Exhibit C

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Biotic assessment for the Stormwater Detention Pond for Agricultural Runoff at Packard Ranch

BIOTIC REPORT

Report Prepared for:

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July 5, 2023
Revised 11/7/2023

1.0 INTRODUCTION

The Resources Conservation District of Santa Cruz County documented and evaluated the biotic resources for the proposed project site. This report (a) characterizes and maps the major plant communities within the proposed project area, (b) identifies sensitive biotic resources, including habitats, plant, and wildlife species of concern, and (c) evaluates the potential effects of the proposed project activities on sensitive biotic resources and recommend measures to avoid or reduce such impacts.

1.1 Proposed Project

The proposed project is located on the Packard Ranch (also known as Elkhorn Ranch and hereafter referred to as the "Ranch"), a ~1,100-acre multi-use ranch in the Elkhorn Slough watershed, located just north of Moss Landing between Highway One and the Elkhorn Slough (Figure 1). The Packard Ranch supports cattle and horses and hosts over 40 stockwater ponds, constructed for wildlife use, many of which have been documented to support California Red-legged Frog (*Rana draytonii*) (CRLF) breeding (D'Amore, 2007). Predominantly perennial, the ponds also support an abundance of bullfrogs, which are being controlled through an on-going bullfrog removal program (Mori pers. comm. 2019, as cited in Camara, et al., 2019).

A number of agricultural fields were retired from production between 1998 and 2004 and restored to native habitat by the landowner, including a 3-acre field, located just south of Struve Road (Figure 2). In 2017, a 0.1-acre pond was constructed on the east side of the retired field to capture stormwater runoff and provide habitat for birds, wildlife, and the special status amphibians known to occur on the property.

The pond is just under 5-ft, with an existing capacity of 561 cy (0.35 ac-ft). The site gently slopes into the pond and a constructed berm on the eastern side dams the site to create the pond. A vertical, 36-inch corrugated metal pipe (CMP) outlet acts as the outlet weir and transitions into a high-density polyethylene (HDPE) corrugated pipe which outlets onto the slope on the other side of the berm and vegetated road. The outlet is not armored but the slope is densely vegetated. The pond does not appear to have a spillway and the surrounding vegetated areas likely flood and eventually subside following high intensity storm events.

Undersized to capture runoff generated from approximately 35.5 acres of agricultural production and 1.6 acres of restored grassland and lacking both the hydroperiod and infrastructure to be managed for amphibian breeding, the Resource Conservation District of Monterey County (RCDMC) proposes to enlarge the existing pond to approximately 0.99 acres through the excavation of 8,750 cy of material (Figure 2). All disturbed areas will be revegetated with container and/or salvaged native herbaceous plants. Excavation and revegetation are anticipated to occur between May 1 and July 31.

1.2 Project Purpose

The proposed improvements were designed to maintain a 4-ft deep pool in a portion of the pond for as long as possible throughout the year to support amphibian breeding, to ensure the pond can be drained to control non-native predators, such as bullfrogs, and to provide shallow depth areas for amphibian egg-laying, waterfowl food sources, and a mix of open water and vegetated areas for cover from predators.

The size of the pond was maximized within the fenced area and the depth of the pond was limited by the pond outlet pipe, which will be on a relatively gentle portion of the steep slope to the east of the berm and existing road. The outlet of the pond will be a perforated pipe connected to a solid pipe through the berm with a water level control structure installed in the berm. The water level control structure will have weir boards that can be removed so the pond can be periodically drained or lowered to the desired height to meet project objectives.

Ponds on the property have been monitored for special-status amphibians beginning in 2004. In 2021, eight (8) ponds were sampled with dipnets and/or seines and environmental DNA sampling methods were utilized. California Red-legged Frog (*Rana draytonii*) were detected in seven and five of the eight ponds through eDNA and aquatic sampling, respectively. California Tiger Salamander (*Ambystoma californiense*) (CTS) was detected at one (1) pond located 3000 lf southwest of our project site by both methods of sampling in 2021, but not detected in 2022. The pond is just less than an acre, is surrounded by extensive grasslands, and vegetation is readily cleared due to cattle and horse access. This is the first detection of CTS in the area since these species was found at Struve Pond in 1974.

The Santa Cruz Long-toed Salamander (*Ambystoma macrodactylum croceum)* (SCLTS) historically bred at three locations (McClusky Slough, Struve Pond, and Bennett Slough) west of the project site (across HWY 1). SCLTS have not been detected on the property and are not expected to be present. The McClusky population is isolated from Packard Ranch as it is surrounded by intensive agriculture and Highway 1 would limit migration from McClusky Slough to the Packard Ranch. In addition, the McClusky population, previously thought that it might be extirpated, is extremely small. Santa Cruz long-toed salamanders are presumed extirpated from Bennet Slough and Struve Pond as a result of high salinity. However, SCLTS were found during pit trapping (2020), aquatic sampling (2021) and eDNA (2021) at McClusky and Zmudowski sampling sites.

