property, within the street tree easement." The Street Tree Easement is "the ten-foot zone behind the sidewalk or between curb and sidewalk." Street Trees occur along Covell Boulevard and Pole Line Road.
- City Trees are "trees in parks, greenbelts, open spaces, on city property or easements, etc." These occur in the portions of the Study Area west of F Street and east of Pole Line Road.

---

[1] Trees were extrapolated in unsurveyed portions of the Covell Drain riparian corridor (Tree Assessment Area)as follows: the inventoried riparian canopy acreage was divided by the number of inventoried trees of each species. That yielded the "occupied area" for each tree by species. Subsequently, the uninventoried canopy acreage was divided by the "occupied area" for each species to yield the number of each species of tree expected to occur in the uninventoried Tree Assessment Area. The reader will note that there is some overlap between the inventoried trees and the northern edge of the Tree Assessment Area. This is intentional, and was done to account for the extensive canopy overlap that occurs in that area.

[2] Where trees already had aluminum tags, that number was used, and new tags were not installed. Only trees within the project proponent's property were tagged. Off-site Street Trees and City Trees were not tagged, but were digitally assigned a number from 1-X such that the tree location could be correlated with the inventory data.

- Trees of Significance/Private Trees are all trees greater than 5 inches DBH. Where they occur on unimproved property zoned for single-family or duplex development, they are considered "Trees of Significance," and where they occur on properties with single-family or duplex dwellings already present, they are considered "Private Trees." Both categories are subject to the same requirements if a grading permit or other discretionary permit application is submitted. These occur in the remainder of the Study Area.

4.0 RESULTS

Within the Study Area, a total of 753 trees with a DBH of five inches or greater were inventoried. An additional 541 trees are estimated to be within the un-inventoried Tree Assessment Area, resulting in an estimated total of approximately 1,294 trees within the Study Area. The data are summarized in **Table 1** and a map of the inventoried trees is included as **Attachment A**.

As noted in Section 3.0, three categories of trees were inventoried within the Study Area: 15 City Trees west of F Street and north of the recreational field east of Pole Line Road, 92 Street Trees along Covell Boulevard and Pole Line Road, and 646 inventoried plus 541 estimated Private Trees for a total of approximately 1,187 Private Trees.

Detailed tree inventory data is included in **Attachment B**. Again, please note that the health and structure ratings provided in **Attachment B** are for impact and mitigation analysis purposes only. We recommend that if any trees are to be retained following construction, that a detailed hazard analysis of those trees be conducted.

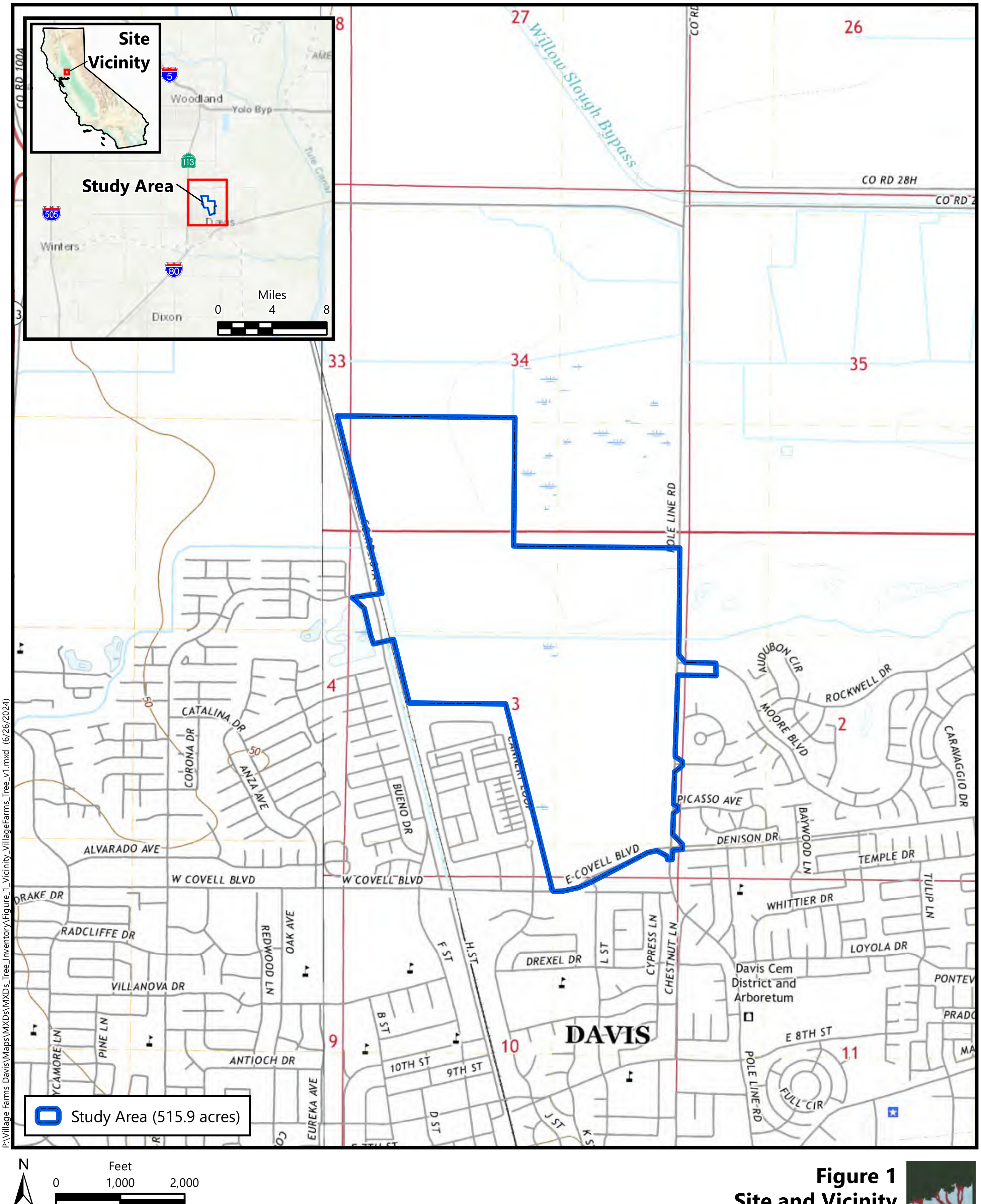
5.0 REFERENCES

U.S. Geological Survey (USGS). 2021. *"Davis, California"* 7.5-Minute Series Topographic Quadrangle. U. S. Geological Survey. Denver, Colorado.

Table 1. Trees within the Study Area

Tree Species (Native species are highlighted in green)	Number of City Trees (DBH)		Number of Private Trees (DBH) Inventoried Trees		Number of Street Trees (DBH)		Total Number of Inventoried Trees (DBH)	Number of Extrapolated Private Trees	Approximate Number of Trees Including Extrapolated
	Fair or Better	Poor to Dead	Fair or Better	Poor to Dead	Fair or Better	Poor to Dead			
Aleppo pine (*Pinus halepensis*)	--	--	--	1 (32.5)	2 (67.5)	--	3 (100.0)	--	3
Almond (*Prunus dulcis*)	--	--	1 (12.0)	1 (24.5)	--	--	2 (36.5)	--	2
American sycamore (*Platanus occidentalis*)	5 (53.0)	--	--	--	7 (72.5)	1 (9.0)	13 (134.5)	--	13
Arizona ash (*Fraxinus velutina*)	--	--	171 (2,679.1)	83 (1,504.0)	5 (91.5)	--	259 (4,274.6)	244	503
Australian blackwood (*Acacia melanoxylon*)	--	--	6 (106.5)	6 (105.5)	--	--	12 (207.0)	--	12
Bald cypress (*Taxodium distichum*)	--	--	1 (13.0)	--	--	--	1 (13.0)	--	1
Black willow (*Salix gooddingii*)	--	--	--	1 (27.5)	--	--	1 (27.5)	1	2
Boxelder (*Acer negundo*)	--	--	20 (248.6)	2 (11.9	--	--	22 (260.5)	21	43
Bradford pear (*Pyrus calleryana*)	--	--	--	1 (17.0)	2 (32.5)	--	3 (49.5)	1	4
Cherry plum (*Prunus cerasifera*)	--	--	--	--	--	1 (8.0)	1 (8.0)	--	1
Chinese elm (*Ulmus parvifolia*)	--	--	23 (321.1)	2 (23.7)	--	--	25 (344.8)	24	49
Chinese hackberry (*Celtis sinensis*)	2 (23.5)	--	4 (43.0)	--	4 (57.5)	--	10 (124.0)	10	20
Chinese pistache (*Pistacia chinensis*)	1 (9.5)	--	3 (61.0)	2 (21.5)	1 (8.5)	1 (20.5)	8 (121.0)	--	8
Chinese tallowtree (*Triadica sebifera*)	--	--	9 (80.1)	1 (16.0)	27 (432.0)	2 (24.0)	39 (552.1)	--	39
Chinese wingnut (*Pterocarya stenoptera*)	--	--	45 (525.9)	138 (2,006.7)	--	--	183 (2,532.6)	178	361
Cigar tree (*Catalpa bignonioides*)	--	--	10 (118.8)	4 (85.0)	--	--	14 (203.8)	14	28
Coast live oak (*Quercus agrifolia*)	--	--	3 (38.3)	1 (9.0)	1 (14.0)	--	5 (61.3)	1	6
Cork oak (*Quercus suber*)	--	--	10 (176.5)	--	1 (16.0)	--	11 (192.5)	9	20
English walnut (*Juglans regia*)	--	--	--	--	--	1 (32.5)	1 (32.5)	--	1
Japanese privet (*Ligusticum japonicum*)	--	--	4 (54.4)	--	--	--	4 (54.4)	4	8
Kentucky coffeetree (*Gymnocladus dioicus*)	--	--	1 (8.5)	--	--	--	1 (8.5)	--	1
London planetree (*Platanus x acerifolia*)	--	--	8 (69.5)	--	--	--	8 (69.5)	8	16
Mexican fan palm (*Washingtonia robusta*)	--	--	1 (22.0)	--	--	--	1 (22.0)	1	2
Narrow-leaved ash (*Fraxinus angustifolia*)	--	--	1 (10.5)	--	--	--	1 (10.5)	--	1
Northern California black walnut (*Juglans hindsii*)	--	--	6 (139.0)	2 (18.5)	--	--	8 (157.5)	8	16
Olive (*Olea europaea*)	--	--	1 (16.5)	--	--	--	1 (16.5)	--	1
Pecan (*Carya illinoinensis*)	--	--	--	--	1 (7.5)	--	1 (7.5)	--	1
Persian silk tree (*Albizia julibrissin*)	--	--	--	--	1(25.0)	--	1(25.0)	--	1
Queen's crepe-myrtle (*Lagerstroemia speciosa*)	--	--	--	--	3 (16.5)	1 (5.0)	4 (21.5)	--	4
Red willow (*Salix laevigata*)	--	--	--	2 (114.0)	--	--	2 (114.0)	2	4
Redwood (*Sequioa sempervirens*)	--	--	--	--	2 (43.5)	--	2 (43.5)	--	2
Siberian elm (*Ulmus pumila*)	--	--	9 (211.5)	3 (106.0)	23 (453.5)	3 (28.0)	38 (799.0)	11	49
Silver maple (*Acer saccharum*)	--	--	1 (12.4)	--	--	--	1 (12.4)	1	2
Sour cherry (*Prunus cerasus*)	--	--	--	1 (8.5)	--	--	1 (8.5)	--	1
Valley oak (*Quercus lobata*)	7 (101.5)	--	50 (975.0)	7 (112.0)	2 (38.0)	--	66 (1,226.5)	4	70
Total	**15 (187.5)**	**None**	**388 (5,943.2)**	**258 (4,238.8)**	**82 (1,376.0)**	**10 (127.0)**	**753 (11,872.5)**	**541**	**1,294**

Figures



Source: *United States Geologic Survey*, 2021
"Davis, California" 7.5-Minute Topographic Quadrangle
Sections 33-34, Township 9 North, Range 2E, MDBM and
Sections 2-3, 10 Township 8 North, Range 2E, MDBM
Latitude (NAD83): 38.571593°, Longitude (NAD83): -121.738843°

Figure 1
Site and Vicinity

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

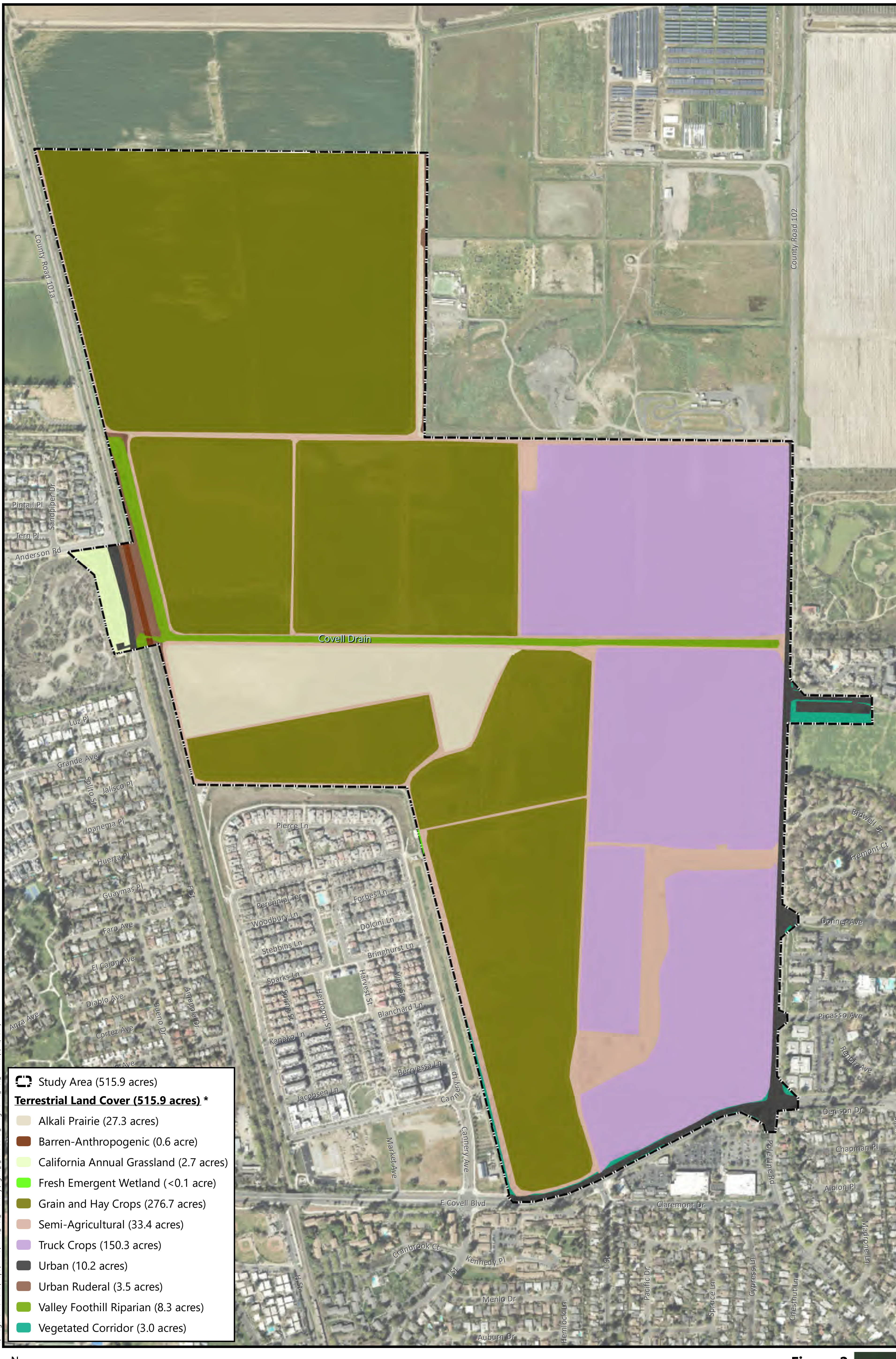


Figure 2
Yolo HCP Land Cover Types

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

** Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Attachments

Attachment A: Tree Inventory Exhibit

Attachment B: Arborist Survey Data

Attachment A

Tree Inventory Exhibit

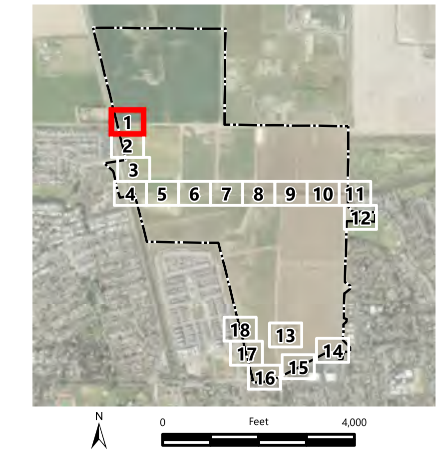
Tree Inventory Overview

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Page Index



Study Area (515.9 acres)

Additional Riparian Tree Canopy

N

Feet 0 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

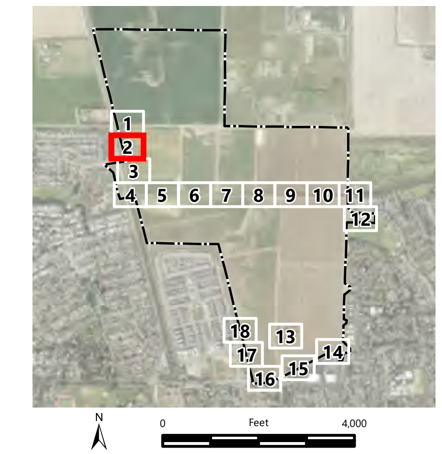
Tree Inventory
Page 1 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Non-Native Trees

- Arizona Ash
- Chinese Elm
- Chinese Tallowtree
- Chinese Wingnut
- London Planetree
- Mexican Fan Palm
- Siberian Elm

N

Feet

0 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

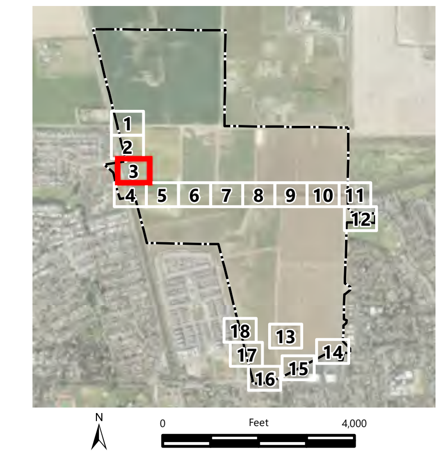
Tree Inventory
Page 2 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Native Trees

Red Willow

Non-Native Trees

Arizona Ash

Chinese Elm

Chinese Tallowtree

Cigar Tree

London Planetree

Mexican Fan Palm

Siberian Elm

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

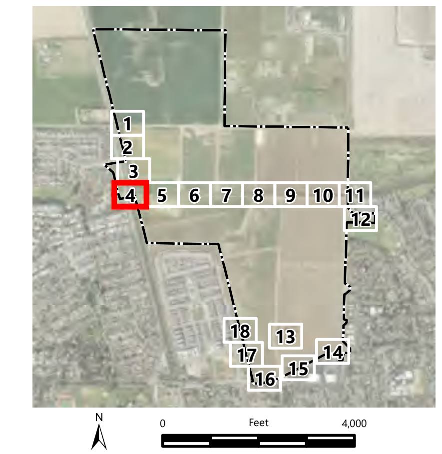
Tree Inventory
Page 3 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Native Trees

Black Willow

Valley Oak

Non-Native Trees

Arizona Ash

Chinese Tallowtree

Siberian Elm

N

Feet 0 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Tree Inventory
Page 4 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index

Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Native Trees

Valley Oak

Non-Native Trees

Arizona Ash

Cigar Tree

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

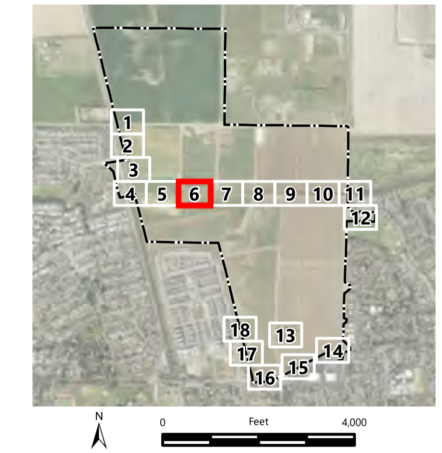
Tree Inventory
Page 5 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Native Trees

Red Willow

Valley Oak

Non-Native Trees

Arizona Ash

Chinese Wingnut

Cigar Tree

N

0 Feet 50

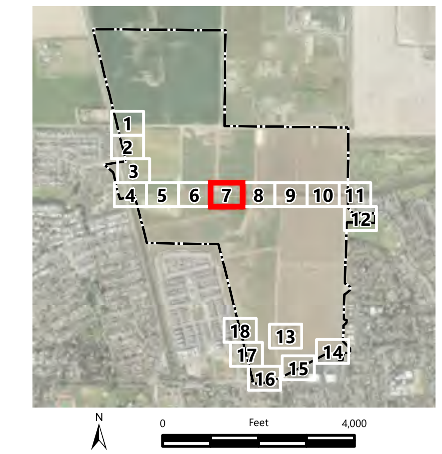
Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Tree Inventory
Page 6 of 18

Village Farms Davis
Davis, Yolo County, California

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Native Trees

Boxelder

Non-Native Trees

Arizona Ash

Bradford Pear

Chinese Wingnut

Cigar Tree

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

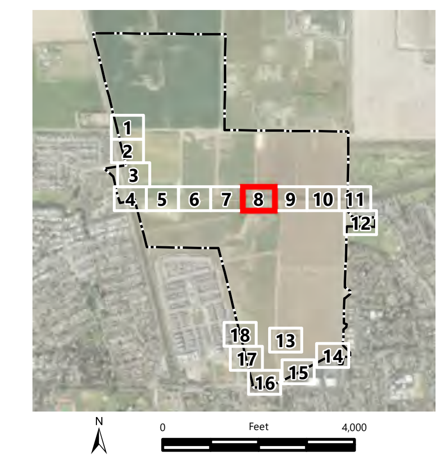
Tree Inventory
Page 7 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Non-Native Trees

- Arizona Ash
- Chinese Wingnut
- Cigar Tree

N

Feet 0 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Tree Inventory
Page 8 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index

Study Area (515.9 acres)

Additional Riparian Tree Canopy

Trees within the Study Area

Native Trees

Boxelder

Northern California Black Walnut

Non-Native Trees

Arizona Ash

Chinese Elm

Chinese Tallowtree

Cigar Tree

Siberian Elm

N

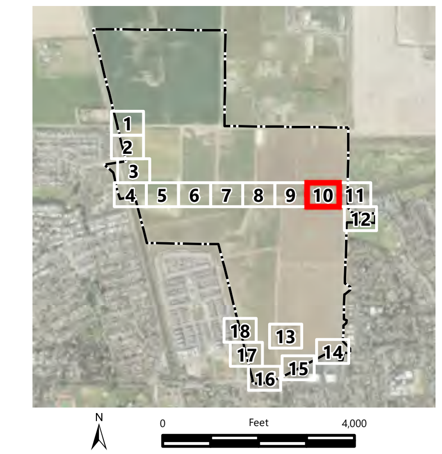
0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Tree Inventory
Page 9 of 18

Village Farms Davis
Davis, Yolo County, California

Page Index



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Boxelder
- Coast Live Oak

Non-Native Trees

- Arizona Ash
- Chinese Elm
- Chinese Tallowtree
- Chinese Wingnut
- Cigar Tree
- Cork Oak
- Japanese Privet
- Silver Maple

N

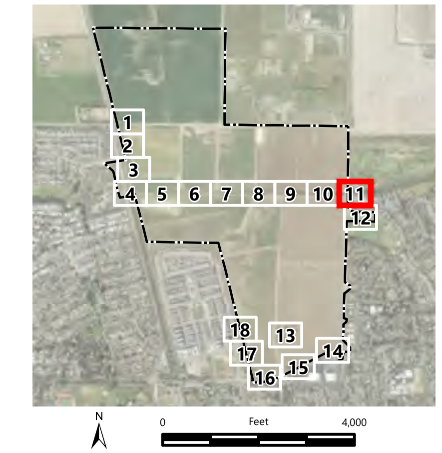
0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Tree Inventory
Page 10 of 18

Village Farms Davis
Davis, Yolo County, California

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Boxelder
- Northern California Black Walnut

Non-Native Trees

- Arizona Ash
- Chinese Elm
- Chinese Wingnut
- Cork Oak

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

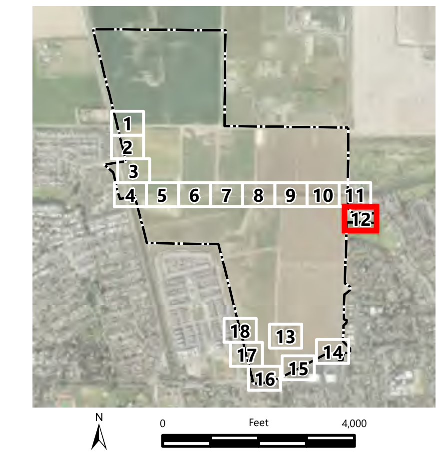
Tree Inventory
Page 11 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Coast Live Oak
- Valley Oak

Non-Native Trees

- American Sycamore
- Arizona Ash
- Chinese Hackberry
- Chinese Pistache
- Chinese Tallowtree
- Queen's Crepe-Myrtle

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

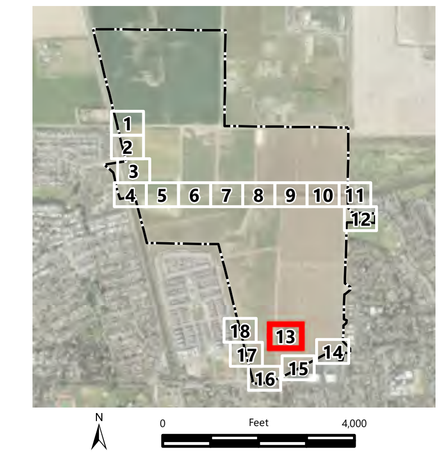
Tree Inventory
Page 12 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Valley Oak

Non-Native Trees

- Aleppo Pine
- Siberian Elm

N

Feet 0 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

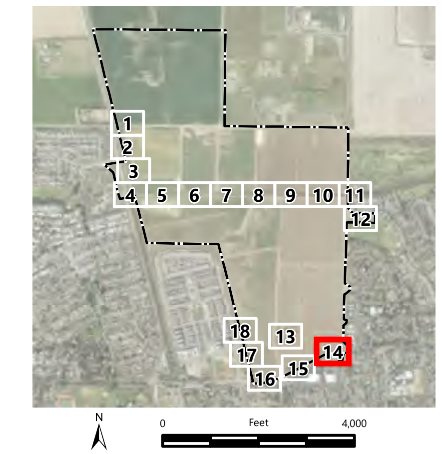
Tree Inventory
Page 13 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Redwood

Non-Native Trees

- Aleppo Pine
- Bradford Pear
- Cherry Plum
- Chinese Hackberry
- Chinese Tallowtree
- English Walnut
- Pecan
- Persian Silk Tree

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

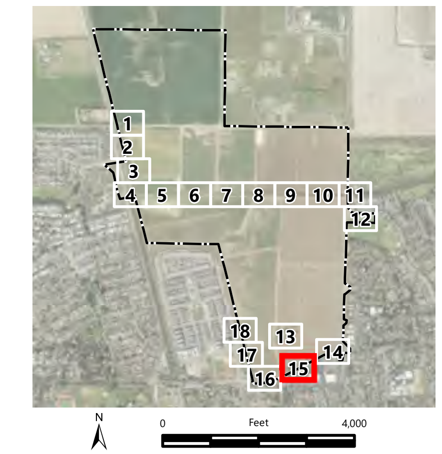
Tree Inventory
Page 14 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Valley Oak

Non-Native Trees

- Bradford Pear
- Chinese Tallowtree
- Siberian Elm

N

Feet 0 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

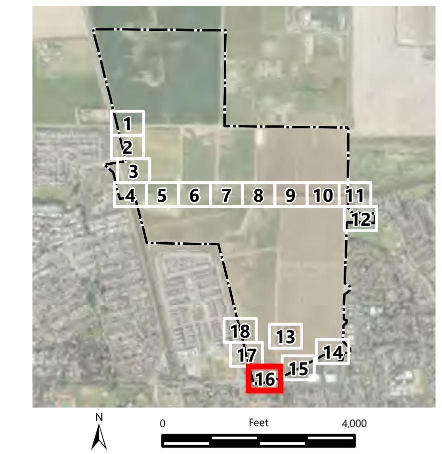
Tree Inventory
Page 15 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Valley Oak

Non-Native Trees

- Australian Blackwood
- Chinese Hackberry
- Chinese Pistache
- Cork Oak
- Narrow-Leaved Ash

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

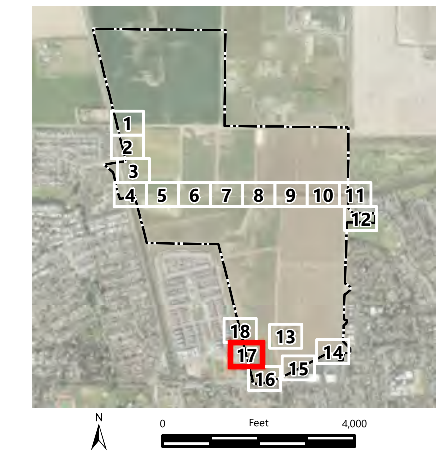
Tree Inventory
Page 16 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Page Index



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Coast Live Oak
- Valley Oak

Non-Native Trees

- Almond
- Australian Blackwood
- Chinese Pistache

N

0 Feet 50

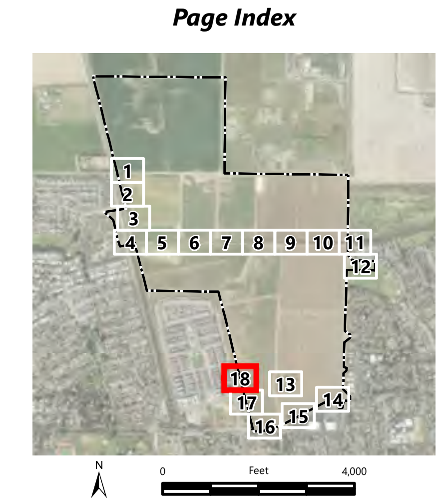
Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Tree Inventory
Page 17 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)



Study Area (515.9 acres)

Trees within the Study Area

Native Trees

- Coast Live Oak
- Valley Oak

Non-Native Trees

- Almond
- Australian Blackwood
- Chinese Pistache
- Olive

N

0 Feet 50

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022

Tree Inventory
Page 18 of 18

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

P:\Village Farms Davis\Maps\MXDs\MXDs_Tree_Inventory\VillageFarms_TreeInventory_MapBook_v1.mxd (6/28/2024 - jswager)

Attachment B

Arborist Survey Data

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1	Valley Oak	*Quercus lobata*	15		15	good	good	
2	Valley Oak	*Quercus lobata*	16		15	fair	fair	
3	Valley Oak	*Quercus lobata*	11		10	fair	fair	
4	Valley Oak	*Quercus lobata*	14.5	8, 6.5	15	good	fair	
5	Valley Oak	*Quercus lobata*	11		10	good	fair	
6	Valley Oak	*Quercus lobata*	11		10	fair	fair	
7	American Sycamore	*Platanus occidentalis*	13.5		20	fair	fair	
8	American Sycamore	*Platanus occidentalis*	11		15	fair	fair	
9	American Sycamore	*Platanus occidentalis*	10		15	fair	fair	
10	American Sycamore	*Platanus occidentalis*	9		15	fair	poor	
11	Coast Live Oak	*Quercus agrifolia*	14		15	good	fair	
12	Arizona Ash	*Fraxinus velutina*	17.5		20	fair	fair	
13	Arizona Ash	*Fraxinus velutina*	22		25	fair	fair	
14	Arizona Ash	*Fraxinus velutina*	18		20	fair	fair	
15	Arizona Ash	*Fraxinus velutina*	14.5		20	fair	fair	
16	Arizona Ash	*Fraxinus velutina*	19.5		25	fair	fair	
17	Chinese Tallowtree	*Triadica sebifera*	13		15	fair	fair	
18	Chinese Tallowtree	*Triadica sebifera*	7		10	poor	poor	
19	Chinese Tallowtree	*Triadica sebifera*	14		15	fair	fair	
20	Chinese Tallowtree	*Triadica sebifera*	17		15	fair	poor	
21	Chinese Tallowtree	*Triadica sebifera*	12		10	fair	fair	
22	American Sycamore	*Platanus occidentalis*	10		15	fair	fair	
23	American Sycamore	*Platanus occidentalis*	9		15	fair	fair	
24	American Sycamore	*Platanus occidentalis*	9.5		15	fair	fair	
25	American Sycamore	*Platanus occidentalis*	9.5		15	fair	fair	
26	American Sycamore	*Platanus occidentalis*	9.5		15	fair	fair	
27	Chinese Hackberry	*Celtis sinensis*	10.5		15	fair	good	
28	American Sycamore	*Platanus occidentalis*	10.5		20	fair	fair	
29	Chinese Pistache	*Pistacia chinensis*	9.5		15	fair	fair	
30	American Sycamore	*Platanus occidentalis*	11		20	fair	good	
31	Chinese Hackberry	*Celtis sinensis*	13		25	fair	good	
32	American Sycamore	*Platanus occidentalis*	11		15	fair	fair	
33	Valley Oak	*Quercus lobata*	23		30	good	good	
34	American Sycamore	*Platanus occidentalis*	11		15	fair	fair	
35	Queen's Crepe-Myrtle	*Lagerstroemia speciosa*	5		10	fair	fair	
36	Queen's Crepe-Myrtle	*Lagerstroemia speciosa*	6.5		10	fair	fair	
37	Chinese Pistache	*Pistacia chinensis*	8.5		10	fair	fair	
38	Queen's Crepe-Myrtle	*Lagerstroemia speciosa*	5		10	fair	fair	
39	Queen's Crepe-Myrtle	*Lagerstroemia speciosa*	5		10	fair	poor	
40	Narrow-Leaved Ash	*Fraxinus angustifolia*	10.5		10	fair	fair	
41	Chinese Hackberry	*Celtis sinensis*	9		5	fair	fair	
42	Cork Oak	*Quercus suber*	13		10	fair	fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
43	Chinese Hackberry	*Celtis sinensis*	6		5	fair	fair	
44	Chinese Hackberry	*Celtis sinensis*	10		15	fair	fair	
45	Chinese Hackberry	*Celtis sinensis*	18		15	fair	fair	
46	Cork Oak	*Quercus suber*	16		15	fair	fair	
47	Chinese Hackberry	*Celtis sinensis*	19		15	fair	fair	
48	Chinese Hackberry	*Celtis sinensis*	5		5	fair	fair	
49	Chinese Hackberry	*Celtis sinensis*	15.5		15	fair	fair	
50	Chinese Tallowtree	*Triadica sebifera*	17.5		10	fair	fair	
51	Chinese Tallowtree	*Triadica sebifera*	10.5		10	fair	fair	
52	Chinese Tallowtree	*Triadica sebifera*	17.5		15	fair	fair	
53	Chinese Tallowtree	*Triadica sebifera*	13.5		10	fair	fair	
54	Chinese Tallowtree	*Triadica sebifera*	17		10	fair	fair	
55	Chinese Tallowtree	*Triadica sebifera*	20.5		15	fair	fair	
56	Chinese Tallowtree	*Triadica sebifera*	11		10	fair	fair	
57	Bradford Pear	*Pyrus calleryana*	14.5		10	fair	fair	
58	Chinese Tallowtree	*Triadica sebifera*	14		10	fair	fair	
59	Chinese Tallowtree	*Triadica sebifera*	20		15	fair	fair	
60	Chinese Tallowtree	*Triadica sebifera*	16		10	fair	fair	
61	Chinese Tallowtree	*Triadica sebifera*	19.5		15	fair	fair	
62	Chinese Tallowtree	*Triadica sebifera*	11		10	fair	fair	
63	Chinese Tallowtree	*Triadica sebifera*	23.5		15	fair	fair	
64	Chinese Tallowtree	*Triadica sebifera*	10		5	fair	fair	
65	Chinese Tallowtree	*Triadica sebifera*	13		10	fair	fair	
66	Chinese Tallowtree	*Triadica sebifera*	8		10	fair	fair	
67	Chinese Tallowtree	*Triadica sebifera*	19		15	fair	fair	
68	Chinese Tallowtree	*Triadica sebifera*	9		5	fair	fair	
69	Chinese Tallowtree	*Triadica sebifera*	14		15	fair	fair	
70	Chinese Tallowtree	*Triadica sebifera*	16.5		10	fair	fair	
71	Bradford Pear	*Pyrus calleryana*	18		10	fair	fair	
72	Chinese Tallowtree	*Triadica sebifera*	15.5		10	fair	fair	
73	Chinese Tallowtree	*Triadica sebifera*	22.5		15	fair	fair	
74	Cherry Plum	*Prunus cerasifera*	8		10	poor	fair	many dead branches.
75	Aleppo Pine	*Pinus halepensis*	38.5		20	fair	fair	
76	Aleppo Pine	*Pinus halepensis*	29		15	fair	fair	
77	Chinese Tallowtree	*Triadica sebifera*	32	14, 10, 8	15	fair	fair	
78	Chinese Tallowtree	*Triadica sebifera*	22		15	fair	fair	
79	Chinese Hackberry	*Celtis sinensis*	18		20	fair	fair	
80	Redwood	*Sequoia sempervirens*	26.5		10	fair	fair	
81	Redwood	*Sequoia sempervirens*	17		10	fair	fair	
82	Kentucky Coffeetree	*Gymnocladus dioicus*	8.5		15	fair	fair	
83	Sour Cherry	*Prunus cerasus*	8.5		5	poor	fair	
84	Bald Cypress	*Taxodium distichum*	13		10	fair	fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
85	Cork Oak	*Quercus suber*	19.9		26	good	good	
100	Cigar Tree	*Catalpa bignoniodes*	24.5	5.5, 6.5, 12.5	12	Fair	Fair	
105	Northern California Black Walnut	*Juglans hindsii*	23.3		36	good	good	diameter measured at 30" due to branching.
110	Arizona Ash	*Fraxinus velutina*	35.4	13.2, 22.2	26	good	good	
112	Arizona Ash	*Fraxinus velutina*	32.3	18.0, 10.0, 4.3	20	fair	fair	
139	Chinese Wingnut	*Pterocarya stenoptera*	8.4		20	fair	fair	
143	Arizona Ash	*Fraxinus velutina*	47.5	7.6, 8.0, 5.7, 13.0, 13.2	30	fair	fair	inactive stick nest in good repair in this tree
146	Chinese Wingnut	*Pterocarya stenoptera*	15.3		28	fair	good	diameter at 30 due to branching
148	Chinese Wingnut	*Pterocarya stenoptera*	26.6	9.6, 17.0	30	poor to fair	fair	large branches are dead, and other portions appear to be dying while still other portions have vigorous new growth.
148	Cigar Tree	*Catalpa bignoniodes*	22.5	17.5, 5.0	15	Poor	Poor	
149	Chinese Wingnut	*Pterocarya stenoptera*	6.2		10	good	poor	main trunk has been cut approx 15 ft up. no remaining central leader.
150	Chinese Wingnut	*Pterocarya stenoptera*	12.6	8.2, 4.4	26	good	fair	substantial lean
152	Chinese Wingnut	*Pterocarya stenoptera*	13.4	5.4, 8.0	22	good	good	
154	Arizona Ash	*Fraxinus velutina*	23.7	12.0, 7.7, 4.0	28	fair	fair	
155	Chinese Wingnut	*Pterocarya stenoptera*	6.5		18	good	good	
156	Chinese Wingnut	*Pterocarya stenoptera*	5.5		16	good	good	
157	Chinese Wingnut	*Pterocarya stenoptera*	5.6		20	fair	fair	leaning
158	Chinese Wingnut	*Pterocarya stenoptera*	8.7		20	good	fair to poor	most major branches have been topped.
159	Chinese Wingnut	*Pterocarya stenoptera*	13.6		32	good	fair	substantial lean to north
160	Chinese Wingnut	*Pterocarya stenoptera*	19.7	10.3, 4.5, 4.9	26	good	fair	substantial lean to south
161	Chinese Wingnut	*Pterocarya stenoptera*	11.2	6.7, 4.5	20	fair	fair	two smaller trunks almost dead but remaining trunk appears healthy. did not measure dbh of small dead trunk
162	Arizona Ash	*Fraxinus velutina*	23.7	8.0, 15.7	28	fair	good	
163	Chinese Wingnut	*Pterocarya stenoptera*	7.1		16	good	fair to poor	trunk makes a 90 degree bend, and major branches go vertical off of the horizontal trunk. one of those branches has been topped.
164	Chinese Wingnut	*Pterocarya stenoptera*	32.4	15.0, 12.6, 4.8	30	good	good	
165	Chinese Wingnut	*Pterocarya stenoptera*	8.3		22	good	good	
166	Chinese Wingnut	*Pterocarya stenoptera*	10.1		18	good	good	
167	Chinese Wingnut	*Pterocarya stenoptera*	9.7		22	good	good	
168	Chinese Wingnut	*Pterocarya stenoptera*	24.3	12.2, 12.1	30	good	good	
169	Arizona Ash	*Fraxinus velutina*	29.4	5.1, 13.0, 11.3	28	good	good	
171	Arizona Ash	*Fraxinus velutina*	9.5		20	Fair	Poor	
172	Arizona Ash	*Fraxinus velutina*	17.5	7.5, 10.0	18	Fair	Fair	
173	Arizona Ash	*Fraxinus velutina*	21	14.0, 7.0	14	Poor	Poor	
197	Siberian Elm	*Ulmus pumila*	85	62, 23	30	fair	fair	preexisting tag. tag on smaller trunk
232	Valley Oak	*Quercus lobata*	22		25	fair	fair	preexisting tag
235	Valley Oak	*Quercus lobata*	17		15	fair	good	preexisting tag
501	Arizona Ash	*Fraxinus velutina*	8		16	fair	fair	healing scar on lower trunk, some bark separation on opposite side of trunk.
502	Chinese Wingnut	*Pterocarya stenoptera*	5.6		18	good	good	
503	Chinese Wingnut	*Pterocarya stenoptera*	23.1	12.5, 6.8, 3.8	20	good	good	
504	Chinese Wingnut	*Pterocarya stenoptera*	16.9	4.5, 6.0, 6.4	18	good	good	
601	Arizona Ash	*Fraxinus velutina*	13.5	6.0, 7.5	16	Fair	Poor	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
602	Chinese Wingnut	*Pterocarya stenoptera*	8.5		12	Poor	Poor	
603	Chinese Wingnut	*Pterocarya stenoptera*	9		10	Poor	Poor	
604	Chinese Wingnut	*Pterocarya stenoptera*	19		12	Poor	Poor	
605	Valley Oak	*Quercus lobata*	5.5		8	Fair	Fair	
606	Arizona Ash	*Fraxinus velutina*	56.5	7.0, 9.5, 7.5, 4.0, 7.0, 8.5, 4.5, 8.5	16	Poor	Poor	
607	Chinese Wingnut	*Pterocarya stenoptera*	18.5	12.5, 6.0	18	Poor	Poor	
608	Arizona Ash	*Fraxinus velutina*	77	10.0, 13.0, 11.5, 9.5, 9.5, 8.5, 6.0, 5.0, 4.0	20	Poor	Poor	Old tag 160
609	Arizona Ash	*Fraxinus velutina*	9		12	Poor	Poor	
610	Arizona Ash	*Fraxinus velutina*	9.5	6.0, 3.5	12	Poor	Poor	
611	Chinese Wingnut	*Pterocarya stenoptera*	24.5	18.5, 6.0	22	Poor	Poor	
612	Valley Oak	*Quercus lobata*	30		35	Fair	Fair	
613	Red Willow	*Salix laevigata*	66	36.0, 30.0	18	Poor	Poor	Bat roost habitat
614	Chinese Wingnut	*Pterocarya stenoptera*	16		18	Poor	Poor	
615	Arizona Ash	*Fraxinus velutina*	24		15	Poor	Poor	
616	Arizona Ash	*Fraxinus velutina*	15	7.0, 5.0, 3.0	15	Poor	Poor	
617	Arizona Ash	*Fraxinus velutina*	7.5		12	Fair	Poor	
618	Chinese Wingnut	*Pterocarya stenoptera*	6.5		8	Poor	Fair	
619	Chinese Wingnut	*Pterocarya stenoptera*	6		8	Fair	Fair	
620	Chinese Wingnut	*Pterocarya stenoptera*	16.5	13.0, 3.5	20	Poor	Fair	
621	Arizona Ash	*Fraxinus velutina*	17	12.0, 5.0	10	Poor	Poor	
622	Chinese Wingnut	*Pterocarya stenoptera*	11		14	Poor	Poor	
623	Chinese Wingnut	*Pterocarya stenoptera*	6.5		16	Poor	Poor	
624	Chinese Wingnut	*Pterocarya stenoptera*	12		20	Poor	Poor	
625	Arizona Ash	*Fraxinus velutina*	12.5	7.0, 5.5	12	Poor	Poor	
626	Arizona Ash	*Fraxinus velutina*	16	8.5, 7.5	12	Fair	Poor	
627	Chinese Wingnut	*Pterocarya stenoptera*	22.5	15.5, 7.0	22	Poor	Poor	
628	Chinese Wingnut	*Pterocarya stenoptera*	8.5		12	Poor	Poor	
629	Chinese Wingnut	*Pterocarya stenoptera*	18.5	10.5, 8.0	15	Poor	Poor	
630	Chinese Wingnut	*Pterocarya stenoptera*	31.5	8.0, 12.0, 11.5	22	Poor	Poor	
631	Chinese Wingnut	*Pterocarya stenoptera*	16		20	Poor	Poor	
632	Chinese Wingnut	*Pterocarya stenoptera*	12.5		16	Poor	Poor	
633	Chinese Wingnut	*Pterocarya stenoptera*	12.5		15	Poor	Poor	
634	Chinese Wingnut	*Pterocarya stenoptera*	27.5	11.0, 6.0, 10.5	20	Poor	Poor	
635	Chinese Wingnut	*Pterocarya stenoptera*	11		20	Poor	Poor	
636	Chinese Wingnut	*Pterocarya stenoptera*	19.5		25	Poor	Poor	
637	Arizona Ash	*Fraxinus velutina*	17.4	10.5, 6.9	24	fair	fair	
638	Arizona Ash	*Fraxinus velutina*	5		5	poor	poor	tree is nearly dead. hosting Schizophyllum
639	Arizona Ash	*Fraxinus velutina*	6.1		16	fair	fair	
640	Arizona Ash	*Fraxinus velutina*	39.5	9.2, 9.1, 7.1, 5.5, 8.6	22	good	good	
641	Arizona Ash	*Fraxinus velutina*	20	12.6, 7.4	24	good	good	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
642	Arizona Ash	*Fraxinus velutina*	14.9	4.6, 6.8, 3.5	14	fair	good	
643	Arizona Ash	*Fraxinus velutina*	8.7	8.7	14	fair to poor	fair	large portions dead. did not measure dbh of dead trunk.
644	Arizona Ash	*Fraxinus velutina*	13.5	4.2, 5.5, 3.8	20	fair to poor	fair	large portions dead, stump sprouts, "bushy"
645	Arizona Ash	*Fraxinus velutina*	26.6	8.7, 11.7, 6.2	20	fair	good	
646	Arizona Ash	*Fraxinus velutina*	19.9	11.2, 8.7	22	fair	good	
647	Arizona Ash	*Fraxinus velutina*	20.1	7.1, 7.8, 5.2	20	fair	good	
648	Arizona Ash	*Fraxinus velutina*	43.9	17.3, 11.1, 6.0, 9.5	26	fair	good	
649	Arizona Ash	*Fraxinus velutina*	17.3	6.1, 11.2	20	fair to poor	fair	foliage does not look vigorous, numerous dead branches, and numerous trunk sprouts.
650	Arizona Ash	*Fraxinus velutina*	11.5	6.3, 5.2	16	good	good	
651	Chinese Wingnut	*Pterocarya stenoptera*	6.5		15	good	good	
652	Arizona Ash	*Fraxinus velutina*	7.7		20	good	fair	substantial lean to southwest
653	Arizona Ash	*Fraxinus velutina*	5.2		5	poor	poor	tree appears to be dying
654	Arizona Ash	*Fraxinus velutina*	48.5	13.6, 9.6, 11.4, 5.9, 8.0	32	good	good	
655	Chinese Tallowtree	*Triadica sebifera*	7.1		14	good	good	
656	Chinese Wingnut	*Pterocarya stenoptera*	5.6		6	fair	poor	trunk topped
657	Arizona Ash	*Fraxinus velutina*	12.7		20	fair	fair	
658	Arizona Ash	*Fraxinus velutina*	16.5	10.1, 6.4	18	fair	good	
659	Arizona Ash	*Fraxinus velutina*	15.9	5.9, 6.1, 3.9	15	poor	poor	most branches dead, only those with some live growth included in dbh tally. all trunks leaning to the east.
660	Chinese Wingnut	*Pterocarya stenoptera*	5.7		5	good	poor	trunk cut 10 ft up.
661	Cigar Tree	*Catalpa bignoniodes*	9.8	5.7, 4.1	20	good	fair	
662	Japanese Privet	*Ligustrum japonicum*	10		12	good	good	
663	Boxelder	*Acer negundo*	24.3	7.0, 8.2, 9.1	20	good	good	
664	Arizona Ash	*Fraxinus velutina*	13.8	8.0, 5.8	18	fair	fair	
665	Arizona Ash	*Fraxinus velutina*	6	6.0	18	fair	fair	
666	Arizona Ash	*Fraxinus velutina*	7	7.0	26	fair	fair	
667	Arizona Ash	*Fraxinus velutina*	10.2	5.5, 4.7	12	fair	fair to poor	very scrubby tree. one small trunk is dead, and another has been cut by road.
668	Arizona Ash	*Fraxinus velutina*	13.7	9.8, 3.9	25	fair	fair	
669	Arizona Ash	*Fraxinus velutina*	18.9	11.8, 7.1	22	good	good	
670	Arizona Ash	*Fraxinus velutina*	10		15	fair to poor	good	substantial dead wood
671	Arizona Ash	*Fraxinus velutina*	17.8	4.5, 5.1, 8.2	20	fair to poor	fair	substantial dead wood
672	Boxelder	*Acer negundo*	5.4		12	good	poor	main trunk cut at about 6 ft up. no remaining central leader.
673	Boxelder	*Acer negundo*	16.7	12.3, 4.4	18	good	good	
674	Chinese Wingnut	*Pterocarya stenoptera*	9.5		24	good	fair	cavity below trunk and substantial lean to north (reflected in dripline radius)
675	Chinese Wingnut	*Pterocarya stenoptera*	8.7		18	good	good	
676	Chinese Wingnut	*Pterocarya stenoptera*	6.5		5	fair	poor	trunks has been cut approx 15 ft up. no long has a central leader.
677	Arizona Ash	*Fraxinus velutina*	14.4	4.4, 4.8, 5.2	22	good	good	
678	Arizona Ash	*Fraxinus velutina*	14.2	4.5, 5.4, 4.3	18	good	good	
679	Arizona Ash	*Fraxinus velutina*	18.5	4.3, 6.0, 3.8, 4.4	18	fair	good	
680	Arizona Ash	*Fraxinus velutina*	9.8		18	poor	good	very little live growth on most of the tree.
681	Chinese Elm	*Ulmus parvifolia*	6.2		22	good	fair	tree has a substantial lean which is reflected in the dripline radius.
682	Chinese Elm	*Ulmus parvifolia*	5.3		30	good	fair	tree has a substantial lean which is reflected in the dripline radius.