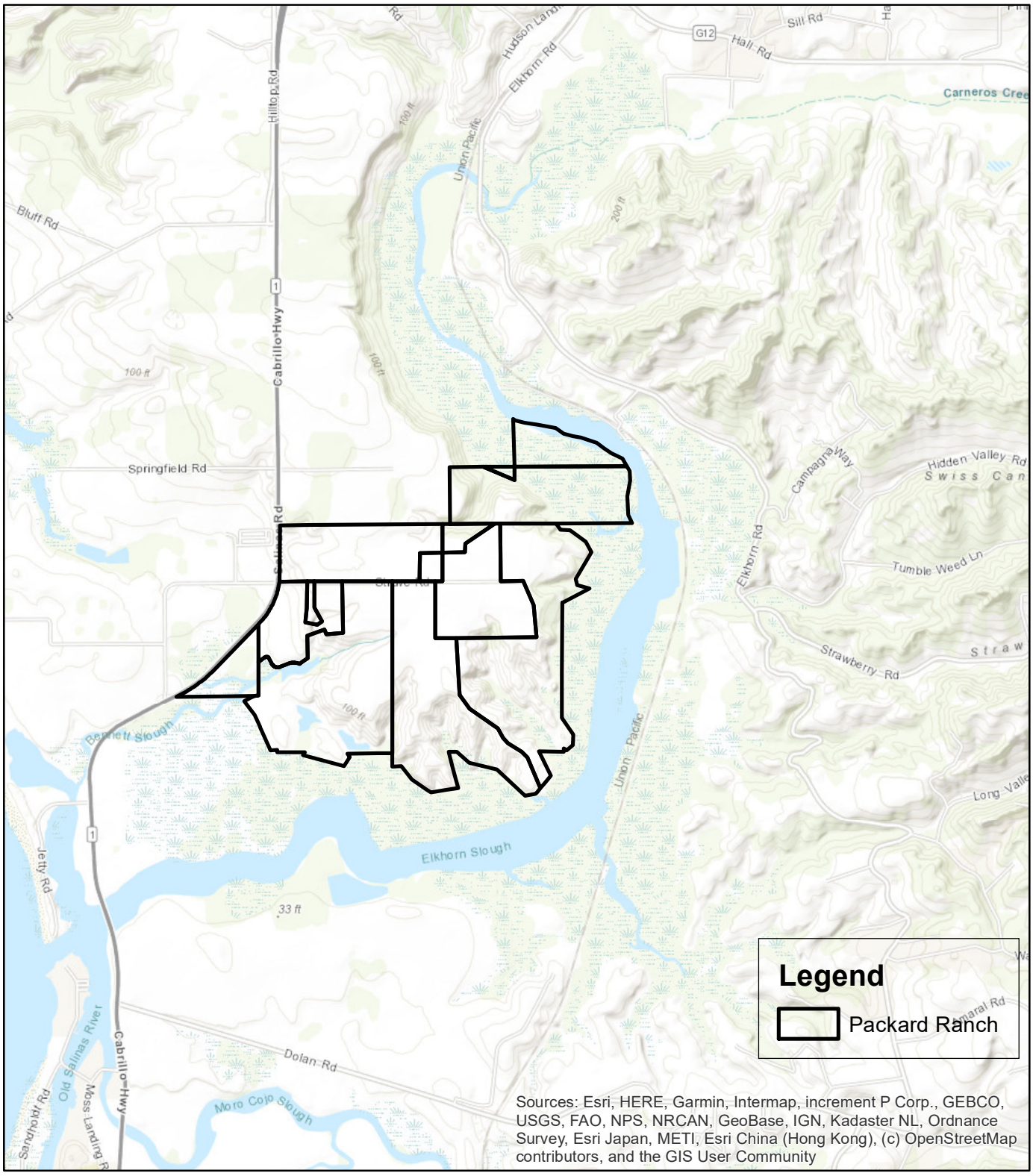
The project establishes suitable habitat outside the influence of anticipated sea-level rise implements actions to decrease or eliminate bullfrog populations and/or breeding habitat at Packard Ranch.

1.3 Proposed Project Components

The proposed Action aims to detain runoff from 35.5 acres of agricultural land to improve the quality of water entering Elkhorn Slough and to provide aquatic habitat for amphibians and other wildlife through implementation of the following actions:

- Install trash pump to dry down pond, outletting through the existing HDPE pipe, if water is present at time of construction.
- Clear and grub pond to remove existing vegetation and stockpile on-site.
- Salvage plant material, clear and grub, scrape upland area to clear brush and herbaceous vegetation.

Packard Ranch
Stormwater Detention Pond for Agricultural Runoff
Figure 1. Property Location



N
W E
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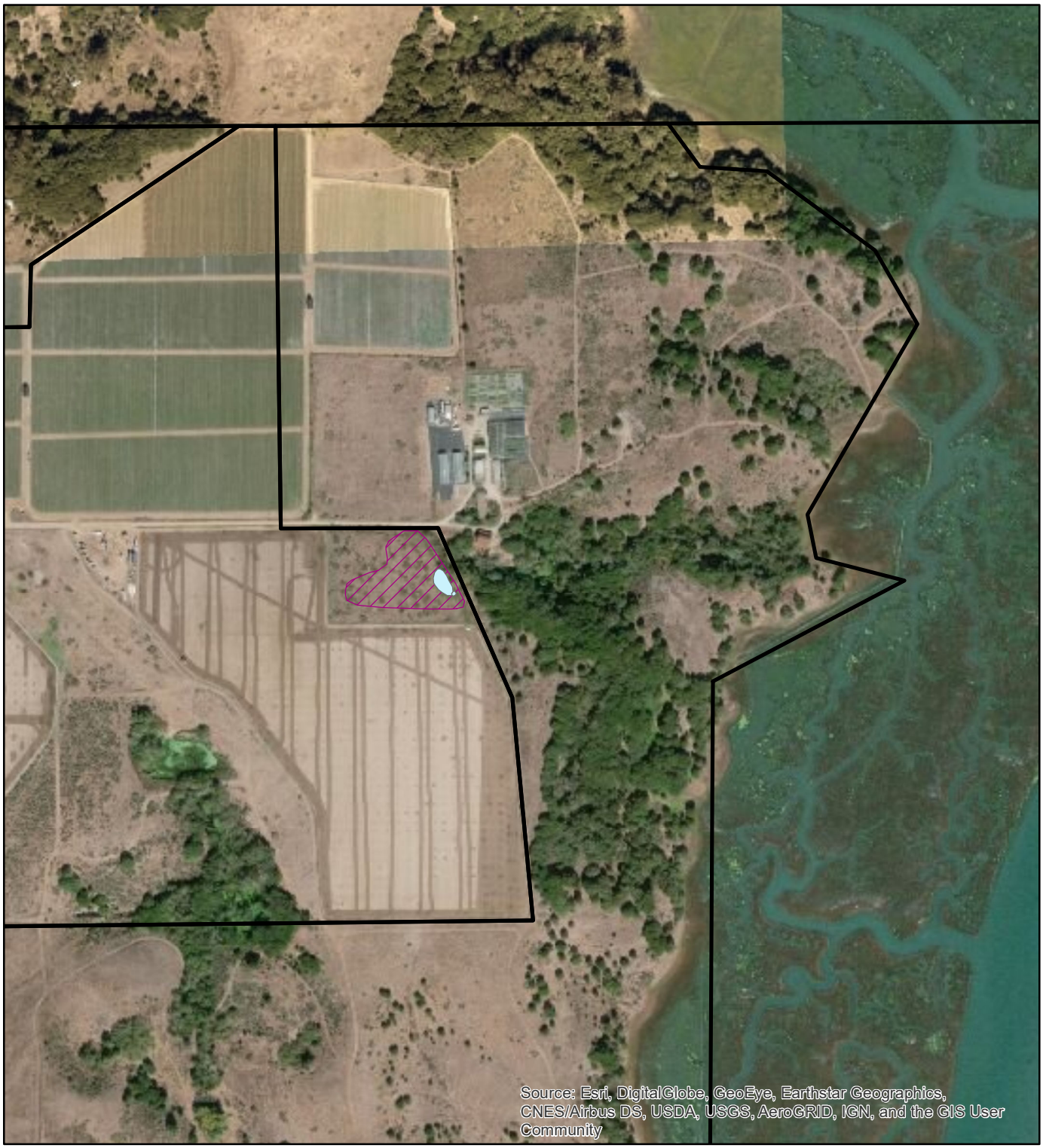
0.85 0.425 0 0.85 Miles

Packard Ranch
Stormwater Detention Pond for Agricultural Runoff
Figure 2. Project Location



- Demolish existing berm, scarify the surface, and then re-build a 10.8 ft wide berm in existing location with the existing berm material, raising in 8-inch lifts and compacting fill. A water level control structure will be installed within berm.
- Excavate approximately 8,750 cubic yards (cyd) to enlarge the existing pond.
- Place excavated fill along the existing berm to create a more stable slope.
- Install a 36-inch diameter corrugated (plastic or metal) riser pipe onto a concrete pad.
- Cut 0.5-inch orifices into the pipe, spaced 6-inch apart for 14 rows.
- Notch berm and install outlet pipe.
- Seed all disturbed areas with a native seed mix and covered with a weed-free straw mulch to a depth of 1.5 inches.
- Plant native container plants and re-plant salvaged native herbaceous plant material into new pond edges.

The proposed improvements were designed to maintain a 4-ft deep pool in a portion of the pond for as long as possible throughout the year to support amphibian breeding, to ensure the pond can be drained to control non-native predators, such as bullfrogs, and provide shallow depth areas for amphibian egg-laying, waterfowl food sources, and a mix of open water and vegetated areas for cover from predators.

The size of the pond was maximized within the fenced area and the depth of the pond was limited by the pond outlet pipe, which will be on a relatively gentle portion of the steep slope to the east of the berm and existing road. The outlet of the pond will be a perforated pipe connected to a solid pipe through the berm with a water level control structure installed in the berm. The water level control structure will have weir boards that can be removed so the pond can be periodically drained or lowered to the desired height to meet project objectives. For the purposes of designing the basin for stormwater management, the pool is assumed full and the flood routing is contained within the upper section of the pond.

RCDMC will provide a qualified biologist who will be present during dewatering, vegetation clearing and surface excavation. The biologist will remain on-call and or on-site until the project is completed to ensure no adverse effects to listed species.

1.2 Intended Use of this Report

The findings presented in this biotic report are intended for the use of the County of Monterey in evaluating the proposed project. The findings presented in this report are for information purposes only; they are not intended to represent the interpretation of any State, Federal or County law or ordinance pertaining to permitting actions within sensitive habitat or endangered species. The interpretation of such laws and/or ordinances is the responsibility of the applicable governing body.

2.0 EXISTING BIOTIC RESOURCES

2.1 Methodology

The biotic resources of the project site were assessed through literature review and field observations. Site observations were made on February 2 and March 5, 2020, by Kelli Camara.

Vegetation mapping of the project site was conducted from review of aerial photos, a topographic map, and field observations. The major plant communities within the project area, based on the classification system developed by *California Terrestrial Natural Communities (*California Department of Fish and Game, 2003 and 2007) and *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995) and as amended to reflect site conditions, were identified during the field surveys. Modifications to the classification system's nomenclature were made, as necessary, to accurately describe the site's resources. The plant communities were mapped onto an aerial image in 2020 (Figure 3) and were further refined in 2023 (Figure 4 and Appendix A). All plant species observed were recorded and identified to a level sufficient to determine their rarity; all species observed are listed in the narrative section of this report. Plant nomenclature follows The *Jepson Manual Vascular Plants of California* (2012); the *An Annotated Checklist of the Vascular Plants of Santa Cruz County, California* (CNPS, 2013) was also reviewed.

To assess the potential occurrence of special status biotic resources, two electronic databases were accessed to determine recorded occurrences of sensitive communities and species. Information was obtained from the California Native Plant Society's (CNPS) Electronic Inventory (2020), and California Department of Fish & Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW, 2020) for a 5-mile radius centered on the project area.