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
683	Chinese Elm	*Ulmus parvifolia*	44.2	7.7, 14.2, 10.5, 6.8, 5.0	35	good	fair	this is a tree with many closely spaced trunks. hard to tell if it is one tree or more than one, so inventoried as one. as with other elms along here, several main branches have snapped.
684	Chinese Elm	*Ulmus parvifolia*	48.3	6.6, 7.0, 4.8, 8.9, 5.9, 6.0, 5.4, 3.7	30	good	fair	this tree is a complex of numerous large trunks all growing together. it's hard to tell if they are all one or multiple trees, so they have been inventoried together. one section with multiple large trunks has fallen over - this was not inventoried
685	Chinese Elm	*Ulmus parvifolia*	11.5		15	good	fair	one major branch has snapped. remaining branch looks good
686	Chinese Elm	*Ulmus parvifolia*	5		25	good	fair	substantial lean to southwest; reflected in dripline
687	Chinese Elm	*Ulmus parvifolia*	6.3		20	good	good	
688	Chinese Elm	*Ulmus parvifolia*	11.5		28	good	good	
689	Chinese Elm	*Ulmus parvifolia*	8.7		2	good	poor	main trunk has snapped 15 ft up. remainder of tree is vigorous but normal growth form is no longer possible for this tree.
690	Chinese Elm	*Ulmus parvifolia*	25.5	9.6, 9.3, 6.6	30	fair	fair	one of main trunks has snapped about 20 feet up.
691	Chinese Elm	*Ulmus parvifolia*	8		20	good	good	
692	Chinese Elm	*Ulmus parvifolia*	21.3	11.9, 4.5, 4.9	22	fair	good	
693	Chinese Elm	*Ulmus parvifolia*	24.7	10.5, 14.2	22	good	good	
694	Chinese Wingnut	*Pterocarya stenoptera*	5		15	good	good	
699	Chinese Wingnut	*Pterocarya stenoptera*	18.3	12.3, 6.0	20	good	good	
701	Chinese Wingnut	*Pterocarya stenoptera*	8		12	Fair	Fair	
702	Chinese Wingnut	*Pterocarya stenoptera*	9		25	Fair	Poor	
703	Cigar Tree	*Catalpa bignoniodes*	6.5		10	Poor	Fair	
704	Chinese Wingnut	*Pterocarya stenoptera*	7.5		12	Poor	Poor	
705	Arizona Ash	*Fraxinus velutina*	5.5		10	Poor	Poor	
706	Chinese Wingnut	*Pterocarya stenoptera*	8		12	Fair	Fair	
707	Chinese Wingnut	*Pterocarya stenoptera*	13	5.0, 8.0	14	Poor	Poor	
708	Chinese Wingnut	*Pterocarya stenoptera*	29	15.0, 5.0, 9.0	25	Fair	Poor	
709	Chinese Wingnut	*Pterocarya stenoptera*	28.5	5.5, 14.0, 9.0	25	Fair	Poor	
710	Chinese Wingnut	*Pterocarya stenoptera*	8		8	Fair	Fair	
711	Chinese Wingnut	*Pterocarya stenoptera*	5.5		12	Poor	Poor	
712	Chinese Wingnut	*Pterocarya stenoptera*	7.5		12	Fair	Fair	
713	Chinese Wingnut	*Pterocarya stenoptera*	21	9.0, 7.0, 5.0	18	Poor	Poor	
714	Chinese Wingnut	*Pterocarya stenoptera*	12		25	Fair	Poor	
715	Chinese Wingnut	*Pterocarya stenoptera*	9		20	Poor	Poor	
716	Chinese Wingnut	*Pterocarya stenoptera*	12		25	Fair	Poor	
717	Chinese Wingnut	*Pterocarya stenoptera*	8		15	Poor	Poor	
718	Chinese Wingnut	*Pterocarya stenoptera*	19	11.5, 7.5	20	Poor	Poor	
719	Chinese Wingnut	*Pterocarya stenoptera*	8		10	Poor	Fair	
720	Chinese Wingnut	*Pterocarya stenoptera*	11		10	Poor	Fair	
721	Chinese Wingnut	*Pterocarya stenoptera*	11		20	Poor	Poor	
722	Chinese Wingnut	*Pterocarya stenoptera*	12		12	Fair	Fair	
723	Chinese Wingnut	*Pterocarya stenoptera*	28.5	5.5, 12.0, 11.0	22	Poor	Poor	
724	Chinese Wingnut	*Pterocarya stenoptera*	17	6.0, 11.0	18	Fair	Poor	
725	Chinese Wingnut	*Pterocarya stenoptera*	9.5		18	Fair	Fair	
726	Chinese Wingnut	*Pterocarya stenoptera*	20.5	4.5, 5.5, 10.5	25	Poor	Poor	
727	Chinese Wingnut	*Pterocarya stenoptera*	5		8	Fair	Fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
728	Chinese Wingnut	*Pterocarya stenoptera*	19	9.5, 9.5	20	Fair	Fair	
729	Chinese Wingnut	*Pterocarya stenoptera*	20	9.0, 11.0	20	Fair	Fair	
730	Chinese Wingnut	*Pterocarya stenoptera*	8		15	Fair	Poor	
731	Chinese Wingnut	*Pterocarya stenoptera*	12		15	Poor	Poor	
732	Arizona Ash	*Fraxinus velutina*	21.5	5.0, 6.0, 6.0, 4.5	15	Poor	Poor	
733	Chinese Wingnut	*Pterocarya stenoptera*	7		25	Poor	Poor	
734	Chinese Wingnut	*Pterocarya stenoptera*	20		20	Poor	Poor	
735	Chinese Wingnut	*Pterocarya stenoptera*	26.5	13.5, 13.0	25	Fair	Poor	
736	Arizona Ash	*Fraxinus velutina*	8	5.0, 3.0	10	Poor	Poor	
737	Arizona Ash	*Fraxinus velutina*	6		10	Fair	Fair	
738	Arizona Ash	*Fraxinus velutina*	11	7.0, 4.0	12	Fair	Poor	
739	Arizona Ash	*Fraxinus velutina*	10.5	5.5, 5.0	12	Fair	Poor	
740	Arizona Ash	*Fraxinus velutina*	9		15	Fair	Fair	
741	Chinese Wingnut	*Pterocarya stenoptera*	34	11.0, 8.0, 15.0	25	Fair	Poor	
742	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
743	Chinese Wingnut	*Pterocarya stenoptera*	24	15.0, 9.0	20	Fair	Poor	
744	Chinese Wingnut	*Pterocarya stenoptera*	17		25	Fair	Poor	
745	Chinese Wingnut	*Pterocarya stenoptera*	25.5	16.0, 6.5, 3.0	20	Fair	Poor	
746	Chinese Wingnut	*Pterocarya stenoptera*	18.5	5.0, 6.0, 4.0, 3.5	12	Poor	Poor	
747	Chinese Wingnut	*Pterocarya stenoptera*	37	13.0, 4.0, 9.5, 10.5	20	Poor	Poor	
748	Chinese Wingnut	*Pterocarya stenoptera*	19	5.0, 5.5, 8.5	15	Fair	Poor	
749	Chinese Wingnut	*Pterocarya stenoptera*	19.5	12.5, 7.0	15	Fair	Fair	
750	Chinese Wingnut	*Pterocarya stenoptera*	30	10.0, 4.0, 13.0, 3.0	15	Fair	Poor	
751	Chinese Wingnut	*Pterocarya stenoptera*	7		8	Fair	Fair	
752	Cigar Tree	*Catalpa bignoniodes*	42.5	12.0, 5.0, 10.5, 15.0	20	Poor	Poor	
753	Siberian Elm	*Ulmus pumila*	15	5.5, 9.5	15	Fair	Fair	
754	Siberian Elm	*Ulmus pumila*	6		12	Poor	Poor	
755	Siberian Elm	*Ulmus pumila*	71	16.0, 7.5, 9.0, 6.5, 11.5, 5.5, 15.0	25	Fair	Poor	
756	Siberian Elm	*Ulmus pumila*	29	11.0, 12.0, 6.0	20	Poor	Poor	
757	Siberian Elm	*Ulmus pumila*	25	16.0, 9.0	20	Fair	Fair	
758	Chinese Tallowtree	*Triadica sebifera*	7.5		8	Fair	Fair	
759	Chinese Tallowtree	*Triadica sebifera*	16.5	7.5, 9.0	12	Fair	Fair	
760	Arizona Ash	*Fraxinus velutina*	5.5		8	Fair	Fair	
761	Arizona Ash	*Fraxinus velutina*	11	7.0, 4.0	10	Fair	Fair	
762	Arizona Ash	*Fraxinus velutina*	15	10.0, 5.0	15	Fair	Fair	
763	Arizona Ash	*Fraxinus velutina*	26.5	13.5, 8.0, 5.0	14	Fair	Fair	
764	Boxelder	*Acer negundo*	7.5		10	Fair	Fair	
765	Boxelder	*Acer negundo*	22	10.5, 11.5	18	Fair	Fair	
766	Arizona Ash	*Fraxinus velutina*	8		10	Fair	Fair	
767	Arizona Ash	*Fraxinus velutina*	10.5		10	Fair	Fair	
768	Arizona Ash	*Fraxinus velutina*	9.5		10	Fair	Fair	