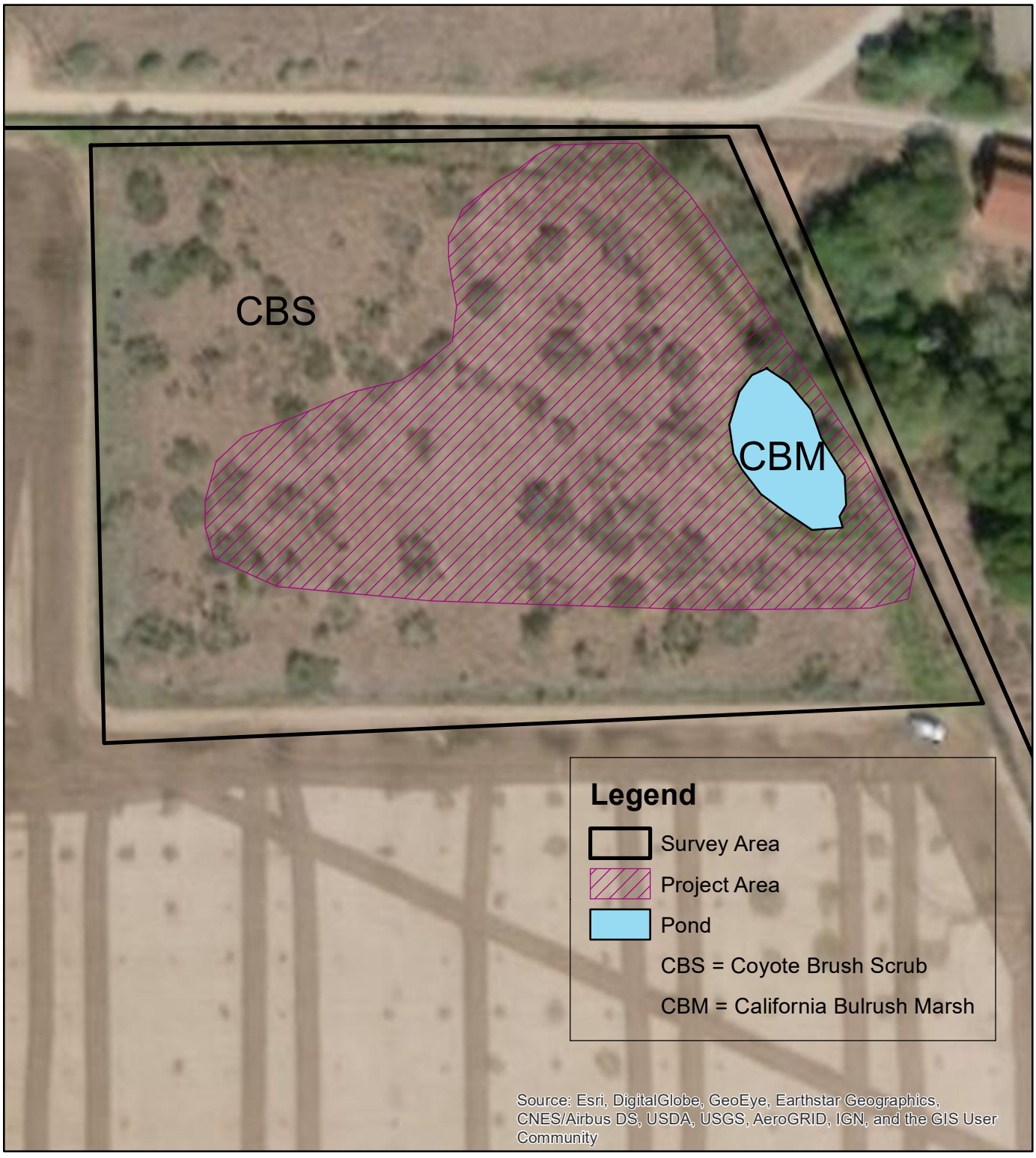
This report summarizes the findings of the biotic assessment for the proposed project. The potential impacts of the proposed road repair project on sensitive biological resources are discussed below. Measures to reduce significant impacts to a level of less-than-significant are recommended, as applicable.

2.2 Environmental Setting

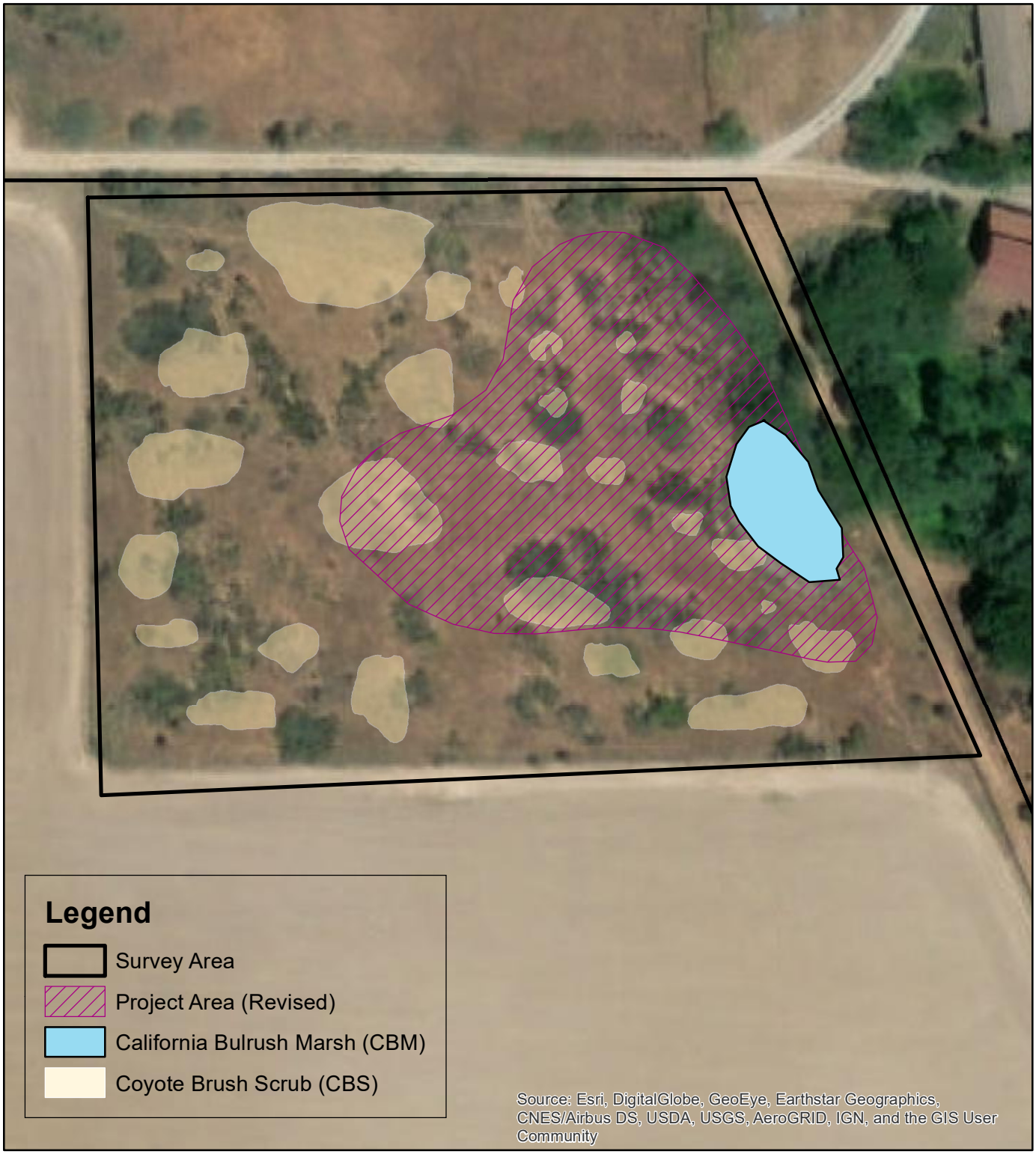
2.2.1 Geographic Setting

The proposed project is located on the Packard Ranch (also known as Elkhorn Ranch and hereafter referred to as the "Ranch"), a ~1,100-acre multi-use ranch in the Elkhorn Slough watershed, located just north of Moss Landing between Highway1 and the Elkhorn Slough, on the Moss Landing USGS quadrangle. The Ranch is surrounded on two sides by salt marsh and by Highway 1 and agricultural fields on the other sides. The Ranch supports ~143 acres of organic agricultural production on an elevated, generally level portion of the site about 100 feet above sea level. Crop production includes leafy greens and strawberries. The fields have been graded to allow them to drain to the pond via man-made drainage features, including earthen ditches and plastic culverts. Concentrated runoff from the adjacent fields enters the project area in three locations: the northeast, the northeast, and the southeast (Figure 5). No other watercourses with defined bed or bank features were observed with the project area.

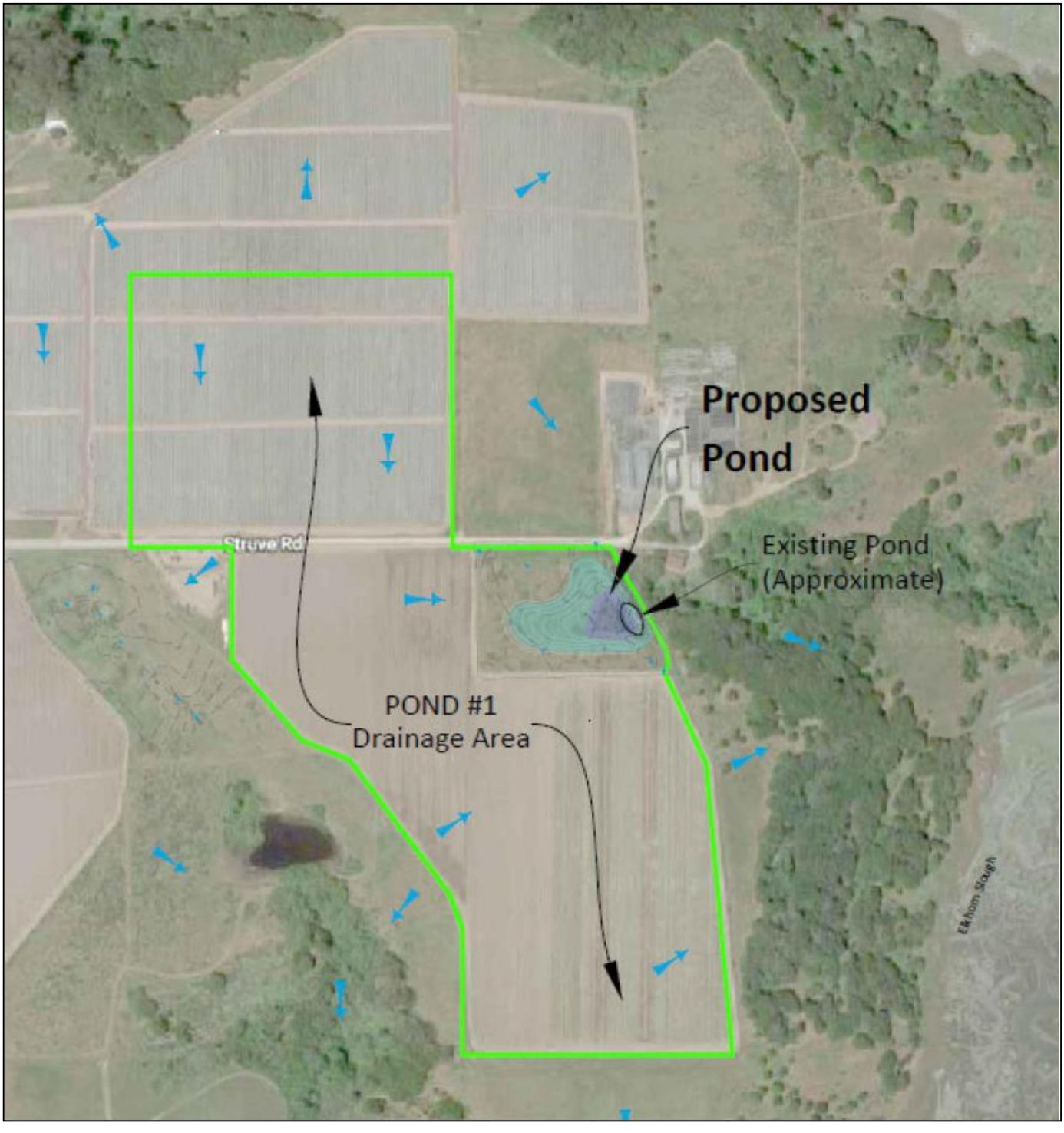
Packard Ranch
Stormwater Detention Pond for Agricultural Runoff
Figure 3. Distribution of Vegetation Types



Packard Ranch
Stormwater Detention Pond for Agricultural Runoff
Figure 5. Distribution of Vegetation Types (Final)



Packard Ranch
Stormwater Detention Pond for Agricultural Runoff
Figure 4. Drainage Map



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The Santa Cruz County Soil Survey (USDA, 1980) identifies one soil type within the Project area, Santa Ynez fine sandy loam, 2-9 % slopes (ShC).

Each vegetation type, its California vegetation code, and state ranking (rarity, is listed in Table 1. The distribution of vegetation types within the project area is depicted on Figure 4.

Table 1. Vegetation Types at Project Site

CaCode[1]	**Vegetation Type**	Plant Association	**State Ranking[2]**
32.060.02	Coyote Brush Scrub	Coyote Brush/ Tufted Hairgrass/ Yellow Bush Lupine. California Blackberry	S1
52.114.05	Hardstem and California Bulrush Marsh	California Bulrush/ Broadleaf Cattail	None

1 – California vegetation code as per CDFG/CNDDB (2010); 2- Vegetation types are ranked between S1 and S5. For vegetation types with ranks of S1-S3, all associations within the type are considered to be highly imperiled.