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
769	Arizona Ash	*Fraxinus velutina*	13.5	8.5, 5.0	12	Fair	Poor	
770	Northern California Black Walnut	*Juglans hindsii*	24.5		25	Fair	Fair	
771	Chinese Tallowtree	*Triadica sebifera*	12		12	Fair	Fair	
772	Arizona Ash	*Fraxinus velutina*	11.5	6.5, 5.0	12	Poor	Poor	
773	Arizona Ash	*Fraxinus velutina*	19	10.0, 9.0	15	Fair	Fair	
774	Northern California Black Walnut	*Juglans hindsii*	29	15.0, 14.0	25	Fair	Fair	
775	Chinese Tallowtree	*Triadica sebifera*	11.5		15	Fair	Fair	
776	Arizona Ash	*Fraxinus velutina*	9		12	Fair	Fair	
777	Northern California Black Walnut	*Juglans hindsii*	9.5		14	Fair	Good	
778	Arizona Ash	*Fraxinus velutina*	9.5		12	Fair	Poor	
779	Arizona Ash	*Fraxinus velutina*	40.5	4.0, 5.0, 6.0, 8.0, 8.5, 9.0	20	Poor	Poor	
780	Arizona Ash	*Fraxinus velutina*	14	9.5, 4.5	15	Fair	Fair	
781	Arizona Ash	*Fraxinus velutina*	6		10	Fair	Poor	
782	Arizona Ash	*Fraxinus velutina*	7		12	Fair	Fair	
783	Arizona Ash	*Fraxinus velutina*	33.5	13.5, 7.5, 12.5	20	Poor	Poor	
784	Arizona Ash	*Fraxinus velutina*	9		15	Fair	Fair	
785	Arizona Ash	*Fraxinus velutina*	9		12	Fair	Fair	
786	Arizona Ash	*Fraxinus velutina*	8.5		14	Poor	Fai	
787	Arizona Ash	*Fraxinus velutina*	9.5		12	Fair	Fair	
788	Arizona Ash	*Fraxinus velutina*	8		8	Fair	Good	
789	Arizona Ash	*Fraxinus velutina*	6		10	Fair	Fair	
790	Arizona Ash	*Fraxinus velutina*	8.5		20	Fair	Poor	
791	Arizona Ash	*Fraxinus velutina*	17.5	8.5, 9.0	15	Fair	Fair	
792	Arizona Ash	*Fraxinus velutina*	8.5		10	Good	Fair	
793	Arizona Ash	*Fraxinus velutina*	8.5		18	Fair	Poor	
794	Arizona Ash	*Fraxinus velutina*	7.5		10	Fair	Fair	
795	Arizona Ash	*Fraxinus velutina*	11		15	Fair	Fair	
796	Arizona Ash	*Fraxinus velutina*	23.5	10.5, 6.5, 6.5	12	Fair	Fair	
797	Arizona Ash	*Fraxinus velutina*	7		15	Fair	Fair	
798	Arizona Ash	*Fraxinus velutina*	24.5	5.5, 3.0, 7.0, 5.0, 4.0	12	Fair	Poor	
799	Arizona Ash	*Fraxinus velutina*	7.8		8	Fair	Fair	
800	Arizona Ash	*Fraxinus velutina*	12.3		12	Fair	Fair	
801	Chinese Wingnut	*Pterocarya stenoptera*	13	7.5, 5.5	16	Poor	Poor	
802	Chinese Wingnut	*Pterocarya stenoptera*	8		12	Poor	Poor	
803	Chinese Wingnut	*Pterocarya stenoptera*	12.5		20	Poor	Poor	
804	Chinese Wingnut	*Pterocarya stenoptera*	26.5	12.5, 14.0	20	Poor	Poor	
805	Cigar Tree	*Catalpa bignoniodes*	5.5		8	Fair	Fair	
806	Chinese Wingnut	*Pterocarya stenoptera*	19.5	12.5, 7.0	18	Poor	Poor	
807	Chinese Wingnut	*Pterocarya stenoptera*	36	10.0, 12.0, 10.0, 4.0	18	Poor	Poor	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
808	Chinese Wingnut	*Pterocarya stenoptera*	11		18	Poor	Poor	
809	Arizona Ash	*Fraxinus velutina*	13.5	5.0, 5.5, 3.0	10	Poor	Poor	
810	Chinese Wingnut	*Pterocarya stenoptera*	22.5	12.5, 10.0	20	Poor	Poor	
811	Chinese Wingnut	*Pterocarya stenoptera*	17	7.0, 6.0, 4.0	16	Poor	Poor	
812	Chinese Wingnut	*Pterocarya stenoptera*	6.5		15	Poor	Poor	
813	Chinese Wingnut	*Pterocarya stenoptera*	27	21.0, 6.0	25	Poor	Poor	
814	Chinese Wingnut	*Pterocarya stenoptera*	14		18	Poor	Poor	
815	Chinese Wingnut	*Pterocarya stenoptera*	14.5		20	Poor	Poor	
816	Chinese Wingnut	*Pterocarya stenoptera*	10		12	Poor	Poor	
817	Chinese Wingnut	*Pterocarya stenoptera*	8		8	Poor	Poor	
818	Chinese Wingnut	*Pterocarya stenoptera*	19	12.5, 6.5	22	Poor	Poor	
819	Chinese Wingnut	*Pterocarya stenoptera*	11.5		20	Poor	Poor	
820	Chinese Wingnut	*Pterocarya stenoptera*	6.5		12	Poor	Poor	
821	Chinese Wingnut	*Pterocarya stenoptera*	13.5		20	Poor	Poor	
822	Chinese Wingnut	*Pterocarya stenoptera*	8		20	Poor	Poor	
823	Arizona Ash	*Fraxinus velutina*	44	13.0, 11.0, 6.5, 13.5	20	Poor	Poor	
824	Arizona Ash	*Fraxinus velutina*	56	9.0, 7.0, 8.5, 8.0, 7.0, 6.0, 10.5	20	Poor	Poor	
825	Arizona Ash	*Fraxinus velutina*	56	9.5, 5.0, 6.5, 6.0, 8.0, 11.5, 9.5	25	Poor	Poor	
826	Arizona Ash	*Fraxinus velutina*	41	9.0, 9.0, 9.0, 7.0, 7.0	20	Poor	Poor	
827	Chinese Wingnut	*Pterocarya stenoptera*	21	14.0, 7.0	25	Poor	Poor	
828	Chinese Wingnut	*Pterocarya stenoptera*	10.5		20	Poor	Poor	
829	Chinese Wingnut	*Pterocarya stenoptera*	16.5		15	Poor	Poor	
830	Chinese Wingnut	*Pterocarya stenoptera*	7.5		20	Poor	Poor	
831	Chinese Wingnut	*Pterocarya stenoptera*	9.5		20	Poor	Poor	
832	Chinese Wingnut	*Pterocarya stenoptera*	12		16	Poor	Poor	
833	Chinese Wingnut	*Pterocarya stenoptera*	15		18	Poor	Poor	
834	Arizona Ash	*Fraxinus velutina*	10	5.5, 4.5	8	Fair	Poor	
835	Chinese Wingnut	*Pterocarya stenoptera*	18	8.5, 9.5	16	Poor	Poor	
836	Chinese Wingnut	*Pterocarya stenoptera*	32	9.5, 13.5, 4.5, 4.5	22	Poor	Poor	
837	Chinese Wingnut	*Pterocarya stenoptera*	24.5	9.5, 15.0	20	Poor	Poor	
838	Chinese Wingnut	*Pterocarya stenoptera*	18.5	12.5, 6.0	22	Poor	Poor	
839	Bradford Pear	*Pyrus calleryana*	17		18	Poor	Poor	
840	Boxelder	*Acer negundo*	6.5		22	Fair	Poor	
841	Chinese Wingnut	*Pterocarya stenoptera*	12.5		30	Poor	Poor	
842	Arizona Ash	*Fraxinus velutina*	40.5	14.5, 13.0, 13.0	20	Poor	Poor	
843	Chinese Wingnut	*Pterocarya stenoptera*	7		15	Poor	Poor	
844	Chinese Wingnut	*Pterocarya stenoptera*	10	7.0, 3.0	12	Poor	Poor	
845	Chinese Wingnut	*Pterocarya stenoptera*	25.5	12.5, 13.0	22	Poor	Poor	
846	Chinese Wingnut	*Pterocarya stenoptera*	6		8	Poor	Poor	
847	Chinese Wingnut	*Pterocarya stenoptera*	11		20	Poor	Poor	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
848	Chinese Wingnut	*Pterocarya stenoptera*	8.5	5.0, 3.5	12	Poor	Poor	
849	Chinese Wingnut	*Pterocarya stenoptera*	9	5.0, 4.0	18	Poor	Poor	
850	Chinese Wingnut	*Pterocarya stenoptera*	14	9.0, 5.0	25	Poor	Poor	
851	Chinese Wingnut	*Pterocarya stenoptera*	10.5		15	Fair	Poor	
852	Chinese Wingnut	*Pterocarya stenoptera*	13.5		15	Poor	Poor	
853	Chinese Wingnut	*Pterocarya stenoptera*	26.5	8.0, 13.5, 5.0	20	Poor	Poor	
854	Chinese Wingnut	*Pterocarya stenoptera*	11.5		20	Poor	Poor	
855	Chinese Wingnut	*Pterocarya stenoptera*	13.5		20	Poor	Poor	
856	Arizona Ash	*Fraxinus velutina*	6		10	Poor	Poor	
857	Arizona Ash	*Fraxinus velutina*	18	10.5, 7.5	12	Poor	Poor	
858	Arizona Ash	*Fraxinus velutina*	14	6.0, 4.0, 4.0	8	Poor	Poor	
859	Chinese Wingnut	*Pterocarya stenoptera*	8.5		12	Poor	Poor	
860	Chinese Wingnut	*Pterocarya stenoptera*	10.5		20	Poor	Poor	
861	Chinese Wingnut	*Pterocarya stenoptera*	22.5	12.0, 10.5	15	Poor	Poor	
862	Chinese Wingnut	*Pterocarya stenoptera*	12		10	Poor	Poor	
863	Chinese Wingnut	*Pterocarya stenoptera*	11		12	Poor	Poor	
864	Arizona Ash	*Fraxinus velutina*	5.5		8	Fair	Poor	
865	Chinese Wingnut	*Pterocarya stenoptera*	30.5	11.5, 6.0, 13.0	18	Poor	Poor	
866	Chinese Wingnut	*Pterocarya stenoptera*	6.5		10	Poor	Poor	
867	Chinese Wingnut	*Pterocarya stenoptera*	10		20	Poor	Poor	
868	Chinese Wingnut	*Pterocarya stenoptera*	11		14	Poor	Poor	
869	Chinese Wingnut	*Pterocarya stenoptera*	5		8	Poor	Fair	
870	Chinese Wingnut	*Pterocarya stenoptera*	17	7.0, 10.0	20	Poor	Poor	
871	Chinese Wingnut	*Pterocarya stenoptera*	16.5	9.5, 3.5, 3.5	10	Poor	Poor	
872	Chinese Wingnut	*Pterocarya stenoptera*	22.5	10.5, 6.5, 5.5	15	Poor	Poor	
873	Chinese Wingnut	*Pterocarya stenoptera*	11.5		15	Poor	Poor	
874	Chinese Wingnut	*Pterocarya stenoptera*	10		15	Poor	Poor	
875	Arizona Ash	*Fraxinus velutina*	10	4.0, 6.0	10	Fair	Poor	
876	Chinese Wingnut	*Pterocarya stenoptera*	12.5	8.5, 4.0	10	Poor	Poor	
877	Chinese Wingnut	*Pterocarya stenoptera*	7		10	Poor	Poor	
878	Chinese Wingnut	*Pterocarya stenoptera*	7.5		15	Poor	Poor	
879	Chinese Wingnut	*Pterocarya stenoptera*	16	8.0, 8.0	12	Poor	Poor	
880	Chinese Wingnut	*Pterocarya stenoptera*	10		12	Poor	Poor	
881	Chinese Wingnut	*Pterocarya stenoptera*	10		12	Poor	Poor	
882	Chinese Wingnut	*Pterocarya stenoptera*	7.5		10	Poor	Poor	
883	Chinese Wingnut	*Pterocarya stenoptera*	5.5		8	Poor	Poor	
884	Chinese Wingnut	*Pterocarya stenoptera*	7.5		12	Fair	Poor	
885	Chinese Wingnut	*Pterocarya stenoptera*	25	16.0, 9.0	20	Poor	Poor	
886	Chinese Wingnut	*Pterocarya stenoptera*	17.5		20	Poor	Poor	
887	Arizona Ash	*Fraxinus velutina*	50.5	8.0, 5.0, 11.0, 5.0, 7.0, 14.5	18	Poor	Poor	
888	Chinese Wingnut	*Pterocarya stenoptera*	10.5		8	Poor	Poor	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
889	Chinese Wingnut	*Pterocarya stenoptera*	8		12	Poor	Poor	
890	Chinese Wingnut	*Pterocarya stenoptera*	8		10	Poor	Poor	
891	Chinese Wingnut	*Pterocarya stenoptera*	12		12	Fair	Fair	
892	Arizona Ash	*Fraxinus velutina*	35.5	14.5, 11.0, 10.0	20	Fair	Fair	
893	Chinese Wingnut	*Pterocarya stenoptera*	8.5		10	Poor	Poor	
894	Chinese Wingnut	*Pterocarya stenoptera*	14	10.0, 4.0	10	Poor	Poor	
895	Chinese Wingnut	*Pterocarya stenoptera*	7.5		10	Poor	Poor	
896	Chinese Wingnut	*Pterocarya stenoptera*	19.5	11.0, 8.5	12	Poor	Poor	
897	Chinese Wingnut	*Pterocarya stenoptera*	7.5		15	Poor	Poor	
898	Chinese Wingnut	*Pterocarya stenoptera*	8.5		12	Poor	Poor	
899	Chinese Wingnut	*Pterocarya stenoptera*	10		8	Poor	Poor	
900	Boxelder	*Acer negundo*	5.5		16	good	fair	
1001	Arizona Ash	*Fraxinus velutina*	43.5	7.5, 6.5, 5, 5, 4, 4, 4, 4, 3.5	15	fair	poor	
1002	Arizona Ash	*Fraxinus velutina*	6		10	fair	fair	
1003	Arizona Ash	*Fraxinus velutina*	14	8, 6	20	poor	fair	
1004	Arizona Ash	*Fraxinus velutina*	9		15	fair	good	
1005	Arizona Ash	*Fraxinus velutina*	8.5		10	fair	fair	
1006	Valley Oak	*Quercus lobata*	6.5		10	good	good	
1007	Arizona Ash	*Fraxinus velutina*	24	12, 4.5, 4, 3.5	15	poor	fair	
1008	Cigar Tree	*Catalpa bignoniodes*	13.5		15	poor	poor	partially toppled over
1009	Arizona Ash	*Fraxinus velutina*	19.5	7, 6.5, 6	15	fair	fair	
1010	Arizona Ash	*Fraxinus velutina*	8		10	poor	fair	
1011	Arizona Ash	*Fraxinus velutina*	6.5		5	poor	poor	
1012	Arizona Ash	*Fraxinus velutina*	37.5	14.5, 13.5, 9.5	25	fair	fair	
1013	Arizona Ash	*Fraxinus velutina*	20	8.5, 6, 5.5	15	fair	fair	
1014	Arizona Ash	*Fraxinus velutina*	9		10	poor	fair	
1015	Arizona Ash	*Fraxinus velutina*	45.5	9.5, 8, 6.5, 6, 5.5, 5.5, 4.5	20	fair	fair	
1016	Arizona Ash	*Fraxinus velutina*	24.5	7, 6.5, 6, 5	15	poor	poor	
1017	Arizona Ash	*Fraxinus velutina*	43	8.5, 7, 6.5, 6, 6, 4.5, 4.5	10	poor	poor	
1018	Arizona Ash	*Fraxinus velutina*	10	6.5, 3.5	10	fair	fair	
1019	Arizona Ash	*Fraxinus velutina*	16.5	5, 4.5, 3.5, 3.5	10	poor	fair	
1020	Arizona Ash	*Fraxinus velutina*	14.5		15	fair	fair	
1021	Valley Oak	*Quercus lobata*	31		25	fair	good	
1022	Arizona Ash	*Fraxinus velutina*	5		10	poor	fair	
1023	Arizona Ash	*Fraxinus velutina*	71.5	8, 7.5, 6.5, 6.5, 6, 5, 5, 5, 4, 4, 4, 3.5, 3.5, 3	20	fair	poor	
1024	Arizona Ash	*Fraxinus velutina*	35	15, 10, 7, 3	20	fair	fair	
1025	Arizona Ash	*Fraxinus velutina*	8		15	fair	fair	
1026	Siberian Elm	*Ulmus pumila*	71.5	11, 10, 8.5, 8.5, 7.5, 5.5, 5.5, 4.5, 4, 3.5, 3	20	good	fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1027	Black Willow	*Salix gooddingii*	27.5	22.5, 5	10	poor	poor	main trunk dead with new growth at base
1028	Arizona Ash	*Fraxinus velutina*	5.5		5	fair	good	
1029	Valley Oak	*Quercus lobata*	18		20	good	fair	
1030	Valley Oak	*Quercus lobata*	77	33, 23, 21	30	good	good	
1031	Valley Oak	*Quercus lobata*	15.5		15	fair	fair	
1032	Valley Oak	*Quercus lobata*	28.5	15, 13.5	15	fair	good	
1033	Valley Oak	*Quercus lobata*	55	26.5, 21.5, 7	25	fair	good	
1034	Valley Oak	*Quercus lobata*	30.5		25	good	fair	
1035	Valley Oak	*Quercus lobata*	37		30	fair	good	
1036	Valley Oak	*Quercus lobata*	10.5		15	good	good	
1037	Valley Oak	*Quercus lobata*	13.5		10	good	fair	
1038	Valley Oak	*Quercus lobata*	18.5		15	fair	good	
1039	Valley Oak	*Quercus lobata*	15.5		10	fair	good	
1040	Aleppo Pine	*Pinus halepensis*	32.5	9.5, 9, 7, 7	20	poor	poor	partially toppled over
1041	Valley Oak	*Quercus lobata*	9.5		10	good	fair	
1042	Valley Oak	*Quercus lobata*	27.5	10, 9, 8.5	15	good	fair	
1043	Valley Oak	*Quercus lobata*	16.5		20	fair	fair	
1044	Valley Oak	*Quercus lobata*	13.5		15	fair	fair	
1045	Siberian Elm	*Ulmus pumila*	30	16.5, 13.5	15	fair	good	
1046	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1047	Arizona Ash	*Fraxinus velutina*	7.5		10	Poor	Poor	
1048	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1049	London Planetree	*Platanus x acerifolia*	11		10	Fair	Fair	
1050	Arizona Ash	*Fraxinus velutina*	5.5		8	Fair	Fair	
1051	Arizona Ash	*Fraxinus velutina*	5.5		8	Fair	Fair	
1052	Arizona Ash	*Fraxinus velutina*	6		10	Fair	Fair	
1053	Cigar Tree	*Catalpa bignoniodes*	8		10	Good	Fair	
1054	Arizona Ash	*Fraxinus velutina*	6		10	Fair	Fair	
1056	Arizona Ash	*Fraxinus velutina*	6.5		14	Fair	Fair	
1057	Arizona Ash	*Fraxinus velutina*	7		8	Poor	Poor	Cracked trunk with holes and insects, partially dead
1058	Arizona Ash	*Fraxinus velutina*	13	7.0, 6.0	12	Fair	Fair	
1059	Arizona Ash	*Fraxinus velutina*	5.5		8	Poor	Fair	Partially dead
1060	Cigar Tree	*Catalpa bignoniodes*	6		6	Fair	Fair	
1061	Arizona Ash	*Fraxinus velutina*	6		8	Fair	Poor	Trunk broke off and regrowing
1062	Arizona Ash	*Fraxinus velutina*	8.5		10	Fair	Poor	Bent trunk at ground
1063	Arizona Ash	*Fraxinus velutina*	5.5		8	Fair	Fair	
1064	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1065	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1066	Arizona Ash	*Fraxinus velutina*	6		8	Fair	Fair	
1067	Arizona Ash	*Fraxinus velutina*	5		10	Fair	Fair	
1068	Siberian Elm	*Ulmus pumila*	19	12.0, 7.0	18	Fair	Fair	
1069	Arizona Ash	*Fraxinus velutina*	5		10	Fair	Fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1070	Arizona Ash	*Fraxinus velutina*	8		12	Fair	Fair	
1071	Arizona Ash	*Fraxinus velutina*	7		14	Poor	Poor	Missing bark and cavities in trunk
1072	Cigar Tree	*Catalpa bignoniodes*	5.5		10	Fair	Fair	
1073	Arizona Ash	*Fraxinus velutina*	5.5		8	Fair	Fair	
1074	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1075	Arizona Ash	*Fraxinus velutina*	6		8	Fair	Fair	
1076	Arizona Ash	*Fraxinus velutina*	7		8	Poor	Fair	
1077	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1078	Arizona Ash	*Fraxinus velutina*	5		8	Poor	Poor	
1079	Chinese Elm	*Ulmus parvifolia*	8.5		12	Fair	Fair	
1080	Arizona Ash	*Fraxinus velutina*	17.5	11.0, 6.5	15	Fair	Fair	
1081	Arizona Ash	*Fraxinus velutina*	9		12	Fair	Fair	
1082	Red Willow	*Salix laevigata*	48	11.0, 20.0, 17.0	20	Fair	Poor	
1083	Chinese Elm	*Ulmus parvifolia*	15		12	Fair	Poor	
1084	Arizona Ash	*Fraxinus velutina*	5		10	Good	Good	
1085	Arizona Ash	*Fraxinus velutina*	5.5		10	Fair	Fair	
1086	Arizona Ash	*Fraxinus velutina*	5.5		12	Fair	Poor	
1087	Chinese Elm	*Ulmus parvifolia*	14		15	Fair	Fair	
1088	Chinese Elm	*Ulmus parvifolia*	6		10	Fair	Fair	
1089	Arizona Ash	*Fraxinus velutina*	15	8.0, 7.0	12	Fair	Fair	
1090	Arizona Ash	*Fraxinus velutina*	18	5.0, 5.5, 7.5	12	Poor	Poor	Partly dead
1091	Arizona Ash	*Fraxinus velutina*	20		12	Fair	Fair	
1092	Arizona Ash	*Fraxinus velutina*	11		10	Poor	Poor	Mostly dead
1093	Arizona Ash	*Fraxinus velutina*	13		15	Fair	Fair	
1094	Arizona Ash	*Fraxinus velutina*	26	9.0, 9.5, 7.5	12	Fair	Fair	
1095	Chinese Tallowtree	*Triadica sebifera*	7		10	Fair	Fair	
1096	Chinese Tallowtree	*Triadica sebifera*	16	6.0, 5.0, 5.0	12	Poor	Poor	
1097	Arizona Ash	*Fraxinus velutina*	10		12	Fair	Fair	
1098	Arizona Ash	*Fraxinus velutina*	26.5	7.5, 7.0, 7.0, 5.0	15	Poor	Poor	
1099	Arizona Ash	*Fraxinus velutina*	11	5.0, 6.0	10	Poor	Poor	
1101	Arizona Ash	*Fraxinus velutina*	7		10	Fair	Fair	
1102	London Planetree	*Platanus x acerifolia*	11.5		15	Fair	Fair	
1103	Arizona Ash	*Fraxinus velutina*	7.5		12	Fair	Fair	
1104	London Planetree	*Platanus x acerifolia*	5.5		10	Fair	Fair	
1105	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1106	Chinese Tallowtree	*Triadica sebifera*	5.5		10	Fair	Fair	
1107	Arizona Ash	*Fraxinus velutina*	5.5		8	Fair	Fair	
1108	Chinese Tallowtree	*Triadica sebifera*	7		10	Fair	Fair	
1109	London Planetree	*Platanus x acerifolia*	8		12	Fair	Fair	
1110	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1111	Mexican Fan Palm	*Washingtonia robusto*	22		8	Fair	Fair	
1112	London Planetree	*Platanus x acerifolia*	7		8	Fair	Fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1113	Chinese Wingnut	*Pterocarya stenoptera*	5		6	Fair	Fair	
1114	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1115	Chinese Tallowtree	*Triadica sebifera*	6		10	Fair	Fair	
1116	London Planetree	*Platanus x acerifolia*	12.5		18	Fair	Fair	
1117	London Planetree	*Platanus x acerifolia*	6		8	Fair	Fair	
1118	Arizona Ash	*Fraxinus velutina*	6.5		10	Fair	Fair	
1119	Arizona Ash	*Fraxinus velutina*	7		10	Fair	Fair	
1120	Arizona Ash	*Fraxinus velutina*	10		15	Fair	Fair	
1121	Chinese Elm	*Ulmus parvifolia*	7		15	Fair	Fair	
1122	Arizona Ash	*Fraxinus velutina*	6		10	Fair	Fair	
1123	Arizona Ash	*Fraxinus velutina*	6.5		15	Fair	Poor	Bent over the creek
1124	Arizona Ash	*Fraxinus velutina*	6		10	Fair	Fair	
1125	Arizona Ash	*Fraxinus velutina*	7		10	Poor	Poor	Partially dead
1126	Arizona Ash	*Fraxinus velutina*	5		6	Fair	Fair	
1127	Chinese Elm	*Ulmus parvifolia*	8		15	Fair	Fair	
1128	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1129	Chinese Elm	*Ulmus parvifolia*	6		12	Fair	Fair	
1130	Chinese Elm	*Ulmus parvifolia*	7		10	Fair	Fair	
1131	Arizona Ash	*Fraxinus velutina*	10	5.0, 5.0	12	Fair	Fair	
1132	London Planetree	*Platanus x acerifolia*	8		12	Fair	Fair	
1133	Chinese Elm	*Ulmus parvifolia*	18		18	Fair	Fair	
1134	Arizona Ash	*Fraxinus velutina*	6.5		10	Fair	Fair	
1135	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1136	Chinese Elm	*Ulmus parvifolia*	6.5		8	Fair	Fair	
1137	Arizona Ash	*Fraxinus velutina*	11	7.0, 4.0	12	Fair	Poor	Bent over creek
1138	Siberian Elm	*Ulmus pumila*	14.5		20	Fair	Fair	
1139	Siberian Elm	*Ulmus pumila*	6		12	Fair	Fair	
1140	Arizona Ash	*Fraxinus velutina*	7		10	Fair	Fair	
1141	Arizona Ash	*Fraxinus velutina*	10.5		12	Fair	Fair	
1142	Arizona Ash	*Fraxinus velutina*	6.5		15	Fair	Fair	
1143	Arizona Ash	*Fraxinus velutina*	11	7.0, 4.0	18	Fair	Fair	
1144	Siberian Elm	*Ulmus pumila*	8		12	Fair	Fair	
1145	Arizona Ash	*Fraxinus velutina*	12.5	5.5, 7.0	12	Fair	Fair	
1146	Arizona Ash	*Fraxinus velutina*	7		10	Fair	Fair	
1147	Arizona Ash	*Fraxinus velutina*	6.5		10	Fair	Fair	
1148	Arizona Ash	*Fraxinus velutina*	9	5.0, 4.0	15	Fair	Fair	
1149	Arizona Ash	*Fraxinus velutina*	8		12	Fair	Fair	
1150	Arizona Ash	*Fraxinus velutina*	7		12	Fair	Fair	
1151	Arizona Ash	*Fraxinus velutina*	5.5		8	Poor	Poor	Dead leader
1152	Arizona Ash	*Fraxinus velutina*	5		8	Fair	Fair	
1153	Siberian Elm	*Ulmus pumila*	22.5	13.5, 9.0	18	Fair	Fair	
1155	Chinese Elm	*Ulmus parvifolia*	11.5		14	Fair	Fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1201	Boxelder	*Acer negundo*	6.6		16	good	fair	
1202	Boxelder	*Acer negundo*	9.2		18	good	fair	
1203	Boxelder	*Acer negundo*	6.3		16	good	fair	
1204	Arizona Ash	*Fraxinus velutina*	7.4		15	fair	good	
1205	Boxelder	*Acer negundo*	10.9	3.6, 7.3	20	good	fair	
1206	Boxelder	*Acer negundo*	5.6		14	good	good	
1207	Boxelder	*Acer negundo*	11		18	good	good	
1208	Chinese Wingnut	*Pterocarya stenoptera*	5.4		16	fair	fair	
1209	Cork Oak	*Quercus suber*	18.7		20	good	fair	
1210	Chinese Wingnut	*Pterocarya stenoptera*	7.6		16	fair	fair	
1211	Cork Oak	*Quercus suber*	13.9		24	good	good	
1212	Northern California Black Walnut	*Juglans hindsii*	31.5	10.1, 10.2, 11.2	24	good	good	
1213	Arizona Ash	*Fraxinus velutina*	6.4		14	good	fair	
1214	Cork Oak	*Quercus suber*	36.5	17.0, 19.5	20	good	fair	two main trunks fused together at base; included bark at junction
1215	Chinese Wingnut	*Pterocarya stenoptera*	5.2		10	fair	poor	tree has been topped for road maintenance
1216	Chinese Wingnut	*Pterocarya stenoptera*	7.5		16	fair	fair	
1217	Arizona Ash	*Fraxinus velutina*	38.2	4.1, 3.7, 6.1, 5.5, 4.3, 4.6, 9.9	24	fair	poor	a fair amount of brown in upper foliage but still looks vigorous. excessive branching at base and roots have been partially undermined and exposed
1218	Arizona Ash	*Fraxinus velutina*	24.3	7.4, 7.3, 3.9, 5.7	24	fair	poor	excessively branched at base, base getting undercut, bark missing on a major trunk
1219	Cork Oak	*Quercus suber*	28.3	14.6, 6.6, 7.1	24	good	fair	substantial lean
1220	Arizona Ash	*Fraxinus velutina*	23.4	9.7, 9.5, 4.2	24	fair to poor	poor	excessively branched at base, base getting undercut, substantial dead branches
1221	Arizona Ash	*Fraxinus velutina*	22.3	10.0, 5.5, 6.8	20	fair	fair	
1222	Cork Oak	*Quercus suber*	6.8		15	good	good	
1223	Chinese Wingnut	*Pterocarya stenoptera*	18.4	10.4, 8.0	22	good	fair	
1224	Boxelder	*Acer negundo*	31.1	7.6, 6.8, 5.0, 6.7, 5.0	22	good	fair	
1225	Cork Oak	*Quercus suber*	15.8		24	good	good	
1226	Arizona Ash	*Fraxinus velutina*	14.4	4.9, 9.5	22	good	fair	diameter at 30" due to branching; extensive included bark between two of the three main branches
1227	Coast Live Oak	*Quercus agrifolia*	13.3		18	good	good	
1228	Japanese Privet	*Ligustrum japonicum*	10.7	5.7, 5.0	15	good	good	
1229	Cork Oak	*Quercus suber*	10.1		18	good	good	
1230	Boxelder	*Acer negundo*	19.5	3.6, 7.0, 5.7, 3.2	22	good	good	
1231	Boxelder	*Acer negundo*	19.1	6.7, 6.7, 5.7	22	good	good	
1232	Boxelder	*Acer negundo*	5		18	good	fair	
1233	Boxelder	*Acer negundo*	10.4	6.2, 4.2	18	good	fair to poor	most main branches have been topped for road maintenance
1234	Japanese Privet	*Ligustrum japonicum*	13.4	5.1, 5.1, 3.2	12	good	fair	
1235	Arizona Ash	*Fraxinus velutina*	32.7	9.0, 9.3, 5.7, 8.7	28	good	good	
1236	Arizona Ash	*Fraxinus velutina*	13.9		20	fair	fair	
1237	Japanese Privet	*Ligustrum japonicum*	20.3	9.8, 3.1, 7.4	16	good	good	
1238	Arizona Ash	*Fraxinus velutina*	32.3	14.1, 18.2	26	good	good	
1239	Arizona Ash	*Fraxinus velutina*	19.6	10.8, 8.8	24	fair	good	
1240	Arizona Ash	*Fraxinus velutina*	27	10.0, 3.8, 13.2	24	good	good	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1241	Arizona Ash	*Fraxinus velutina*	5.1		8	fair	poor	tree has been topped
1242	Arizona Ash	*Fraxinus velutina*	23.1	10.9, 12.2	28	good	fair	
1243	Arizona Ash	*Fraxinus velutina*	48.7	4.5, 5.2, 3.6, 5.4, 5.0, 25.0	28	good	fair	all of the smaller trunks are coming off of a main trunk that is lying on the ground
1244	Arizona Ash	*Fraxinus velutina*	69.7	13.8, 7.3, 10.4, 6.9, 15.1, 10.0, 6.2	28	fair	fair	
1245	Arizona Ash	*Fraxinus velutina*	11.9	7.9, 4.0	18	good	fair	
1246	Cigar Tree	*Catalpa bignoniodes*	17.8	13.0, 4.8	22	good	fair	
1247	Cigar Tree	*Catalpa bignoniodes*	6.2		14	good	fair	
1248	Cigar Tree	*Catalpa bignoniodes*	24.1		24	good	good	
1249	Arizona Ash	*Fraxinus velutina*	33.9	3.8, 14.0, 8.2, 7.9	34	fair	fair	
1250	Arizona Ash	*Fraxinus velutina*	30.3	12.0, 13.5, 4.8	20	fair	fair	
1251	Arizona Ash	*Fraxinus velutina*	6.8		20	fair to poor	fair	
1252	Cork Oak	*Quercus suber*	13.5	8.7, 4.8	12	good	fair	
1253	Silver Maple	*Acer saccharum*	12.4	5.7, 3.6, 3.1	22	good	good	
1254	Arizona Ash	*Fraxinus velutina*	37.4	3.7, 3.8, 3.9, 7.5, 11.6, 6.9	26	good	fair	
1255	Arizona Ash	*Fraxinus velutina*	26	19.6, 6.4	20	good	fair to poor	2 good size unhealed cavities in trunk
1256	Chinese Wingnut	*Pterocarya stenoptera*	7.9		20	good	fair	substantial lean to north
1257	Arizona Ash	*Fraxinus velutina*	19.1	13.6, 5.5	24	fair	good	
1258	Arizona Ash	*Fraxinus velutina*	39	5.5, 10.7, 22.8	22	fair	fair	
1259	Arizona Ash	*Fraxinus velutina*	16.4	13.2, 3.2	34	poor	fair	most of tree is dead. limited remaining green growth. substantial lean to north
1259	Coast Live Oak	*Quercus agrifolia*	15		15	fair	fair	preexisting tag
1260	Boxelder	*Acer negundo*	14.1	8.1, 6.0	22	good	good	
1261	Arizona Ash	*Fraxinus velutina*	43	6.2, 12.7, 8.6, 15.5	28	fair	fair	
1261	Valley Oak	*Quercus lobata*	26		20	poor	fair	preexisting tag. much of tree dead/dying
1262	Arizona Ash	*Fraxinus velutina*	19.2	12.4, 6.8	20	poor	fair	substantial portions of tree are dead, extensive brown foliage in remainder.
1263	Arizona Ash	*Fraxinus velutina*	9		14	good	fair	
1263	Valley Oak	*Quercus lobata*	25.5		20	fair	good	preexisting tag
1264	Arizona Ash	*Fraxinus velutina*	26	14.3, 11.7	28	fair	fair	
1265	Arizona Ash	*Fraxinus velutina*	6.2		10	poor	fair	mostly dead
1265	Valley Oak	*Quercus lobata*	21		25	fair	good	preexisting tag
1266	Arizona Ash	*Fraxinus velutina*	19.3	10.7, 8.6	24	good	fair	
1266	Valley Oak	*Quercus lobata*	13.5		20	fair	fair	preexisting tag
1267	Northern California Black Walnut	*Juglans hindsii*	5.8		6	good	poor	tree has been topped at about 4.5'
1268	Arizona Ash	*Fraxinus velutina*	5.3		10	fair	fair	
1269	Cigar Tree	*Catalpa bignoniodes*	11.4		22	good	good	
1270	Arizona Ash	*Fraxinus velutina*	18.9	11.8, 7.1	26	good	good	
1271	Arizona Ash	*Fraxinus velutina*	10.2	10.2	28	good	fair	substantial lean to south
1271	Valley Oak	*Quercus lobata*	20	12, 8	20	fair	fair	preexisting tag