The Ranch supports approximately 143 acres of organic agricultural production on an elevated, generally level portion of the site about 100 feet above sea level. The crop production includes leafy greens and strawberries with the remaining property used as rangeland for cattle and horses, with open water, wetland, and tidally influenced slough habitat for waterfowl and other wildlife. Approximately 35 acres of this cropland drains to the project area through a series of earthen ditches and culverts.

The swale entrance locations showed small amounts of deposited sediment from the runoff flowing through the vegetation. The small amount of sediment indicates the agricultural fields do not experience excessive erosion likely due to their flat slopes. The water then spreads over the flat area and gently sheet flows to the existing pond. The remaining property used as rangeland for cattle and horses, with open water, wetland, and tidally influenced slough habitat for waterfowl and other wildlife.

2.2.2 Vegetation and Wildlife Habitats

Coyote Brush Scrub

The majority of the vegetation in the project area is classified as coyote brush scrub. This portion of the property was retired from agriculture production and restored by the landowner pre- 2004. It is dominated by coyote brush (*Baccharis pilularis*) and a groundcover of native perennial grasses including tufted hairgrass (*Deschampsia caespitosa*) and red fescue (*Festuca rubra*). The character of the coastal scrub, which dominates the project area, is depicted in Photo 1.

Photo 1. Coastal Scrub Habitat Dominated by Coyote Brush

The wildlife value of the coastal scrub at this site is low because the habitat is fragmented and surrounded by agricultural production to the north, south and west. However, there is a corridor of oak woodland habitat and Elkhorn Slough to the east and a predominance of open rangeland and ponds further south. Coyote brush is a perennial evergreen shrub that is referred to as a pioneer species, because it is one of the first shrubs to appear about plants have been removed by cultivation or fire. It blooms in early winter when most other plants are dormant. It provides critical food in the form of nectar for many native species of bees, wasps, butterflies, and flies and cover for wildlife.

The native understory plants provide forage and nesting habitat for birds and other wildlife. The property is known to host a wide array of bird species.

Hardstem and California Bulrush Marsh

The existing pond consists of predominantly open water habitat with surrounding marsh, dominated by broadleaf cattail (*Typha latifolia*), willow (*Salix* sp), and yellow nutsedge (*Cyperus esculentus*). The character of the marsh is depicted in Photo 2.

Photo 2. Open Water and Marsh Habitat

The wildlife value of the marsh at this site is low because of its size. Cattails provide nesting sites for red-winged blackbirds, ducks and geese. However, the steep side slopes limit the growth of seed-bearing species, such as swamp timothy, which is critical for migrating bird species. Limited open water habitat limits the use by the California red-legged frog and the lack of basking habitat limits use by the Western pond turtle. A comprehensive list of birds observed in November 2017, documented nearly 80 bird species on the property (https://ebird.org/checklist/S40306484). Many of these could use this marsh for nesting and cover. However, the project will improve the quality and quantity of habitat for these species.

2.3 Sensitive Biotic Resources Regulated Habitats

Based on County Code Section Land Use Plan, riparian corridor and wetland are considered environmentally sensitive habitat areas. Development is prohibited in these areas when it will result in significant disruption of habitat values, accept for the purposes of flood control, improvement of fish and wildlife habitat. The proposed project area is located partially within wetland and riparian habitat.

California Department of Fish and Wildlife (CDFW) is a trustee agency that has jurisdiction under Section 1600 et seq. of the CDFW Code. Under Sections 1600-1603 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake which supports fish or wildlife. CDFW also regulates alterations to ponds and impoundments; CDFW jurisdictional limits typically extend to the top of bank or to the edge of riparian habitat if such habitat extends beyond top of bank (outer drip line), whichever is greater. In addition, CDFW regulates the take of state special status species. CDFW determined that a Lake and Streambed Alteration Agreement was not required for project activities. CDFW has recommended an Incidental Take Permit for the project. Measures have been included in Section 3 of this document to avoid impacts to state listed species, section 2.3.4 provides current occurrence information, and Appendix B includes guidance from biologists familiar with the property.

Water quality in California is governed by the Porter-Cologne Water Quality Control Act and certification authority under Section 401 of the Clean Water Act, as administered by the Regional Water Quality Control Board (RWQCB). The Section 401 water quality certification program allows the State to ensure that activities requiring a Federal permit or license comply with State water quality standards. Water quality certification must be based on a finding that the proposed discharge will comply with water quality standards which are in the regional board's basin plans. The Porter-Cologne Act requires any person discharging waste or proposing to discharge waste in any region that could affect the quality of the waters of the state to file a report of waste discharge. The RWQCB issues a permit or waiver that includes implementing water quality control plans that take into account the beneficial uses to be protected. Waters of the State subject to RWQCB regulation extend to the top of bank, as well as isolated water/wetland features and saline waters. Should there be no Section 404 nexus (i.e., isolated feature not subject to USACE jurisdiction), a report of waste discharge (ROWD) is filed with the RWQCB. The RWQCB interprets waste to include fill placed into water bodies. The proposed project is not located within RWQCB jurisdiction.

The US Army Corps of Engineers (USACE) regulates activities within waters of the United States pursuant to congressional acts: Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (1977, as amended). Section 10 of the Rivers and Harbors Act requires a permit for any work in, over, or under navigable waters of the United States. Navigable waters are defined as those waters subject to the ebb and flow of the tide to the Mean High Water mark (tidal areas) or below the Ordinary High Water mark (freshwater areas). Although excavation is typically not a regulated activity in waters of the U.S., placement of fill is regulated. The ACOE completed a jurisdictional determination and found an absence of jurisdictional waters of the United States within the boundary area of the site.

The US Fish and Wildlife Service (Service) is responsible for the protection of federally listed species under the Endangered Species Act. The proposed project is within the Service's jurisdiction for protection of special status species, to be authorized under Federal Fish and Wildlife Permit # TE42300D-0, which allows take of the species and their habitat for recovery actions for the California red-legged frog, California tiger salamander and California red-legged frog.

Critical habitat is defined in Section 3(5)A of the ESA as the specific portions of the geographic area occupied by the species in which physical or biological features essential to the conservation of the species are found and that may require special management considerations or protection. Specific areas outside of the geographic area occupied by the species may also be included in critical habitat designations upon a determination that such areas are essential for the conservation of the species. Critical habitat was designated for California red-legged Frog (*Rana draytonii*) (CRLF) on March 13, 2001 (66 FR 14625) and re-designated on March 17, 2010 (75 FR 12816). Critical habitat was designated for the California Tiger Salamander (*Ambystoma californiense*) (69 FR 47212; August 23, 2005) (CTS). The project area is not in designated critical habitat for CRLF or CTS.

2.3.2 Sensitive Habitats

Sensitive habitats are defined by local, State, or Federal agencies as those habitats that support special status species, provide important habitat values for wildlife, represent areas of unusual or regionally restricted habitat types, and/or provide high biological diversity.

CDFW classifies and ranks the State's natural communities to assist in determining the level of rarity and imperilment. Vegetation types are ranked between S1 and S5. For vegetation types with ranks of S1-S3, all associations within the type are considered to be highly imperiled. If a vegetation alliance is ranked as S4 or S5, these alliances are generally considered common enough to not be of concern; however, it does not mean that certain associations contained within them are not rare (CDFW, 2007 and 2010). The coyote brush scrub is ranked S1 (sensitive) (See Table 1). According to County Code, the riparian corridor is considered a sensitive habitat. Development activities shall conform to permitted uses and impacts to sensitive habitat be avoided.

2.3.3 Special-Status Plant Species

Plant species of concern include those listed by either the Federal or State resource agencies as well as those identified as rare by CNPS (List 1B). The search of the CNPS and CNDDB inventories identified the special status plant species with potential to occur in the project area. No special-status plant species were observed within the project area due to the lack of suitable attributes for special status species within the greater project region. The project area lacks specialized micro habitats conducive to the occurrence of special status plant species. For annual species that were not detectable during the survey period, the species presence/absence evaluation was based on habitat suitability, as described in Table 2.

Table 2. Special Status Plant Species and Their Predicted Occurrence Within the Project Area, April 2020.

Scientific Name	Common Name	Status	General Habitat	Habitat Present/ Absent	Rationale
Arctostaphylos hookeri ssp. Hookeri	Hooker's manzanita	CNPS List 1B.2	Broadleaf upland forest, chaparral, coniferous forests; open sites	A	No suitable habitat; not observed, presumed absent
Arctostaphylos pajaroensis	Pajaro manzanita	CNPS List 1B.1	Broadleaf upland forest, chaparral, open sites	A	No suitable habitat; not observed, presumed absent
Centromadia parryi ssp congdinii	Congdon's tarplant	CNPS List 1B.1	Grassland, moist areas	A	No suitable habitat; not observed, presumed absent
Chorizanthe pungens var. pungens	Monterey spineflower	FT CNPS List 1B.2	Oak woodland, chaparral, scrub; sandy substrate	A	High levels of thatch; not observed, presumed absent
Cordylanthus rigidus ssp. Littoralis	seaside bird's-beak	CE CNPS List 1B.1	Elevated marine terraces with sandy soils; maritime chaparral; edges of oak woodland	A	No suitable habitat; not observed, presumed absent
Ericameria fasciculata	Eastwood's goldenbush	CNPS List 1B.1	Coastal scrub and coastal dunes	A	No suitable habitat; not observed, presumed absent
Erysimum ammophilum	sand-loving wallflower	CNPS List 1B.2	Openings in chaparral, sand dunes; sand substrate	A	No suitable habitat; not observed, presumed absent
Gilia tenuiflora ssp. arenaria	sand gilia	FE CT CNPS List 1B.2	Openings in chaparral, sand dunes; sand substrate	A	No suitable habitat; not observed, presumed absent

Scientific Name	Common Name	Status	General Habitat	Habitat Present/ Absent	Rationale
Holocarpha macradenia	Santa Cruz tarplant	FT CE CNPS List 1B.1	Coastal prairie and grasslands with sandy soil types	A	No suitable habitat; not observed, presumed absent
Piperia yadonii	Yadon's rein orchid	FE CNPS List 1B.1	Chaparral, coastal bluff scrub	A	No suitable habitat; not observed, presumed absent
Rosa pinetorum	pine rose	CNPS List 1B.2	Pine woodland	A	No suitable habitat; not observed, presumed absent
Trifolium hydrophilum	saline clover	CNPS List 1B.2	Vernal pools, marshes, swamps	A	No suitable habitat; not observed, presumed absent

2.3.4 Special-Status Wildlife Species

Special status wildlife species include those listed, proposed or candidate species by either the Federal or the State resource agencies as well as those identified as State species of special concern. In addition, all raptor nests are protected by Fish and Game Code, and all migratory bird nests are protected by the Federal Migratory Bird Treaty Act. Special status wildlife species were evaluated for their potential presence in the project area as described in Table 3 below.

The project area is located on the Springfield Terrace, a highly productive agricultural area at higher elevation than the surrounding McClusky Slough. The property is within the McClusky metapopulation for the Santa Cruz long-toed Salamander (*Ambystoma macrodactylum croceum*). Although the three (3) documented breeding sites were assumed extirpated due to elevated salinity levels (Service 2009), recent eDNA studies show that there is still a small population in McClusky Slough. eDNA sampling of several ponds on the Packard Ranch resulted in negative findings for SCLTS, although the project area was not sampled. Based on this information and input from experts (Mori, 2023 and Mitcham, pers. comm., 2023) (Appendix B), SCLTS is considered unlikely to occur within the project area.

The property has over 40 stockwater ponds, nearly half of which were documented to support breeding by California red-legged frog (CRLF) (D'Amore 2008). Although CRLF have not been documented at the project site, protocol-level surveys have not been completed and known breeding locations are within 2,000 LF. As such, the species is considered to have a moderate potential to occur within the project area. The project activities will be authorized by the Service through a federal recovery permit (Mitcham, pers. comm., 2023).