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1272	Northern California Black Walnut	*Juglans hindsii*	12.7	12.7	20	good	poor	major branches have been pruned at road - no central leader
1273	Arizona Ash	*Fraxinus velutina*	22.6	6.5, 6.8, 9.3	22	good	good	
1273	Valley Oak	*Quercus lobata*	19		20	fair	fair	preexisting tag
1274	Arizona Ash	*Fraxinus velutina*	10.2		14	fair	poor	main trunk is horizontal across creek
1274	Olive	*Olea europaea*	16.5	6.5, 6, 4	10	fair	fair	preexisting tag
1275	Arizona Ash	*Fraxinus velutina*	27.8	23.8, 4.0	26	fair	fair	
1275	Australian Blackwood	*Acacia melanoxylon*	38	25.5, 12.5	25	poor	fair	preexisting tag
1276	Arizona Ash	*Fraxinus velutina*	47.3	12.6, 14.3, 8.0, 12.4	24	fair	fair	
1276	Australian Blackwood	*Acacia melanoxylon*	18	8, 6, 4	15	poor	fair	preexisting tag
1277	Arizona Ash	*Fraxinus velutina*	27.3	11.7, 15.6	16	good	fair to poor	main branches broken or cut
1277	Australian Blackwood	*Acacia melanoxylon*	15	8, 7	15	poor	poor	preexisting tag, much of main trunk dead
1278	Arizona Ash	*Fraxinus velutina*	9.3	5.8, 3.5	16	good	fair	
1278	Australian Blackwood	*Acacia melanoxylon*	56	14, 10, 10, 10, 9, 3	25	fair	fair	preexisting tag
1279	Arizona Ash	*Fraxinus velutina*	25.5		28	good	good	diameter measured at 30" due to branching.
1279	Australian Blackwood	*Acacia melanoxylon*	11		10	fair	fair	preexisting tag
1280	Arizona Ash	*Fraxinus velutina*	7		14	fair	fair	
1281	Arizona Ash	*Fraxinus velutina*	15	10.8, 4.2	12	fair to poor	poor	central trunk dead, remainder of tree doing poorly
1281	Chinese Pistache	*Pistacia chinensis*	16.5	6.5, 5.5, 4.5	10	poor	fair	preexisting tag
1282	Arizona Ash	*Fraxinus velutina*	36.9	16.5, 20.4	30	fair	good	
1282	Australian Blackwood	*Acacia melanoxylon*	15.5	9, 6.5	10	fair	fair	preexisting tag
1283	Boxelder	*Acer negundo*	10.3		30	good	fair	substantial lean to north
1284	Chinese Elm	*Ulmus parvifolia*	10.8	5.2, 5.6	18	good	good	tent tied to tree
1285	Boxelder	*Acer negundo*	6.5		18	good	good	
1285	Valley Oak	*Quercus lobata*	21		20	fair	fair	preexisting tag. even older tag present (147)
1286	Arizona Ash	*Fraxinus velutina*	32.9	27.3, 5.6	30	fair	fair	
1287	Boxelder	*Acer negundo*	7		16	fair	fair to poor	tree has been topped and has no central leader
1287	Valley Oak	*Quercus lobata*	31.5	19, 12.5	20	fair	fair	preexisting tag
1288	Arizona Ash	*Fraxinus velutina*	36.1	28.4, 7.7	24	fair to poor	fair	extensive portions of the tree are dead, but it is so big that there is still alot alive
1288	Almond	*Prunus dulcis*	24.5	7.5, 7, 3.5, 3.5, 3	10	poor	fair	preexisting tag
1289	Arizona Ash	*Fraxinus velutina*	34.5	21.0, 13.5	24	fair to poor	fair	extensive portions of the tree are dead, but it is so big that there is still alot alive
1289	Valley Oak	*Quercus lobata*	25.5		25	fair	fair	preexisting tag
1290	Arizona Ash	*Fraxinus velutina*	6.1		22	good	fair	extensive leave to east
1291	Arizona Ash	*Fraxinus velutina*	32.8	10.3, 22.5	28	fair to poor	fair	
1292	Arizona Ash	*Fraxinus velutina*	15.1	10.0, 5.1	16	fair to poor	poor	entire tree is hollow
1293	Northern California Black Walnut	*Juglans hindsii*	21.2		40	good	good	
1295	Valley Oak	*Quercus lobata*	22		20	fair	fair	preexisting tag
1317	Valley Oak	*Quercus lobata*	13		10	fair	fair	preexisting tag
1318	Valley Oak	*Quercus lobata*	5.5		5	poor	poor	preexisting tag. upper part of tree dead
1319	Valley Oak	*Quercus lobata*	17.5		20	fair	poor	preexisting tag
1320	Valley Oak	*Quercus lobata*	20		20	fair	fair	preexisting tag

Village Farms Davis Tree Inventory Data

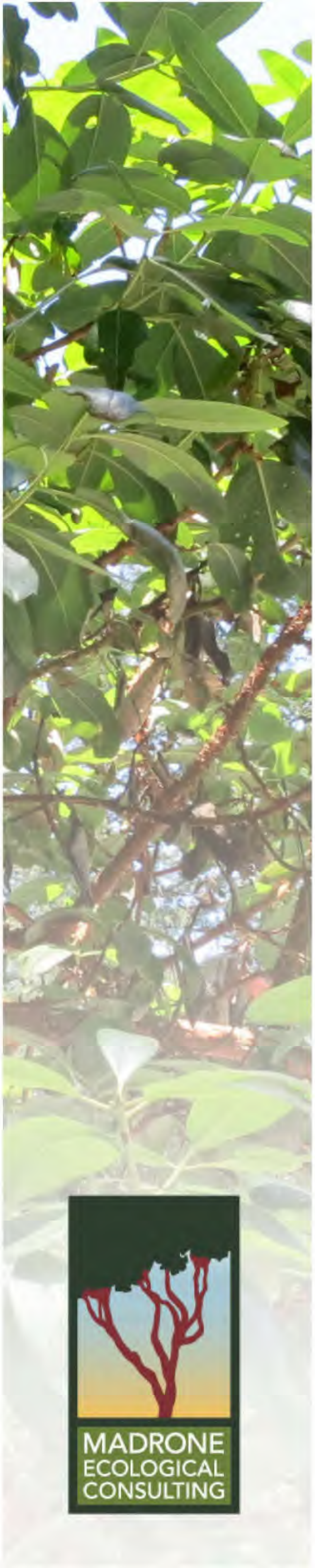
Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1321	Valley Oak	*Quercus lobata*	25		20	fair	poor	preexisting tag
1322	Valley Oak	*Quercus lobata*	12		15	fair	fair	preexisting tag
1323	Chinese Pistache	*Pistacia chinensis*	28.5	11.5, 9, 8	20	fair	fair	preexisting tag
1324	Chinese Pistache	*Pistacia chinensis*	19.5	15.5, 4	15	fair	fair	preexisting tag
1325	Valley Oak	*Quercus lobata*	15.5		20	fair	fair	preexisting tag
1326	Valley Oak	*Quercus lobata*	29		25	fair	fair	preexisting tag
1401	Valley Oak	*Quercus lobata*	12	6.5, 5.5	10	good	fair	
1501	Chinese Pistache	*Pistacia chinensis*	20.5	8.5, 7.5, 4.5	15	fair	poor	
1502	Australian Blackwood	*Acacia melanoxylon*	5		5	fair	poor	
1503	Valley Oak	*Quercus lobata*	27	9.5, 9, 5.5, 3	15	fair	poor	
1504	Valley Oak	*Quercus lobata*	21		20	fair	fair	
1505	Valley Oak	*Quercus lobata*	13		15	fair	fair	
1506	Valley Oak	*Quercus lobata*	5		5	poor	poor	top of tree snapped off
1507	Valley Oak	*Quercus lobata*	10	6, 4	10	good	fair	
1508	Valley Oak	*Quercus lobata*	12	8, 4	10	fair	fair	
1509	Chinese Pistache	*Pistacia chinensis*	13	7, 6	15	fair	fair	
1510	Valley Oak	*Quercus lobata*	5		5	fair	fair	
1511	Chinese Pistache	*Pistacia chinensis*	5		10	fair	poor	
1512	Coast Live Oak	*Quercus agrifolia*	9		10	fair	poor	bottom branches have been trimmed
1513	Australian Blackwood	*Acacia melanoxylon*	16	10, 6	10	poor	poor	much of main trunk dead
1514	Australian Blackwood	*Acacia melanoxylon*	6.5		10	fair	fair	
1515	Australian Blackwood	*Acacia melanoxylon*	8.5		15	poor	fair	
1516	Australian Blackwood	*Acacia melanoxylon*	6.5		15	fair	fair	
1517	Australian Blackwood	*Acacia melanoxylon*	11		15	fair	fair	
1518	Almond	*Prunus dulcis*	12	5, 4, 3	10	fair	fair	
1519	Coast Live Oak	*Quercus agrifolia*	10	6, 4	10	fair	fair	
1520	Valley Oak	*Quercus lobata*	12.5		15	fair	fair	
1521	Valley Oak	*Quercus lobata*	6		10	fair	fair	
1522	Valley Oak	*Quercus lobata*	9.5		15	fair	fair	
1523	Valley Oak	*Quercus lobata*	15		20	fair	good	
1524	Valley Oak	*Quercus lobata*	6		10	poor	fair	
1525	Valley Oak	*Quercus lobata*	14		20	fair	fair	
1526	Valley Oak	*Quercus lobata*	16	6, 6, 4	15	fair	fair	
1527	Valley Oak	*Quercus lobata*	22	12.5, 9.5	20	fair	fair	
1528	Valley Oak	*Quercus lobata*	10		15	fair	fair	
1529	Valley Oak	*Quercus lobata*	10	5.5, 4.5	10	fair	fair	
1530	Siberian Elm	*Ulmus pumila*	10		10	fair	fair	
1531	Siberian Elm	*Ulmus pumila*	8.5		15	fair	fair	
1532	Siberian Elm	*Ulmus pumila*	14.5	8, 6.5	15	fair	fair	
1533	Siberian Elm	*Ulmus pumila*	5		15	fair	fair	
1534	Siberian Elm	*Ulmus pumila*	6		10	fair	fair	
1535	Siberian Elm	*Ulmus pumila*	6		10	poor	fair	

Village Farms Davis Tree Inventory Data

Tree Number	Common Name	Scientific Name	DBH (inches)	Multi-stem DBH	Dripline Radius (feet)	Health	Structure	Field Notes
1536	Siberian Elm	*Ulmus pumila*	5.5		5	fair	poor	top of tree cut off
1537	Siberian Elm	*Ulmus pumila*	9		15	fair	fair	
1538	Siberian Elm	*Ulmus pumila*	6		15	fair	fair	
1539	Siberian Elm	*Ulmus pumila*	29		25	fair	good	
1540	Siberian Elm	*Ulmus pumila*	17.5		20	fair	fair	
1541	Siberian Elm	*Ulmus pumila*	12		20	fair	fair	
1542	Siberian Elm	*Ulmus pumila*	36		20	fair	fair	
1543	Siberian Elm	*Ulmus pumila*	16.5	13.5, 3	15	poor	fair	many branches dead. old tag present but unreadable.
1544	Siberian Elm	*Ulmus pumila*	14	7.5, 6.5	20	fair	fair	
1545	Siberian Elm	*Ulmus pumila*	8.5		20	fair	fair	
1546	Siberian Elm	*Ulmus pumila*	17.5		20	fair	good	
1547	Siberian Elm	*Ulmus pumila*	63	22.5, 19.5, 15.5, 5.5	25	fair	good	
1548	Siberian Elm	*Ulmus pumila*	17.5	9, 8.5	15	fair	fair	
1549	Siberian Elm	*Ulmus pumila*	14.5	8, 6.5	15	fair	fair	
1550	Siberian Elm	*Ulmus pumila*	32.5	16.5, 8.5, 7.5	20	fair	fair	
1551	Siberian Elm	*Ulmus pumila*	14.5		20	fair	fair	
1552	Siberian Elm	*Ulmus pumila*	14.5		15	fair	fair	
1553	Siberian Elm	*Ulmus pumila*	8		15	fair	fair	
1554	Siberian Elm	*Ulmus pumila*	10.5	8, 2.5	15	fair	fair	
1555	Valley Oak	*Quercus lobata*	19		20	fair	fair	
1556	Valley Oak	*Quercus lobata*	19		20	fair	good	
1557	Pecan	*Carya illinoinensis*	7.5		10	fair	fair	
1558	English Walnut	*Juglans regia*	32.5	16, 8.5, 8	20	poor	poor	tree mostly dead with new growth at base
1559	Persian Silk Tree	*Albizia julibrissin*	25	8, 5.5, 5, 3.5, 3	20	fair	fair	

Attachment J

Giant Garter Snake Habitat Assessment



Giant Garter Snake Habitat Assessment

Village Farms Davis

City of Davis, Yolo County, California

14 February 2024

Prepared for:
North Davis Land Company, LLC
3500 Anderson Road
Davis, CA 95616

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone). 2024. *Giant Garter Snake Habitat Assessment for Village Farms Davis*. Prepared for North Davis Land Company, LLC. Published 14 February 2024.

CONTENTS

Giant Garter Snake Habitat Assessment
Village Farms Davis

1.0 Introduction

This report represents the results of a habitat assessment for the federally-threatened and California-threatened giant garter snake (*Thamnophis gigas*)(GGS) for the approximately 584.8-acre Village Farms Davis Property (Study Area). The Study Area is located largely north of Covell Boulevard, east of County Road 101A, and west of Pole Line Road in north Davis, Yolo County, California. The Study Area is located in portions of Sections 33-34, Township 9 North, Range 2 East, and Sections 2-3, 10 Township 8 North, Range 2 East (MDB&M) of the "Davis, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2021) (**Figure 1**).

1.1 Project Description

The Proposed Project would include development of a mixed-use community, including approximately 1,800 residential units. In addition, the Proposed Project would include parks and recreation areas, natural habitat areas, greenbelts, and public service facilities, such as a new learning center, educational farm, a fire station, neighborhood commercial uses, and agricultural buffers. The Project will also include drainage improvements, including re-routing of the Covell Drain that flows east to west across the Study Area.

1.2 Existing Conditions

The Village Farms Davis Property is largely comprised of active agricultural fields with interspersed farm roads. The Covell Drain, along with its associated non-native riparian corridor, cuts from east to west across the Study Area. At the time of the field survey, all of the agricultural fields had been disced and primarily planted in wheat for the coming growing season, though the eastern fields will be planted in tomatoes. One of the fields south of the Covell Drain contains a large seasonal wetland or alkali playa as well as other smaller wetlands. As a result, this field is not farmed, but has been disced for vegetation control. The portion of the Covell Drain that runs along the western side of the Study Area is wider than the portion that bisects the Study Area, and supports vegetation consisting with freshwater emergent marsh habitat. Various areas around most of the edges of the Study Area are occupied by dense non-native forbs. An extension of the site along the western edge crosses County Road 101A and incorporates an area that was recently restored with native grasses, constructed wetlands, and planted native shrubs. The Study Area is very flat, and is almost entirely at approximately 55 feet above mean sea level.

Surrounding properties to the west, south and east are urban residential, commercial, and a golf course. To the northeast is a recreational paintball park, and the remaining properties to the north are largely agricultural.

2.0 Species Background

Distribution

Historically, GGS ranged from Butte County southward to Kern County. Current known populations are scattered within the Central Valley from near Chico in Butte County, south to the Mendota Wildlife Area in

Fresno County, with a gap within the central part of the valley from southern San Joaquin County to Merced County. Current locality records show that GGS are distributed in nine different isolated locations/populations associated with historic flood basins, marshes, wetlands, and streams. It is likely that GGS once occupied a much larger contiguous area within the Central Valley; however, intense agricultural practices have eliminated most of the suitable GGS habitat (Hansen 1980, Brode and Hansen 1992, U.S. Fish and Wildlife Service [USFWS] 1997, USFWS 1999, USFWS 2006, USFWS 2012).

Habitat Requirements

GGS inhabit a variety of permanent and seasonal wetlands including slow-moving creeks, sloughs, drainage and irrigation canals, freshwater marshes, and margins of rice fields from sea level to 400 feet above sea level.

GGS are mostly associated with freshwater aquatic features that have the following four characteristics:

- Sufficient water during the snake's active season (early spring through mid-fall) to supply escape cover and food (small fish and amphibians);
- Emergent, herbaceous wetland vegetation, such as cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.), accompanied by vegetated banks to provide basking and foraging habitat and escape cover during the active season;
- Upland habitat (bankside burrows, holes, and crevices) that provides short-term refugia during the active season; and
- High ground or upland habitat above the annual high-water mark to provide cover and refuge from flood waters during the dormant winter period (Hansen and Brode 1980, Hansen 1988).

GGS seem to be absent from permanent wetlands with established populations of predatory game fish (centrarchids); streams with sand, gravel or rock substrates; and from riparian woodlands which lack suitable basking sites, prey, and cover vegetation (USFWS 1999). GGS are also often absent from waterways that have routine mechanical or weed control or maintenance of bank soils (Hansen 1988, Hansen and Brode 1993).

Reproduction

Male GGS emerge from overwintering sites in spring and immediately start to search for females. Breeding takes place from March through early May with females giving birth to live young from late July through early September (Hansen and Hansen 1990).

Longevity

There have been no studies to date that have documented the survivorship or longevity of GGS. An individual survival rate study was conducted on valley garter snakes (*Thamnophis sirtalis fitchi*). This study found that 28.7 to 43.0 percent of all neonate (first year) snakes survive their first year, and 16.4 percent of all neonate snakes survive into their second year. Snakes that are two years and older have a survival rate of 32.7 percent (Jayne and Bennett 1990).

Sources of Mortality

GGS are subject to various sources of mortality such as vehicle mortality on roads, maintenance activities and modification of agricultural ditches and drains and flood control systems, flooding, and competition by the introduction of invasive watersnakes of the genus *Nerodia* (USFWS 1999, USFWS 2012, Stitt et al. 2005, Balfour and Stitt 2002, Brown 2000).

Behavior

GGS typically emerge from winter retreats from late March to early April after spending the cool winter months in dormancy or periods of reduced activity. They remain active through October, with the timing of annual activity subject to varying seasonal weather conditions. Daily activity consists of: 1) emergence from burrows after sunrise, 2) basking to warm bodies to active temperatures, and 3) foraging or courting for the remainder of the day (Hansen and Brode 1993). Activity generally peaks during spring emergence and courtship from April into June, whereupon observations of GGS diminish significantly until a second peak is observed after females give birth during late July into August (Hansen and Brode 1993, USFWS 1999, Hansen 2004). GGS then remain active, foraging and occasionally courting, until the onset of cooler fall temperatures.

Movement

GGS are associated with aquatic habitats, typically over-wintering in burrows and crevices near to their active-season foraging habitat. Individuals have been noted using burrows as far as 164 feet (50 meters) from marsh edges during the active season, and retreating as far as 820 feet (250 meters) from the edge of wetland habitats while overwintering, presumably to reach hibernacula that are located above the annual high water mark (Hansen 1986, USFWS 1999).

Changing agricultural regimes, development, and other shifts in land use create an ever-changing mosaic of available habitat. GGS move around in response to these changes in order to find suitable sources of prey and cover. Connectivity between regions is therefore extremely important for providing access to available habitat and for genetic interchange. In an agricultural setting, GGS rely largely upon the interconnected network of canals and ditches that provide irrigation and drainage.

Data based on radiotelemetry studies show that GGS home ranges varies by location, with median home range estimates varying between 23 acres (range 10.3 to 203 acres, n=8) in a semi-native perennial marsh system and 131 acres (range 3.2 to 2,792 acres, n=29) in a managed season marsh refuge (wildlife refuge) (USFWS 1999). Differential dispersal and home range patterns between males and females are not reported; however, females are generally larger than males and spend the majority of the active season gestating young. Lifetime dispersal patterns of both neonates and adults of this species are unknown.

Ecological Relationships

GGS feed on small fish, frogs, and tadpoles (Fitch 1940, Hansen 1980, USFWS 1999), specializing in ambushing prey underwater (Brode 1988). Historically, GGS probably preyed on native fish and frog species such as the thick-tailed chub (*Gila crassicauda*) and California red-legged frog (*Rana aurora draytonii*), which have been extirpated from the snake's current range, as well as the Sierran chorus frog (*Pseudachris sierra*) and Sacramento blackfish (*Orthodox microlepidus*) (USFWS 1999). GGS now prey upon introduced species, including small bullfrogs (*Rana catesbeiana*) and their larvae (tadpoles), small carp (*Cyprinus carpio*), and mosquitofish (*Gambusia affinis*). While juveniles probably consume insects and other small invertebrates, GGS are not known to consume larger terrestrial prey such as small mammals or birds (Hansen 1986).

Large mammals and birds that prey on GGS include raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), red foxes (*Vulpes vulpes*), gray foxes (*Urocyon cinereoagentius*), river otters (*Lutra canadensis*), opossums (*Didelphis virginiana*), northern harriers (*Circus cyaneus*), hawks (*Buteo* spp.), herons (*Ardea herodius, Nycticorax nycticorax*), egrets (*Ardea alba, Egretta thula*), and American bitterns (*Botaurus lentiginosus*) (USFWS 1999). In areas near urban development, GGS may also fall prey to domestic or feral house cats. In permanent waterways, introduced predatory game fishes such as black and striped bass (*Micropterus* spp.), sunfish (*Lepomis* spp.), and catfish (*Ictalurus* spp.) probably prey on GGS and compete with them for smaller prey (Hansen 1988, USFWS 1993).

GGS coexist with the valley garter snake and, in limited instances, both may be found together with the mountain garter snake (*Thamnophis elegans elegans*), a western terrestrial garter snake subspecies, where this species' range extends to the Central Valley floor. The extent of competition among these species is unknown, but it is likely that differences in habitat use and foraging behavior allow their coexistence (Brode 1988, USFWS 1999).

Population Threats

Potential population threats include urbanization, population fragmentation and isolation, flood control and canal maintenance, agricultural practices, wetland management for waterfowl, introduction and establishment of yellow water primrose (*Ludwigia hexapetala*) (Hansen 2010) and eradication and removal of non-native plants immediately adjacent to aquatic habitat (levee vegetation management), water transfers, invasive predatory species, introduced snake species, floods, drought and climate change, mosquito abatement, roads, netting/erosion control products, selenium contamination and decreased water quality, recreation, heavy grazing, and natural gas exploration (USFWS 2012).

Compatible Land Uses

In the Central Valley, rice fields have become important habitat for GGS. Irrigation water typically enters the rice lands during April along canals and ditches. GGS use these canals and their banks as permanent habitat for both spring and summer active behavior and winter hibernation. Where these canals are not regularly maintained, lush aquatic, emergent, and streamside vegetation develop prior to the spring emergence of GGS. This vegetation, in combination with cracks and holes in the soil, provides much needed sheltering cover during spring emergence and throughout the remainder of the summer active period.

Rice is planted during the spring after the winter fallow fields have been cultivated and flooded with several inches of standing water. In some cases, GGS move from the canals and ditches into these rice fields soon after the rice plants emerge above the water's surface, and continue to use the fields until the water is drained during late summer or fall (Hansen and Brode 1993). It appears that the majority of GGS move back into the canals and ditches as the rice fields are drained, although a few may overwinter in the fallow fields where they hibernate within burrows located in the small berms separating the rice checks (Hansen 1998).

The rice fields provide shallow warm water habitat where the snakes forage for small fish and the tadpoles of bullfrogs and treefrogs. For shelter and basking sites, GGS utilize the rice plants, the small vegetated berms dividing the rice checks, and the vegetated field margins. Gravid (pregnant) females may be observed within the rice fields during the summer, and at least some GGS are born there (Hansen and Brode 1993; Hansen 1988).

Water is drained from the fields during the late summer or fall by a network of drainage ditches. These ditches are sometimes routed alongside irrigation canals, and are often separated from the irrigation canals by narrow vegetated berms that may provide additional shelter. Remnants of old sloughs also may remain within rice-growing regions where they serve as drains or irrigation canals. GGS may use vegetated portions along any of these waterways as permanent aquatic and upland habitat.

Managed wetlands also provide suitable opportunities for GGS. Wetland conservation in the Central Valley mostly occurs through a combination of both public and privately managed refuges, mitigation banks, and duck clubs, creating a large network of wetland preserves throughout the historical range of the giant garter snake. However, a large percentage of these wetland conservation efforts are focused on waterfowl management, which places greater emphasis on winter water, rather than the summer water on which GGS are dependent (USFWS 1999). With proper consideration given to design, location, and management, these conservation efforts might also significantly benefit the giant garter snake and other wetland dependent species (USFWS 1999).

3.0 Methods

Prior to conducting the field visit, a review of data from the USFWS (2012) Giant Garter Snake 5-Year Review and the California Natural Diversity Data Base (CNDDB; California Department of Fish and Wildlife [CDFW] 2024) for all current known locations of GGS within the vicinity of the Study Area was conducted.

After reviewing background information, a field survey was conducted by Madrone biologists Dustin Brown and Lily Kalachik on 24 January 2024. The field survey was conducted for the entire Study Area but focused on evaluating the section of the Covell Drain within the Study Area as it is the only area that contains potential GGS habitat. Additionally, all areas within 200 feet of the Covell Drain were evaluated for the potential for GGS upland habitat (**Figure 2**). Photographs of the Study Area are included in **Attachment A**.

During the survey Mr. Brown and Ms. Kalachik walked meandering transects through the Study Area. Vegetation communities and habitat types were noted and were based on dominant vegetation and hydrology (ponding or flowing water). The Covell Drain within the Study Area and associated upland habitats were evaluated with the use of a modified scoring method developed by Eric Hansen (2008).

According to Hansen's (2008) analysis, habitat evaluation criteria are based on recognized minimum ecological requirements for GGS. Each criterion is scored, with a final numerical total represented categorically. All results are then confirmed with a visual assessment of habitat. This evaluation provides a habitat value, supporting a detailed classification, by trait, of habitat variables within the Study Area.

Hansen's scoring method was modified from the USFWS 1999 Draft Recovery Plan for the Giant Garter Snake (Appendix D: Page 157). The evaluation form was updated by Eric Hansen for a higher degree of rigor in assessing habitat value and incorporates a step-wise scale to reduce scoring ambiguity. The modified habitat evaluation and scoring form and instructions for completing this form are included as **Attachments B and C**.

The USFWS (1997) requires that a 200-foot buffer of upland on each bank side of a linear habitat be included as suitable habitat for GGS when assessing a project's disturbance area. The USFWS's measure of suitable habitat is part of the Programmatic Formal Consultation with the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California (USFWS 1997). Further, the 200-foot upland buffer has become a standard requirement in subsequent Biological Opinions and impacts analyses; therefore, it was applied to this assessment.

All GGS habitat attributes were recorded in data sheets containing all scoring factors associated with suitable GGS habitat. Habitat attributes were tallied to provide a total habitat score for each feature identified as potential GGS habitat. The scores were then separated into three classes resulting in a suitability score of aquatic habitats with corresponding habitat values. Habitat suitability categories and score ranges are as follows:

- Unsuitable (0-6 points);
- Marginal (7-13 points); or
- Suitable (14-19 points).

Habitat classification values (unsuitable, marginal, and suitable) are based upon recognized habitat characteristics and knowledge of GGS and their life history, distribution, and habitat requirements (Hansen and Brode 1980, Hansen 1988, USFWS 1999, Wylie and Martin 2000, Hansen 2003, Hansen 2004) and are defined below.

Unsuitable habitat is characterized by lack of the water, vegetation, and refugia necessary to support GGS for a biologically meaningful period. Such habitat is generally composed of large rivers, lakes, and concrete (gunite) drains or temporary swales that possess no water during the active spring and summer seasons. As such, unsuitable habitat corridors are no more likely to support GGS than any non-aquatic environment, and if they do so, they do so only by chance. Transient features, such as shallow trenches and furrows intended only to direct winter runoff, typically do not persist through the remainder of the season and do not provide the aquatic habitat necessary to support GGS for a meaningful time, and should therefore be assigned to this category. However, because transient features still exhibit characteristics such as winter water, bank sun, and bank or upland vegetation, they can potentially accumulate the number of points necessary to qualify as marginal habitat in this evaluation scheme.

Marginal habitat is characterized by any combination of those suitable habitat features listed below such that it can support transient GGS on a temporary basis or act as a connective corridor between areas of more stable or desirable habitat. This habitat need only possess the water, vegetation, and refugia required to provide minimal coverage for dispersing snakes. Marginal habitat is incapable of supporting permanent populations of GGS and is typically ephemeral, providing no permanent source of prey.

Suitable habitat is characterized by containing all of the features necessary to support permanent populations of GGS, including: 1) sufficient water during the active summer season to supply cover and food such as small fish and amphibians; 2) emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat; 3) bankside burrows, holes and crevices to provide short-term aestivation sites; and 4) high ground or upland habitat above the annual high-water mark to provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988, Hansen and Brode 1980).

4.0 Results

CNDDB Results

The CNDDB search (CDFW 2024) revealed no documented occurrence of GGS within 1 mile of the Study Area and a total of 15 documented occurrences within 5-miles of the Study Area (**Figure 3**).

The nearest occurrence (Occurrence Number 80) is located near the Yolo County Landfill approximately 2 miles northeast of the Study Area. This occurrence was documented in 1987 and consists of an observation of two adult snakes in Willow Slough bypass near Roads 104 and 28H. A visit of the observation area revealed that there is suitable GGS habitat in the vicinity.

There are a number of recent observations of GGS within the Yolo Bypass area approximately four to five miles to the east of the Study Area. This area is dominated by rice farms with associated irrigation ditches and marsh habitats unlike the Study Area or its surrounding lands.

The Covell Drain

Madrone identified one aquatic feature within the Study Area and within 200 feet of the Study Area, the Covell Drain, that represented potential habitat for GGS. The Covell Drain was a historic seasonal drainage that flows generally from west-to-east into the Willow Slough Bypass, through the Yolo Bypass, and into the Sacramento River. The Covell Drain historically flowed through the southeastern portion of the Study Area and a remnant, mostly upland, channel is still present where the creek used to flow. Between 1957 and 1968 (historic aerial photographs) the Covell Drain was realigned to the north, presumably for flood protection, as Putah Creek was realigned south of the City of Davis for the same reasons. The channel of the creek is engineered to be trapezoidal in nature and the banks are bound by earthen levees that are higher in elevation than the surrounding farmland. The channel is approximately 20 to 30 feet in width and approximately 10 feet deep and contains an earthen and sandy substrate.

The Covell Drain flows onto the Study Area from the west and makes a jog to the south for approximately 0.25 mile before turning east and flowing 0.8 mile before exiting the Study Area. A small tributary to the Covell Drain joins the drainage along the western boundary near the offsite Julie Partansky Pond. This tributary appears to gather precipitation runoff and parallels F Street for approximately 0.75 mile before flowing into the Covell Drain.

Hydrology within the Covell Drain is driven by rain events and water appears to be present within the channel starting in late fall or early winter after several rain events. Water remains present, albeit very shallow, until late spring or early summer when the channel dries. See **Figure 4** for a map of hydrologic connectivity of the Study Area to the Willow Slough Bypass where GGS are known to occur.

Riparian vegetation along the banks of the Covell Drain consist of dense strips of mostly non-native trees. This community is heavily dominated by wingnut (*Pterocarya* species) and Pennsylvania ash (*Fraxinus pennsylvanica*), but also supports golden rain tree (*Koelreuteria paniculata*), cigar tree (*Catalpa bignonioides*), white mulberry (*Morus alba*), tree of heaven (*Ailanthus altissima*), Siberian elm (*Ulmus pumila*), Chinese elm (*Ulmus parvifolia*), Chinese tallow (*Triadica sebifera*), Callery pear (*Pyrus calleryana*), and she-oak (*Casuarina* species). Occasional native trees also occur in this community including Valley oak (*Quercus lobata*), Northern California black walnut (*Juglans hindsii*), Oregon ash (*Fraxinus latifolia*), boxelder (*Acer* *negundo*), Fremont's cottonwood (*Populus fremontii*), red willow (*Salix laevigata*) and black willow (*S. gooddingii*). Very little herbaceous vegetation is present in the shaded understory of this community due to the dense closed canopy. The channel contains abundant woody debris and log jams.

No prey species including amphibians or fish were observed within the Covell Drain at the time of the surveys. Several adult Sierran chorus frogs were observed calling from the uplands surrounding the channel. The Covell Drain scored a "3" (**Attachment B**) and is thus classified as unsuitable habitat for GGS.

5.0 Conclusion

The entire Study Area was included in the GGS habitat assessment. The habitat assessment focused on the Covell Drain and the surrounding uplands as the Covell Drain is the only aquatic resource that has the potential to support GGS within the Study Area. The other aquatic resources are flashy and do not retain water for durations needed to support a prey base for GGS.

The Covell Drain within the Study Area does not represent suitable habitat for GGS. Factors include the lack of perennial or semi-perennial water needed to support a prey base, the lack of suitable basking habitat due to the dense riparian canopy, the highly degraded and disturbed/dry farmed nature of the uplands surrounding the creek. Additionally, the lack of adjacent wetlands or rice farming to the Covell Drain also contributes to the unsuitability of the Study Area for GGS.

Based on the lack of suitable habitat located within the Study Area, as well as a lack of suitable habitat in the vicinity of the Study Area with the nearest known occurrence being over two miles away, it is very unlikely that GGS would be present within the Study Area, and this species is expected to be absent

6.0 REFERENCES

Balfour, P.S. and E. W. Stitt. 2002. "*Nerodia fasciata fasciata*." *Herpetological Review* 33(2): 150.

Brode, J. 1988. Natural history of the giant garter snake (*Thamnophis couchii gigas*). Pages 25-28, *In* Proceedings of the conference on California herpetology, H.F. DeListe, P.R. Brown, B. Kaufman, and B.M. McGurty (eds). Southwestern Herpetologists Society, Special Publications No. 4.

Brode, J. and G. Hansen. 1992. *Status and future management of the giant garter snake (Thamnophis gigas) within the southern American Basin, Sacramento and Sutter counties, California*. California Department of Fish and Game, Inland Fisheries Division, January 1992.

Brown, D. 2000. "The *Nerodia rhombifera* problem." Unpublished report to California Department of Fish and Game. 35 pp.

California Department of Fish and Wildlife (CDFW). 2024. California Natural Diversity Database (CNDDB), Rarefind 5 Commercial Version. Accessed January 2024.

Fitch, H.S. 1940. "A biogeographical study of the *ordinoides* artenkreis of garter snakes (genus *Thamnophis*)." *Univ. Calif. Publ. Zool*. 44:1-150.

Hansen, R. W. 1980. "Western aquatic garter snakes in central California: an ecological and evolutionary perspective." Master of Arts thesis, California State University, Fresno, California. 78 pp.

Hansen, G.E. 1986. Status of the giant garter snake *Thamnophis couchi gigas* (Fitch) in the Southern San Joaquin Valley During 1986. Final report for California Department of Fish and Game Agreement No. C-1433. Unpublished. 31 pp.

Hansen, R. W. 1988. "Review of the status of the giant garter snake (*Thamnophis couchi gigas*) and its supporting habitat during 1986-87." Final report to California Department of Fish and Game, Contract C-2060. 31 pp.

Hansen, R. W. and G. E. Hansen. 1990. "*Thanmophis gigas* (giant garter snake) reproduction." *Herpetological Review* 21(4): 93-94.

Hansen, G. E. and J. M. Brode. 1980. "Status of the giant garter snake *Thamnophis couchi gigas* (Fitch)." California Department of Fish and Game, Inland Fisheries Endangered Species Program Special Publication 80-5, 14 pp.

Hansen, E.C. 2004. "Year 2003 investigations of the giant garter snake (*Thamnophis gigas*) in the Middle American Basin: Sutter County, California." Annual report prepared for Sacramento Area Flood Control Agency. March 10, 2004. Contract No. 381. Unpublished. 40 pp.

Hansen, E.C. 2008. "Evaluations of Giant Garter Snake (*Thamnophis gigas*) habitat and consideration of potential species impacts for the Antioch Bridge Seismic Retrofit Project, Sacramento County and Contra Costa County, California." November 12, 2008. Unpublished. 25 pp.

Hansen, E.C., H. McQuillen, S. Sweet, S. Gala, and J. Marty. Response of the Giant Garter Snake (*Thamnophis gigas*) to Water Primrose (*Ludwigia hexapetala*) Removal at the Cosumnes River Preserve. Final Report Submitted to the Central Valley Project Conservation Program – Habitat Restoration Program. December 29, 2010. 43 pp.

Hansen, G.E. and J.M. Brode. 1993. "Results of relocating canal habitat of the giant garter snake (*Thamnophis gigas*) during widening of State Route 99/70 in Sacramento and Sutter counties, California." Final report for Caltrans Interagency Agreement 03E325 (FG7550) (FY 87/88-91-92). Unpublished. 36 pp.

Jayne, B.C. and A.F. Bennett. 1990. "Selection on Locomotor Performance Capacity in a Natural Population of Garter Snakes." *Evolution* Volume 44, Issue 5 (Aug., 1990), 1204-1229.

Miles, Scott and Charles Goudey. 1997. *Ecological Subregions of California*. United States Department of Agriculture, Forest Service. Pacific Southwest Division. R5-EM-TP-005. San Francisco.

Stitt, E., P. Balfour, T. Luckau, and T.E. Edwards. 2005. "The Southern Watersnake (*Nerodia fasciata*) in Folsom, California: History, Population Attributes, and Relation to Other Introduced Watersnakes in North America." Final Report to U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Sacramento, California under Cooperative Agreement #11420-1933-CM02 by ECORP Consulting, Inc. April 11, 2005. 72 pp. and appendices.

U.S. Fish and Wildlife Service (USFWS). 1993. Endangered and threatened wildlife and plants; determination of threatened status for the giant garter snake. Federal Register 58:54053-54066.

U.S. Fish and Wildlife Service (USFWS). 1997. *Programmatic Formal Consultation for the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo Counties, California*. November 13, 1997. 20 pp. and appendices.

U.S. Fish and Wildlife Service (USFWS). 1999. *Draft Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*. Portland, Oregon. 192 pp.

U.S. Fish and Wildlife Service (USFWS). 2006. *Giant Garter Snake (Thamnophis gigas) 5-Year Review: Summary and Evaluation*. September 2006. 46 pp.

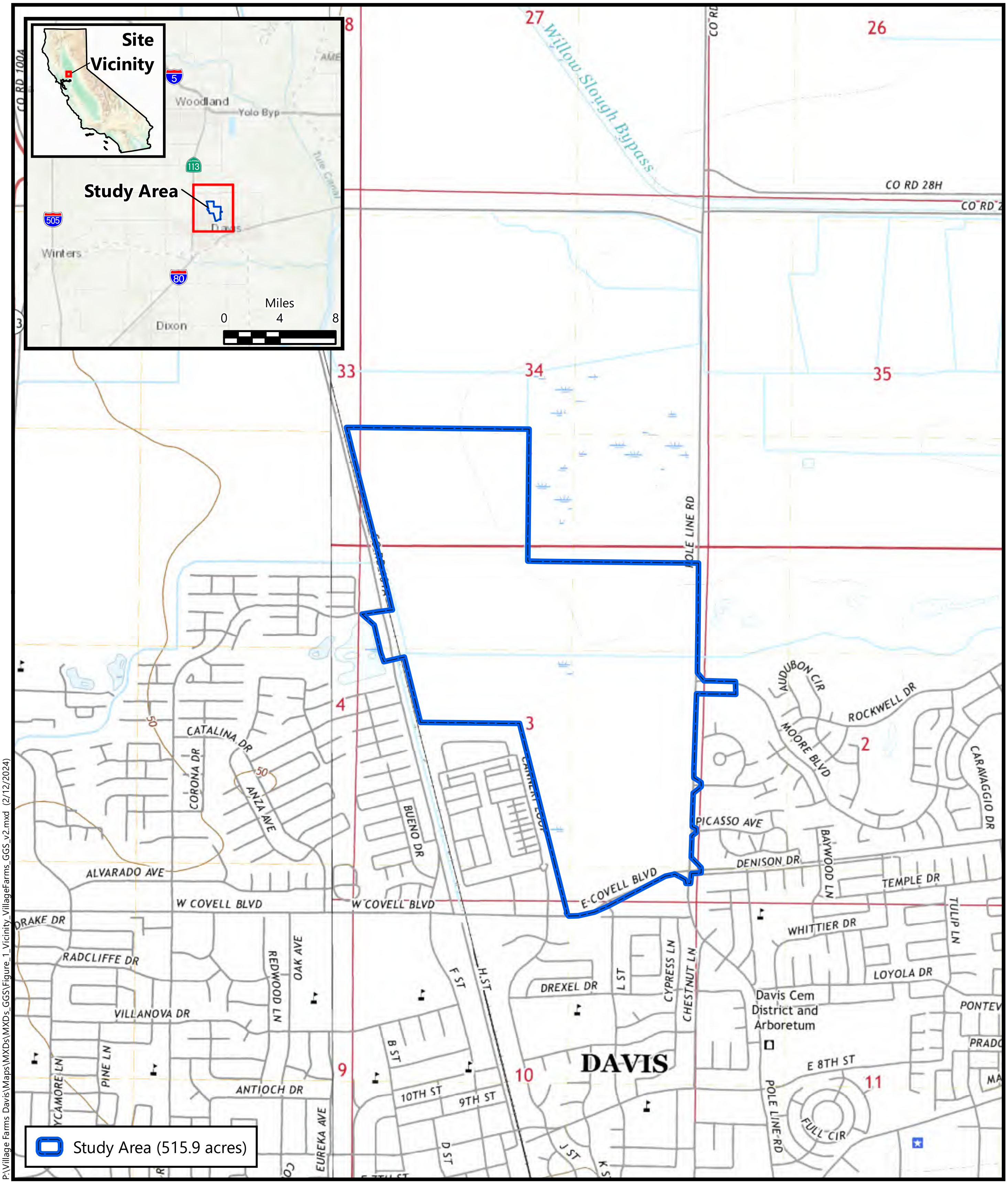
U.S. Fish and Wildlife Service (USFWS). 2012. *Giant Garter Snake (Thamnophis gigas) 5-Year Review: Summary and Evaluation*. June 2012. 62 pp.

U.S. Fish and Wildlife Service (USFWS). 2015. *Revised Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*.

U.S. Geological Survey. 2021. Davis, California 7.5-Minute Series USGS Topographis Quadrangle.

Wylie, G. D and L.L. Martin. 2004. "Survey for the Giant Garter Snakes in Solano County: 2004 Report." Prepared for US Fish and Wildlife Service. U. S. Geological Survey, Western Ecological Research Center, Dixon Field Station, Dixon, California. 20 pp.

Figures



P:\Village Farms Davis\Maps\MXDs\MXDs_GGS\Figure_1_Vicinity_VillageFarms_GGS_v2.mxd (2/12/2024)

N

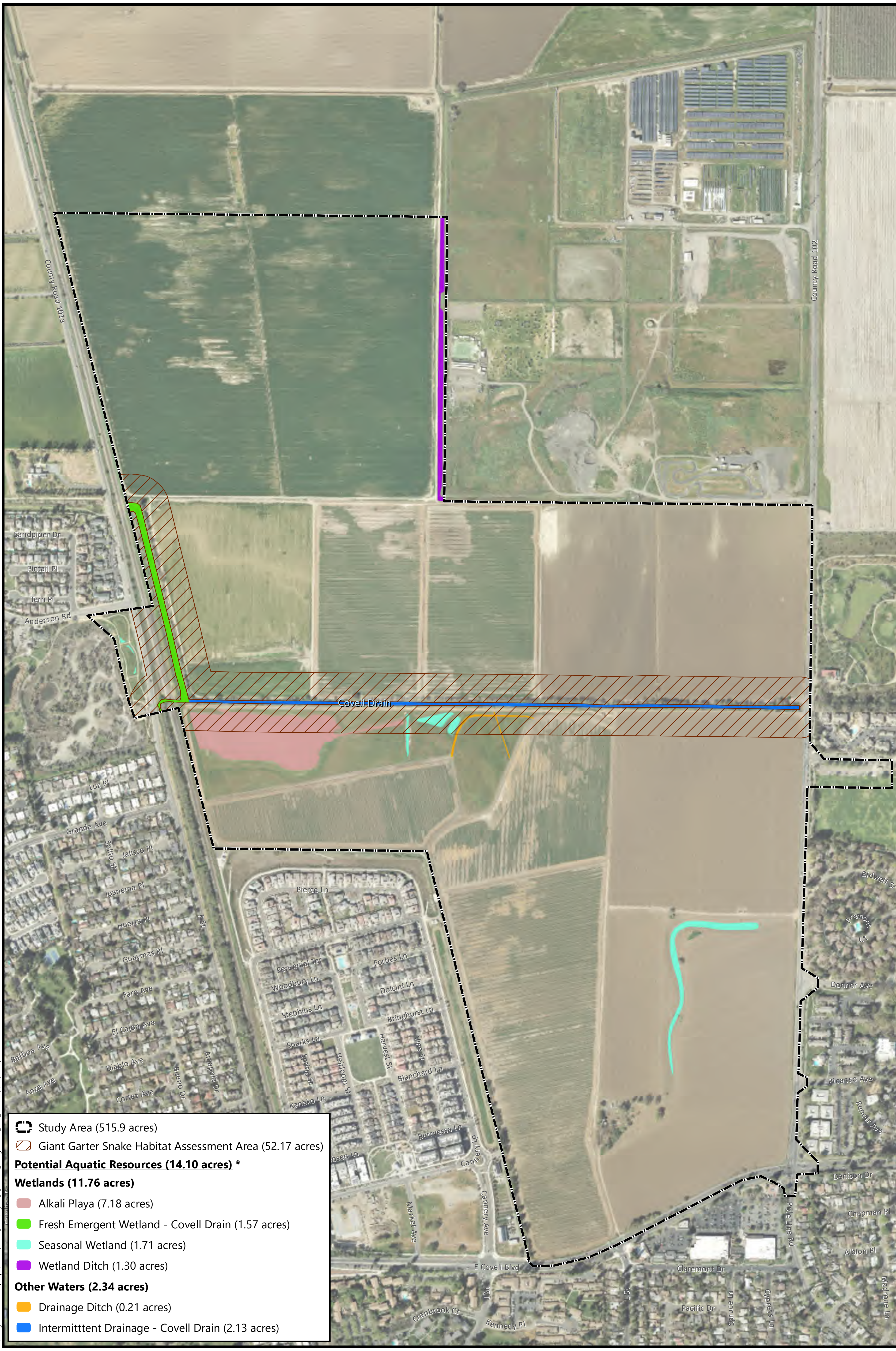
Feet
0 1,000 2,000

Source: *United States Geologic Survey*, 2021
"Davis, California" 7.5-Minute Topographic Quadrangle
Sections 33-34, Township 9 North, Range 2E, MDBM and
Sections 2-3, 10 Township 8 North, Range 2E, MDBM
Latitude (NAD83): 38.571593°, Longitude (NAD83): -121.738843°

Figure 1
Site and Vicinity

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING



P:\Village Farms Davis\Maps\MXDs\MXDs_GGS\Figure_2_Habitat_VillageFarms_GGS_v3.mxd (2/12/2024)

N

Feet

0 600

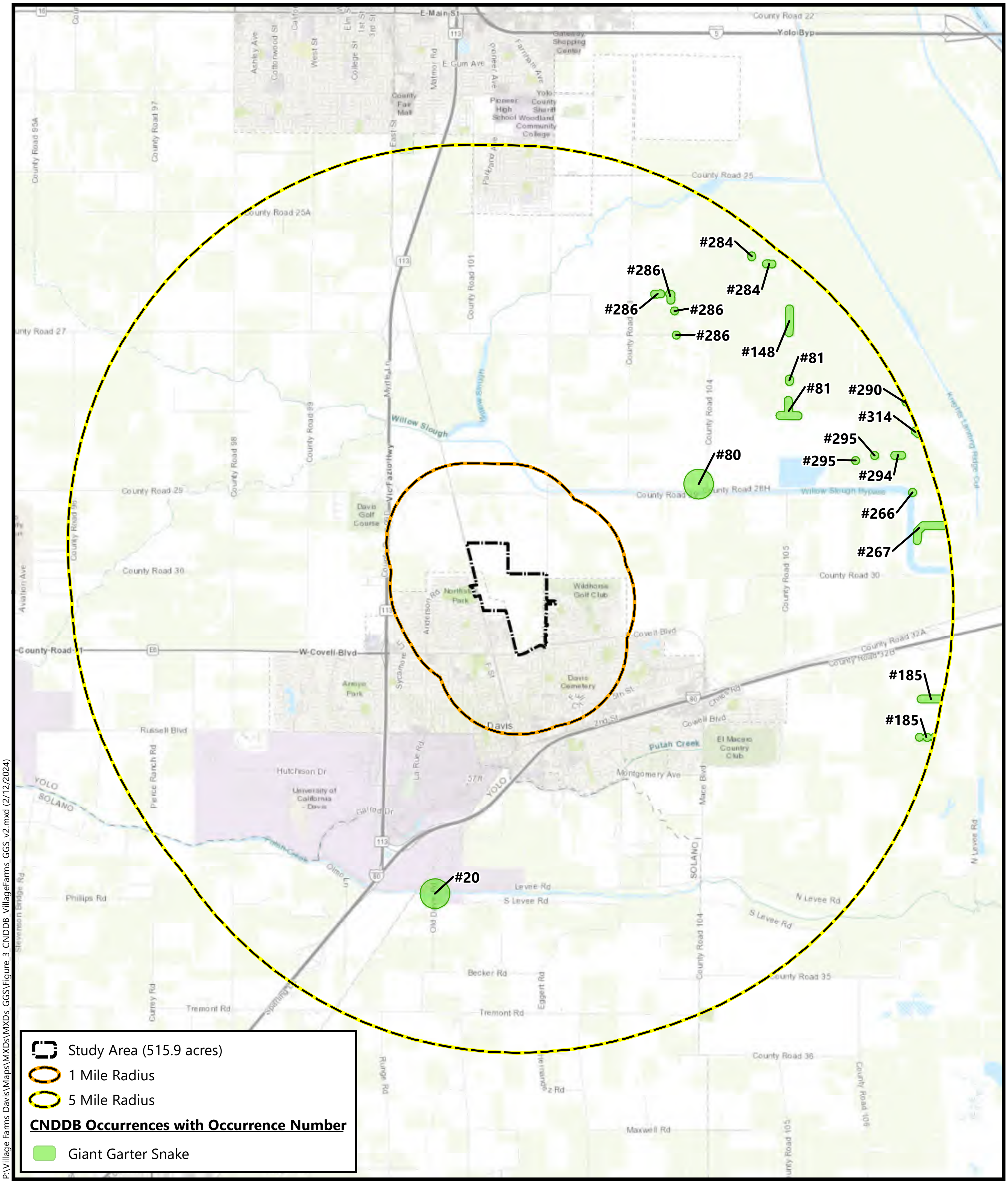
Figure 2
Potential Giant Garter Snake Habitat

Village Farms Davis
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING

* *Small summation errors may occur due to rounding*

Boundary Source: *Cunningham Engineering*
Aerial Source: *ESRI/SACOG*, 18 March 2022



P:\Village Farms Davis\Maps\MXDs\MXDs_GGS\Figure_3_CNDDB_VillageFarms_GGS_v2.mxd (2/12/2024)

Figure 3
California Natural Diversity Database
Occurrences of Giant Garter Snake

Village Farms Davis
Davis, Yolo County, California

Source: *California Department of Fish and Wildlife*, February 2024
Basemap Source: *ESRI World Topography*

MADRONE ECOLOGICAL CONSULTING

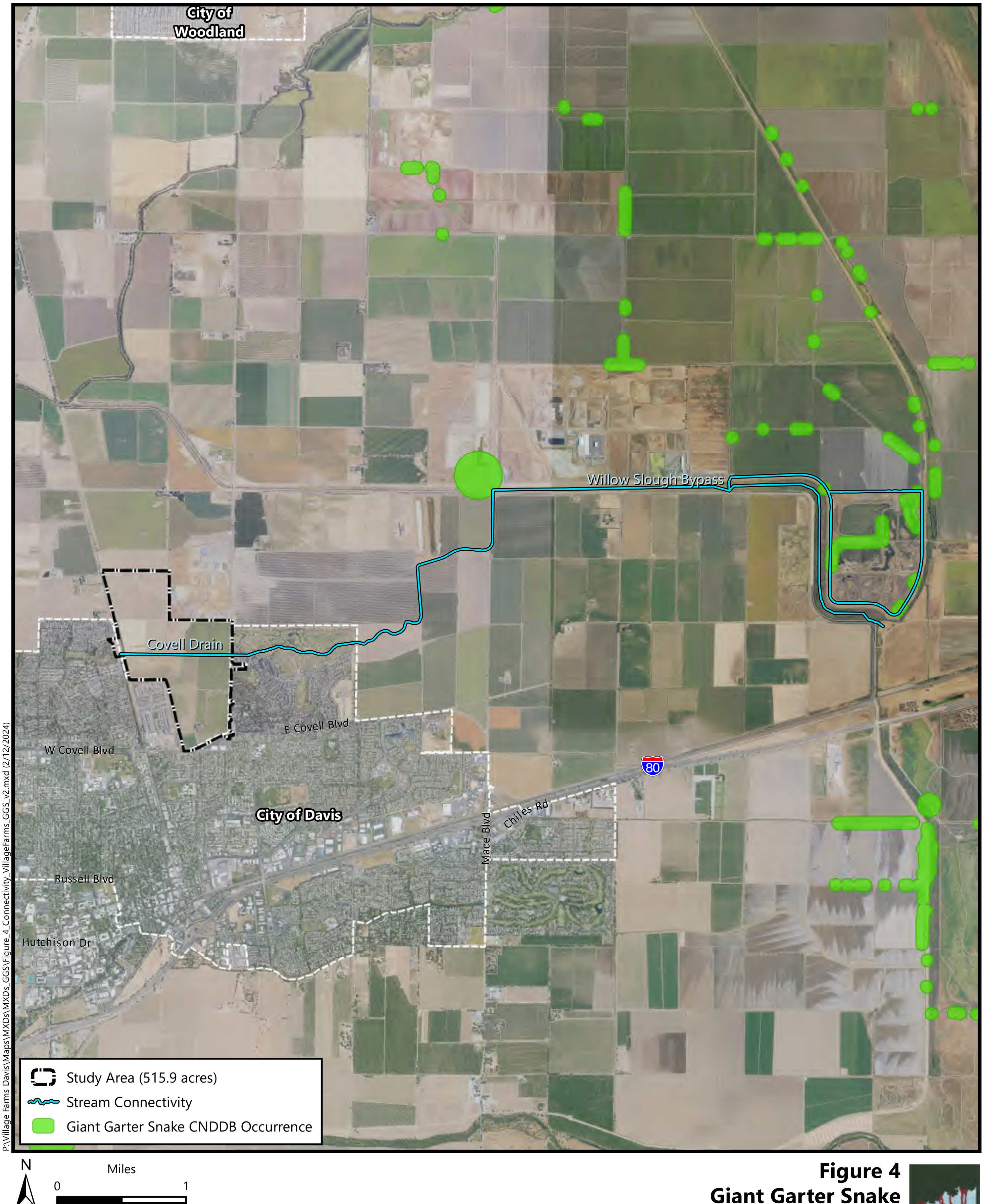


Figure 4
Giant Garter Snake Habitat Connectivity

Village Farms Davis
Davis, Yolo County, California

Species Source: *California Department of Fish and Wildlife*, February 2024
Boundary Source: *Cunningham Engineering*
Aerial Source: *NAIP*, 21 June 2022

Attachments

Attachment A: Site Photographs

Attachment B: Habitat Evaluation and Scoring Form

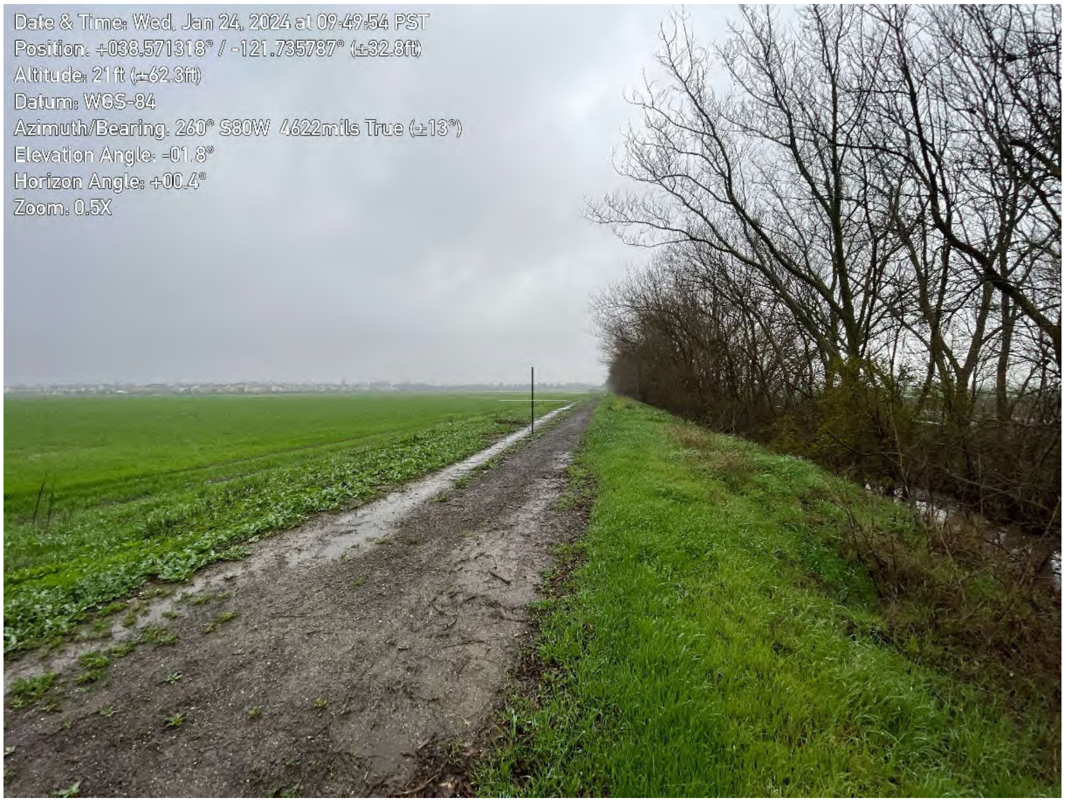
Attachment C: Instructions for Completing the Habitat Evaluation and Scoring Form

Attachment A

Site Photographs

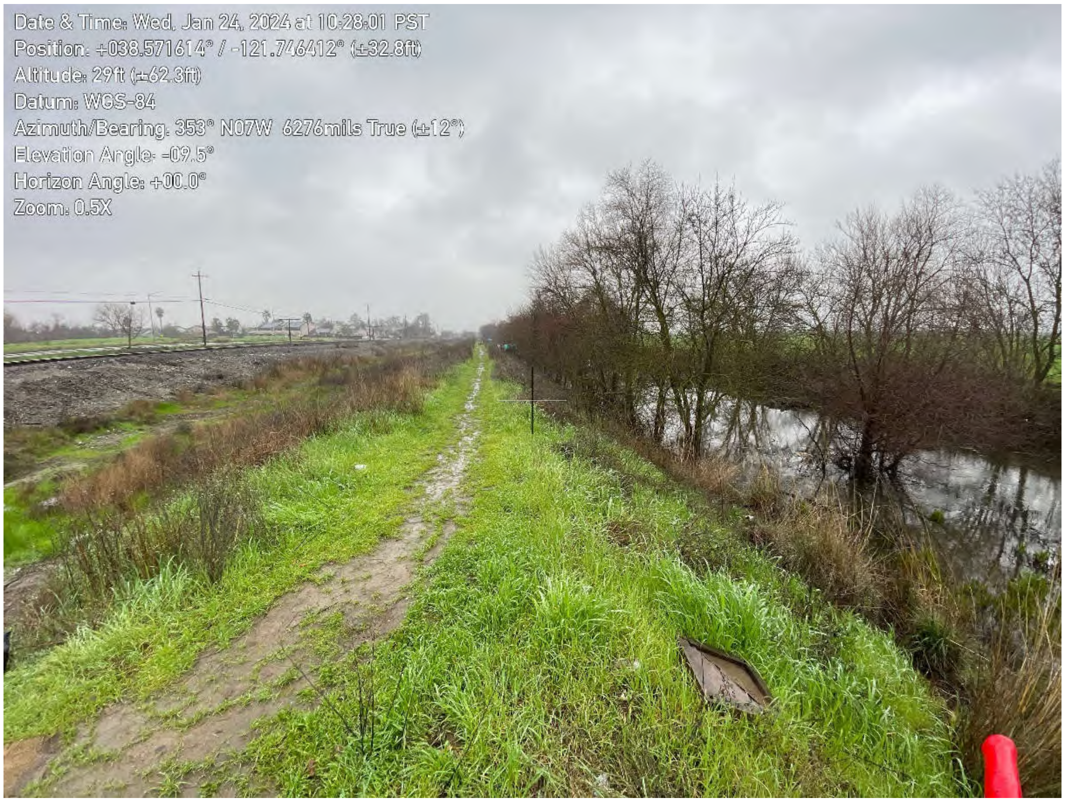
Photograph 1. Covell Drain – Facing west (upstream) from the center of the Project.

Photograph 2. Covell Drain – Facing east (downstream) from the center of the Project.



Photograph 3. Facing west along the southern levee of Covell Drain.

Photograph 4. Adjacent farmed grain fields south of Covell Drain



Photograph 5. Facing north along the western boundary of the site at the western levee along Covell Drain

Photograph 6. Facing southwest at where water flows onto the site under the Union Pacific Railroad Tracks. Water originates from Julie Partansky Pond and pumped into the channel.

Photograph 5. Photograph of the Covell Drain facing east from the western boundary.

Photograph 6. Photograph of the north-to-south portion of the Covell Drain. Facing North.

Photograph 5. Dry Season photograph of the Covell Drain

Photograph 6. Dry season photograph of the Covell Drain after first fall rains started filing the channel.

Attachment C

Instructions for Completing the Habitat Evaluation and Scoring Form

HABITAT EVALUATION AND SCORING FORM

Giant Garter Snake (*Thamnophis gigas*)

Project Name: Village Farms Davis

Water Body Name: Covell Drain

General Characteristic: Rerouted Seasonal Drainage **Permanent/Seasonal**[1]

USGS 7.5' Topo Quad: Davis, CA **Township** 7 + 8 north **Range** 2 East

Surveyor/Affiliation: Dustin Brown and Lily Kalachik/Madrone **Date:** 1/24/24

Scores: 0=absent/none 1=present/low (0-25%) 2=moderate (25-75%) 3=high (75-100%)

Factor	Score
1. Still or slow-flowing water over silt substrate	+ (✓)[2]
2. Flowing water over sand, gravel, rock or cement substrate	-- ( )[2]
3. Water available[3]	
a) Winter only (runoff) or sporadic availability	+ (✓)[2]
b) April through October only (e.g. irrigation)	+ ( )[2]
c) All year (e.g. perennial marsh or channel)	+ ( )[2]
4. Banks are sunny	+ (1)
5. Banks shaded by overstory vegetation	-- (3)
6. Aquatic or emergent vegetation present	+ (0)
7. Terrestrial vegetation present	
a) On banks	+ (2)
b) In adjacent uplands	+ (0)
8. Subterranean retreats present[3]	
a) In banks	+ (✓)[2]
b) In adjacent uplands	+ ( )[2]
9. Prey fish present	+ ( )[2]
10. Introduced gamefish present	-- ( )[2]
11. Prey amphibians present – Sierran treefrogs	+ (✓)[2]
12. Site subject to severe seasonal or tidal flooding	-- ( )[2]
13. Adjacent land use[3]	
a) Rice, marsh, or wetland	+ ( )[2]
b) Upland	+ ( )[2]
c) Row Crop or horticultural	-- (✓)[2]
d) Urban or developed public area	-- ( )[2]
14. Disturbance due to human recreational or maintenance activities	-- ( )[2]
15. Connectivity to known populations of GGS	+ ( )[2]

[1] *seasonal habitat designation results in a total adjusted score of 0 points*
[2] *indicates presence/absence only*
[3] *factors within these fields are scored cumulatively*

Total: 3

Adjusted Total[1]**:** 0

Attachment B

Habitat Evaluation and Scoring Form

INSTRUCTIONS FOR COMPLETING THE HABITAT EVALUATION AND SCORING FORM (Hansen 2008)

Giant Garter Snake (Thamnophis gigas)

1. Still or slow-flowing water over silt substrate

This category is checked if bank habitat adjacent to water is composed of soil, silt, or mud in flows no greater than 3 mph. Water in this category will often be dark or murky rather than clear, of the type observed in marshes, sloughs, or irrigation canals. This category is determined by presence or absence only and receives a positive score.

2. Flowing water over sand, gravel, rock or cement substrate

This category is checked if channel or bank habitat is composed of an impermeable substrate of the type listed above defining this category, and includes the presence of bank side cinders or fine concrete riprap placed for erosion control. Water in this category will often be clear, associated with flows exceeding 3 mph, of the type typically observed in flowing streams or rivers where silt or sediment will not persist. This category is determined by presence or absence only and receives a negative score.

3. Water available:

> ***a) Winter only (runoff) or sporadic availability***
> ***b) April through October only (e.g. irrigation)***
> ***c) All year (e.g. perennial marsh or channel)***

Factors in this category are based upon the persistence of all water within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only, and receive positive scores.

4. Banks are sunny

This category is checked if bank habitat adjacent to water receives direct sunlight. Availability of sunlight is determined by the ability of GGS to access sun for basking, and does not include areas where vegetation or topography prevents such access. This category receives positive scores determined by percentage of sunlight present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

5. Banks shaded by overstory vegetation

This category is checked if bank habitat adjacent to water receives shade obstructing direct sunlight. This category is designed to complement and weight category 4, and receives negative scores determined by percentage of shade present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

6. Aquatic or emergent vegetation present

This category is checked if bank side aquatic habitat is characterized by aquatic vegetation which persists above the water level (*e.g.* cattails, bulrushes, primrose or hyacinth). This category receives positive scores determined by the percentage of aquatic vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

7. Terrestrial vegetation present

a) On banks
b) In adjacent uplands

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by vegetation (*e.g.* grasses, brush, low shrubs or Himalayan blackberry). This category receives positive scores determined by the percentage of terrestrial vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

8. Subterranean retreats present

a) In banks
b) In adjacent uplands

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by burrows, holes, or cracks either in the soil or under debris. Factors within this category are cumulative, are determined by presence or absence only, and receive positive scores.

9. Prey fish present

This category is checked if small aquatic prey fish (*e.g.* carp, mosquitofish, or blackfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a positive score.

10. Introduced gamefish present

This category is checked if large, predatory gamefish (*e.g*. black bass, striped bass, channel catfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a negative score.

11. Prey amphibians present

This category is checked if amphibians (e.g. bullfrog, treefrog, red-legged frog) are present within or near aquatic habitat. Note that toads do not constitute preferred prey for the giant garter snake and are not included when scoring this category. This category is determined by presence or absence only and receives a positive score.

12. Site subject to severe seasonal or tidal flooding

This category is checked if habitat is subject to prolonged inundation of upland terrestrial habitat by seasonal floodwaters or persistent tidal flows. This category is determined by presence or absence only and receives a negative score.

13. Adjacent land use

> ***a) Rice, marsh, or wetland***
> ***b) Upland***
> ***c) Row Crop or horticultural***
> ***d) Urban or developed public area***

Factors in this category are based upon dominant land use within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only and receive positive or negative scores indicated on the Habitat Evaluation and Scoring Form.

Attachment K

Tree Inventory Exhibit

Trees within the Study Area

Village Farms

Davis, Yolo County, California

Prepared For:
North Davis land Company, LLC.
3500 Anderson Road
Davis, CA 95616

Sources
Aerial: ESRI/SACOG, 18 March 2022
Boundary: Cunningham Engineering Corporation

N

Feet
0 150 300

Map Scale:
1 inch = 300 feet (at 24"x30")
Coordinate System
NAD 1983 State Plane California II (U.S. Feet)

Study Area (515.9 acres)
Additional Riparian Tree Canopy

Trees within the Study Area

Native Trees
- Black Willow (1)
- Boxelder (22)
- Coast Live Oak (5)
- Northern California Black Walnut (8)
- Red Willow (2)
- Redwood (2)
- Valley Oak (66)

Non-Native Trees
- Aleppo Pine (3)
- Almond (2)
- American Sycamore (13)
- Arizona Ash (259)
- Australian Blackwood (12)
- Bald Cypress (1)
- Bradford Pear (3)
- Cherry Plum (1)
- Chinese Elm (25)
- Chinese Hackberry (10)
- Chinese Pistache (8)
- Chinese Tallowtree (39)
- Chinese Wingnut (183)
- Cigar Tree (14)
- Cork Oak (11)
- English Walnut (1)
- Japanese Privet (4)
- Kentucky Coffeetree (1)
- London Planetree (8)
- Mexican Fan Palm (1)
- Narrow-Leaved Ash (1)
- Olive (1)
- Pecan (1)
- Persian Silk Tree (1)
- Queen's Crepe-Myrtle (4)
- Siberian Elm (38)
- Silver Maple (1)
- Sour Cherry (1)

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

P:\Village Farms Davis\Maps\MXDs\MXDs_BRA\Attachment Trees_VillageFarms_BRA_v1.mxd

Attachment L

Tree Impact Exhibits

Prepared For:
North Davis land Company, LLC.
3500 Anderson Road
Davis, CA 95616

Sources
Aerial: ESRI/SACOG, 18 March 2022
Boundary: Cunningham Engineering Corporation

N
Feet
0 150 300

Map Scale:
1 inch = 300 feet (at 24"x30")
Coordinate System
NAD 1983 State Plane California II (U.S. Feet)

Study Area (515.9 acres)
Additional Riparian Tree Canopy
Permanently Impacted Tree (543)

Trees within the Study Area

Native Trees
- Black Willow (1)
- Boxelder (22)
- Coast Live Oak (5)
- Northern California Black Walnut (8)
- Red Willow (2)
- Redwood (2)
- Valley Oak (66)

Non-Native Trees
- Aleppo Pine (3)
- Almond (2)
- American Sycamore (13)
- Arizona Ash (259)
- Australian Blackwood (12)
- Bald Cypress (1)
- Bradford Pear (3)
- Cherry Plum (1)
- Chinese Elm (25)
- Chinese Hackberry (10)
- Chinese Pistache (8)
- Chinese Tallowtree (39)
- Chinese Wingnut (183)
- Cigar Tree (14)
- Cork Oak (11)
- English Walnut (1)
- Japanese Privet (4)
- Kentucky Coffeetree (1)
- London Planetree (8)
- Mexican Fan Palm (1)
- Narrow-Leaved Ash (1)
- Olive (1)
- Pecan (1)
- Persian Silk Tree (1)
- Queen's Crepe-Myrtle (4)
- Siberian Elm (38)
- Silver Maple (1)
- Sour Cherry (1)

Proposed Project
Tree Impacts
Village Farms
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

Prepared For:
North Davis land Company, LLC.
3500 Anderson Road
Davis, CA 95616

Sources
Aerial: ESRI/SACOG, 18 March 2022
Boundary: Cunningham Engineering Corporation

N
Feet
0 150 300

Map Scale:
1 inch = 300 feet (at 24"x30")
Coordinate System
NAD 1983 State Plane California II (U.S. Feet)

Study Area (515.9 acres)
Additional Riparian Tree Canopy
Permanently Impacted Tree (334)

Trees within the Study Area

Native Trees
- Black Willow (1)
- Boxelder (22)
- Coast Live Oak (5)
- Northern California Black Walnut (8)
- Red Willow (2)
- Redwood (2)
- Valley Oak (66)

Non-Native Trees
- Aleppo Pine (3)
- Almond (2)
- American Sycamore (13)
- Arizona Ash (259)
- Australian Blackwood (12)
- Bald Cypress (1)
- Bradford Pear (3)
- Cherry Plum (1)
- Chinese Elm (25)
- Chinese Hackberry (10)
- Chinese Pistache (8)
- Chinese Tallowtree (39)
- Chinese Wingnut (183)
- Cigar Tree (14)
- Cork Oak (11)
- English Walnut (1)
- Japanese Privet (4)
- Kentucky Coffeetree (1)
- London Planetree (8)
- Mexican Fan Palm (1)
- Narrow-Leaved Ash (1)
- Olive (1)
- Pecan (1)
- Persian Silk Tree (1)
- Queen's Crepe-Myrtle (4)
- Siberian Elm (38)
- Silver Maple (1)
- Sour Cherry (1)

Biological Resources Preservation Alternative
Tree Impacts
Village Farms
Davis, Yolo County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

Attachment M

Yolo HCP

Avoidance and Minimization Measures

Chapter 5
Avoidance and Minimization Measures

The AMMs described in this chapter are as follows.

General Project Design

- AMM1, *Establish Resource Protection Buffers*
- AMM2, *Design Developments to Minimize Indirect Effects at Urban–Habitat Interfaces*

General Construction and Operations and Maintenance

- AMM3, *Confine and Delineate Work Area*
- AMM4, *Cover Trenches and Holes during Construction and Maintenance*
- AMM5, *Control Fugitive Dust*
- AMM6, *Conduct Worker Training*
- AMM7, *Control Nighttime Lighting of Project Construction Sites*
- AMM8, *Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas*

Sensitive Natural Communities

- AMM9, *Establish Resource Protection Buffers Around Sensitive Natural Communities*
- AMM10, *Avoid and Minimize Effects on Wetlands and Waters*

Covered Species

- AMM11, *Minimize Take and Adverse Effects on Palmate-Bracted Bird's Beak*
- AMM12, *Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle*
- AMM13, *Minimize Take and Adverse Effects on Habitat of California Tiger Salamander*
- AMM14, *Minimize Take and Adverse Effects on Habitat of Western Pond Turtle*
- AMM15, *Minimize Take and Adverse Effects on Habitat of Giant Garter Snake*
- AMM16, *Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite*
- AMM17, *Minimize Take and Adverse Effects on Habitat of Western Yellow-Billed Cuckoo*
- AMM18, *Minimize Take and Adverse Effects on Western Burrowing Owl*
- AMM19, *Minimize Take and Adverse Effects on Least Bell's Vireo*
- AMM20, *Minimize Take and Adverse Effects on Habitat of Bank Swallow*
- AMM21, *Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird*

General Project Design

The following measures apply generally to all covered activities for designated sensitive natural communities and covered species. These measures involve adjusting project footprints or incorporating design measures to avoid and minimize effects on natural communities and covered species.

AMM1, Establish Resource Protection Buffers. This is a general AMM regarding how to apply resource protection buffers. More specific resource protection buffer requirements are provided for the specific natural communities and covered species in subsequent AMMs.

Project proponents will design projects to avoid and minimize direct and indirect effects of permanent development on the sensitive natural communities specified in Yolo HCP/NCCP Table 4-1 (herein referred to as *sensitive natural communities*) and covered species habitat specified in Yolo HCP/NCCP Table 4-1 by providing resource protection buffers, as stipulated in the relevant sensitive natural community AMMs and covered species AMMs. Although the contents of this AMM somewhat overlap with the resource protection buffer stipulations in the natural community and covered species AMMs, it provides additional information on requirements common to all permanent resource protection buffers incorporated into project design.

On lands owned by the project proponent, the project proponent will establish a conservation easement, consistent with Yolo HCP/NCCP Section 6.4.1.3, to protect the resource protection buffer permanently if that land is being offered in lieu of development fees, as described in Yolo HCP/NCCP Section 4.2.2.6, Item 6. The project proponent will design resource protection buffer zones adjacent to permanent residential development projects to control access by humans and pets (*AMM2, Design Developments to Minimize Indirect Effects at Urban–Habitat Interfaces*).

Where existing development is already within the stipulated buffer distance (i.e., existing uses prevent establishment of the full resource protection buffer), the development will not encroach farther into the space between the development and the sensitive natural community.

This AMM does not apply to seasonal construction resource protection buffers for covered species, which are detailed for each species in Yolo HCP/NCCP Section 4.3.4.

A lesser resource protection buffer than is stipulated in the AMMs may be approved by the Conservancy, USFWS, and CDFW if they determine that the sensitive natural community or covered species is avoided to an extent that is consistent with the project purpose. For example, if the purpose of the project is to provide a stream crossing or replace a bridge, the project may encroach into the resource protection buffer and the natural community or species habitat to the extent that is necessary to fulfill the project purpose.

AMM2, Design Developments to Minimize Indirect Effects at Urban-Habitat Interfaces. For development projects implemented adjacent to non-agricultural natural communities and covered species habitats, project proponents will incorporate urban-habitat interface elements into project design to minimize the following indirect effects of the development on adjacent habitat areas.

- Noise and visual disturbances that diminish the ability of covered and other native wildlife species to use the habitat.
- Increased numbers of pets (e.g., dogs, cats) that can result in harassment and mortality of covered and other native wildlife species.
- Increased levels of direct habitat disturbances associated with increased human access to habitats (e.g., destruction of vegetation and injury or mortality of wildlife associated with use of off-road vehicles).
- Escape or planting of invasive nonnative plants.

This AMM does not apply to development where it is immediately adjacent to existing developed lands.

The project proponent will implement the following urban-habitat interface design elements and activities, as applicable, to each discretionary project.

- Place roads or other non-residential spaces, such as parks or greenbelts, rather than lots at the urban-natural community interface. The benefits of this may include a reduction in the number of incidences of pets entering the natural communities.
- Design roads, bike paths, and trails to discourage entry of humans and pets into adjacent natural communities and promote citizen policing at the natural community periphery.
- Establish barriers that discourage entry of humans and pets into natural community areas.
- Design fences to prevent pets from escaping yards into adjacent natural communities, control entry and dumping of trash into adjacent natural communities, and when appropriate, shield adjacent natural communities from visual disturbances that may interfere with normal wildlife behavioral patterns.
- Fence new public roads associated with developments to prevent unauthorized public access into habitat areas and effectively direct wildlife to specially designed crossing structures.
- Design development drainage systems and implement appropriate best management practices to avoid changes to overland flow and water quality in natural community areas, including stream courses.
- Design development lighting to avoid projecting light into adjacent natural community areas. For lights at or near the urban-natural community interface, use low-glare lighting to minimize lighting effects on natural communities.

General Construction and Operations and Maintenance

The following measures apply to covered activities for all natural communities and covered species. The applicants will incorporate these measures into construction or operations and maintenance procedures to avoid and minimize effects on natural communities and covered species.

AMM3, Confine and Delineate Work Area. Where natural communities and covered species habitat are present, workers will confine land clearing to the minimum area necessary to facilitate construction activities. Workers will restrict movement of heavy equipment to and from the project site to established roadways to minimize natural community and covered species habitat disturbance. The project proponent will clearly identify boundaries of work areas using temporary fencing or equivalent and will identify areas designated as environmentally sensitive. All construction vehicles, other equipment, and personnel will avoid these designated areas.

AMM4, Cover Trenches and Holes during Construction and Maintenance. To prevent injury and mortality of giant garter snake, western pond turtle, and California tiger salamander, workers will cover open trenches and holes associated with implementation of covered activities that affect habitat for these species or design the trenches and holes with escape ramps that can be used during non-working hours. The construction contractor will inspect open trenches and holes prior to filling and contact a qualified biologist to remove or release any trapped wildlife found in the trenches or holes.

AMM5, Control Fugitive Dust. Workers will minimize the spread of dust from work sites to natural communities or covered species habitats on adjacent lands.

AMM6, Conduct Worker Training. All construction personnel will participate in a worker environmental training program approved/authorized by the Conservancy and administered by a qualified biologist. The training will provide education regarding sensitive natural communities and covered species and their habitats, the need to avoid adverse effects, state and federal protection, and the legal implications of violating the ESA and Natural Community Conservation Planning Act permits. A pre-recorded video presentation by a qualified biologist shown to construction personnel may fulfill the training requirement.

AMM7, Control Nighttime Lighting of Project Construction Sites. Workers will direct all lights for nighttime lighting of project construction sites into the project construction area and minimize the lighting of natural habitat areas adjacent to the project construction area.

AMM8, Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas. Project proponents should locate construction staging and other temporary work areas for covered activities in areas that will ultimately be a part of the permanent project development footprint. If construction staging and other temporary work areas must be located outside of permanent project footprints, they will be located either in areas that do not support habitat for covered species, or are easily restored to prior or improved ecological functions (e.g., grassland and agricultural land). Construction staging and other temporary work areas located outside of project footprints will be sited in areas that avoid adverse effects on the following.

- Serpentine, valley oak woodland, alkali prairie, vernal pool complex, valley foothill riparian, and fresh emergent wetland land cover types.
- Occupied western burrowing owl burrows.[4]

[4] *Occupied* for the purpose of AMM8 means at least one burrowing owl has been observed occupying the burrow within the last 3 years. Occupancy of a burrow may also be indicated by owl sign at the burrow entrance, including molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance or perch site (California Department of Fish and Game 2012, Appendix L).

- Nest sites for covered bird species and all raptors, including noncovered raptors, during the breeding season.

Project proponents will follow specific AMMs for sensitive natural communities and covered species in temporary staging and work areas. For establishment of temporary work areas outside of the project footprint, project proponents will conduct surveys to determine if any of the biological resources listed above are present.

Within 1 year following removal of land cover, project proponents will restore temporary work and staging areas to a condition equal to or greater than the covered species habitat function of the affected habitat. Restoration of vegetation in temporary work and staging areas will use clean, native seed mixes approved by the Conservancy that are free of noxious plant species seeds.

Sensitive Natural Communities

The following AMMs apply to sensitive natural communities. AMMs for the natural communities not included below but providing covered species habitat are described in AMMs for covered species.

AMM9, Establish Resource Protection Buffers around Sensitive Natural Communities. The resource protection buffers for each sensitive natural community are as follows.

- *Alkali seasonal wetlands and vernal pools:* Two-hundred and fifty feet is the area necessary to provide the hydrologic conditions needed to support the wetlands within these natural communities. Covered activities will avoid vernal pools or alkali seasonal wetlands (seasonal wetlands within alkali prairie) by 250 feet, or other distance based on site specific topography to avoid indirect hydrologic effects.[5] A resource protection buffer of less than 250 feet around vernal pools or alkali seasonal wetlands will be subject to wildlife agency concurrence that effects will be avoided. Considerations that may warrant a resource protection buffer of less than 250 feet may include topography (i.e., if the surrounding microwatershed extends less than 250 feet from the pool or wetland), intervening hydrologic barriers such as roads or canals, or other factors indicating that the proposed disturbance area does not contribute to the pool's hydrology. Other considerations may include temporary disturbance during the dry season where measures are implemented to avoid disturbance of the underlying claypan or hardpan, and the area is returned to pre-project conditions prior to the following rainy season.
- *Valley foothill riparian:* One hundred feet from canopy drip-line. If avoidance is infeasible, a lesser resource protection buffer or encroachment into the sensitive natural community may be allowed if approved by the Conservancy and the wildlife agencies, based on the criteria listed in *AMM1*. Transportation or utility crossings may encroach into this sensitive natural community provided effects are minimized and all other applicable AMMs are followed.
- *Lacustrine and riverine:* Outside urban planning units, 100 feet from the top of banks.[6] Within urban planning units, 25 feet from the top of the banks.

[5] *Alkali seasonal wetlands* are seasonal wetlands within the alkali prairie natural community.
[6] *Banks* are defined as the area within which water is contained in a channel.

- *Fresh emergent wetland:* Fifty feet from the edge of the natural community.

AMM1 provides additional details for resource protection buffers around natural communities. Additional resource protection buffers may be necessary for covered species, as described in species-specific AMMs.

AMM10, Avoid and Minimize Effects on Wetlands and Waters. Project proponents will comply with stormwater management plans that regulate development as part of compliance with regulations under National Pollutant Discharge Elimination System (NPDES) permit requirements. Covered activities that result in any fill of waters or wetlands will also comply with requirements under Section 404 of the Clean Water Act, State Water Resources Control Board (State Board), Regional Board, and Fish and Game Code Section 1602 regulations. Other than requirements for resource protection buffers, minimizing project footprint, and species-specific measures for wetland-dependent covered species, the Yolo HCP/NCCP does not include specific best management practices for protecting wetlands and waters because they may conflict with measures required by the U.S. Army Corps of Engineers, State Board, Regional Board, and CDFW.

Covered Species

The AMMs described in this section pertain specifically to covered species. These AMMs may change over time, depending on the most current guidelines developed by CDFW and USFWS and based on the best available data.

AMM11, Minimize Take and Adverse Effects on Palmate-Bracted Bird's Beak. Palmate-bracted bird's-beak is covered by the Yolo HCP/NCCP only for the removal of suitable habitat and not for the removal of palmate-bracted bird's beak plants. This AMM ensures compliance with this provision. To determine if palmate-bracted bird's beak is present and could be affected, the project proponent will conduct a planning-level survey for this species for any covered activities to be conducted within 250 feet of alkali seasonal wetlands. The survey will be conducted during the period from May 31 to September 30 and will be consistent with *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Game 2009).

The project proponent will avoid occupied habitat where palmate-bracted bird's beak has been located within any of the last 15 years (seed viability could be as little as 3 years and as much as 6 years, as described in Yolo HCP/NCCP Appendix A, Section A.1.2). The project proponent also will avoid any new occurrences of this species identified during planning-level surveys. Avoidance will require a 250-foot setback from the occupied alkali seasonal wetland feature, or greater distance depending on site-specific topography to avoid hydrologic effects. A shorter resource protection buffer distance may apply if is determined to avoid effects and is approved by the Conservancy, USFWS, and CDFW. Mortality of palmate-bracted bird's beak individuals will be avoided, except as needed through management activities that provide an overall benefit to the species.

AMM12, Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle. The project proponent will retain a qualified biologist who is familiar with valley elderberry longhorn beetle and evidence of its presence (i.e., exit holes in elderberry shrubs) to map all elderberry shrubs in and within 100 feet of the project footprint with stems that are greater than 1 inch in diameter at ground level. To avoid take of valley elderberry longhorn beetle, the project proponent will maintain a resource protection buffer of at least 100 feet from any elderberry shrubs with stems greater than 1 inch in diameter at ground level. *AMM1* describes circumstances in which a lesser resource protection buffer may be applied. For elderberry shrubs that cannot be avoided with a designated resource protection buffer distance as described above, the qualified biologist will quantify the number of stems 1 inch or greater in diameter to be affected, and the presence or absence of exit holes. The Conservancy will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss, consistent with Yolo HCP/NCCP Section 6.4.2.4.1. Additionally, prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided.

Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the shrub annually for a 5-year monitoring period. The monitoring period may be reduced with concurrence from the wildlife agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems at least 1 inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrub is sufficiently healthy to transplant, the project proponent will transplant the shrub as described in the following paragraph, in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer healthy enough to survive transplanting, then the Conservancy will offset the shrub loss consistent with the preceding paragraph.

The project proponent will transplant the shrubs into a location in the Yolo HCP/NCCP reserve system that has been approved by the Conservancy. Elderberry shrubs outside the project footprint but within the 100-foot resource protection buffer will not be transplanted.

Transplanting will follow the following measures.

1. <u>Monitoring</u>: A qualified biologist will be on site for the duration of the transplanting of the elderberry shrubs to ensure the effects on elderberry shrubs are minimized.
2. <u>Timing</u>: The project proponent will transplant elderberry plants when the plants are dormant, approximately November through the first 2 weeks of February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success.
3. <u>Transplantation procedure:</u>
    a. Cut the plant back 3 to 6 feet from the ground or to 50 percent of its height (whichever is taller) by removing branches and stems above this height. Replant the trunk and stems measuring 1 inch or greater in diameter. Remove leaves that remain on the plants.