One occurrence of California Tiger Salamander (CTS) was documented 2 miles to the west of the project site in CNDDB in 1973. No known observations had been documented on the property or adjacent area.at the time the biotic assessment was originally completed (June 18, 2020). However, in 2021, one (1) CTS was documented in a pond located 3000 lf to the west of the project site thru both aquatic sampling and eDNA analysis (Ralston, 2023). The pond is just less than an acre, is surrounded by extensive grasslands, and vegetation is readily cleared due to cattle and horse access. CTS was not detected in this pond by either aquatic sampling or eDNA in 2022. This was the first detection of CTS in the area since the species was found at Struve Pond in 1974.

Nina Akhavan (formerly D'Amore) performed aquatic sampling at numerous ponds on Packard Ranch from 2004 – 2007 to collect data on California red-legged frog biology, as well as to remove bullfrogs, for her PhD thesis. No CTS were found during her study.

While the project area is within dispersal distance, the pond lacks the characteristics (low vegetation, regular disturbance, etc.) typically associated with ponds inhabited by CTS. In addition, CTS have not been detected elsewhere in the McClusky Slough area despite extensive surveys in the last 5 years, including pit traps, aquatic sampling and eDNA analysis. The CTS population numbers in this geographic region and on the property specifically would be expected to be extremely low and thus their potential to occur within the project area are very low. Based on this information and input from experts (Mori, 2023 and Mitcham, pers. comm., 2023) (Appendix B), , the species is considered to have a verylow potential to occur within the project area.

Table 3. Special Status Wildlife Species and Their Predicted Occurrence Within the Project Area, April 2020; *Updated December 2023*.

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	Habitat Preference and Potential for Occurrence in Project Impact Areas
Agelaius tricolor	tricolored blackbird	None	None	SSC	**MODERATE.** Found in **m**arshes, grasslands, and wetlands adjacent to grasslands. Suitable habitat is present at the project site.
Ambystoma californiense	California tiger salamander	Threatened	Threatened	None	**VERY LOW**. Ephemeral wetlands and adjacent oak woodland uplands. Suitable habitat is not present at the project site.
Ambystoma macrodactylum croceum	Santa Cruz long-toed salamander	Endangered	Endangered	None	**Unlikely**. Ephemeral wetlands and adjacent grassland. Suitable habitat is present at the project site.
Anniella pulchra nigra	black legless lizard	None	None	SSC	**Unlikely.** Loose, sandy soils or leaf litter, typically in sand dunes along the coast. Suitable habitat is not present at the project site.
Asio flammeus	short-eared owl	None	None	SSC	**Unlikely.**. Found in open grasslands, agricultural areas, marshes, wet meadows, and shorelines. Suitable habitat is present at the project site.
Athene cunicularia	burrowing owl	None	None	SSC	**Unlikely.** Found in grasslands, rangelands, agricultural areas and other open dry areas with low vegetation. Suitable habitat is not present at project site
Charadrius alexandrinus nivosus	western snowy plover	Threatened	None	SSC	**Unlikely..** Found in coastal beaches**.** Suitable habitat is not present at the project site.
Emys marmorata	western pond turtle	None	None	SCC	**Unlikely.** Found in aquatic habitats with exposed areas for basking. Suitable habitat is not present at the project site**.**
Eucyclogobius newberryi	tidewater goby	Endangered	None	SCC	**Unlikely.** Found in coastal lagoons and brackish water zones. Suitable habitat is not present at the project site.

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	Habitat Preference and Potential for Occurrence in Project Impact Areas
Rallus longirostris obsoletus	California clapper rail	Endangered	Endangered	None	**Unlikely.** Found in marshes along mudflats and in tidal sloughs.
Rana draytonii	California red-legged frog	Threatened	None	SCC	**MODERATE**. Found in creeks, ponds, marshes, springs adjacent to upland habitat. Suitable habitat is present at the project site.
Riparia riparia	bank swallow	None	Threatened	None	**Unlikely.** Found nesting in vertical banks adjacent to rivers, streams, and other water bodies. Suitable habitat is not present at the project site.

3.0 IMPACTS AND MITGIATION

3.1 Impact Criteria

The thresholds of significance presented in Appendix G of the CEQA Guidelines were used to evaluate project impacts and to determine if implementation of the proposed project would pose significant impacts to biological resources. For this analysis, significant impacts are those that substantially affect, either directly or through habitat modifications:

- A species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS;
- Riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.2 Environmental Impact Discussion and Recommended Avoidance, Minimization, and Mitigation Measures

The proposed project was evaluated for its potential direct and indirect impacts to biotic resources. Impacts to sensitive habitats/resources were considered potentially significant.

a) Special Status Plant Species: No special status species have been recorded for the project area and none were observed during surveys on February 2 and March 5, 2020, April, May and June 2022. An evaluation of site habitats and growing conditions concluded that there is very low potential for species status species to occur on site. An additional survey will be completed in spring prior to construction activities in 2024. If any species are observed, the RCD will consult with applicable agencies. No impact to species status plant species will occur because no individuals of these species were observed.

b) Special Status Animal Species:

California Red-legged Frog. The following avoidance and minimization measures, consistent with Federal Recovery Permit Number: TE42300D-0, will be implemented for the California Red-legged Frog to reduce the potential impact to a less-than-significant level.

1. Prior to the start of work, an educational program regarding the sensitivity of the covered species, and their habitat will be conducted for all personnel. The educational program will include visual materials on species identification, procedures to follow when encountering any covered species in the work area, penalties for take, and all work restrictions within the project area.

2. A chain of command for field crews and other on-site personnel will be established prior to commencement of all activities. This program will establish the biological monitors and the persons in charge of, and responsible for, all facets of project implementation. The specific chain-of-command will be defined at the pre-activity meeting to be held immediately prior to the initiation of work.

3. Biological monitors will have the full responsibility and authority of stopping work activities, if any crews or personnel are not complying with the provisions outlined in this document and/or conditions in any other authorization from the Service.

4. Prior to the start of work, areas will be identified by the biological monitor-in-charge and approved by the Service as acceptable locations to which covered species may be relocated if these species are encountered within a work area. Relocation areas will be a minimum of 500 yards from the boundary of any work area and will not include staging areas or roads. Covered species will not be removed from the work area or maintained in captivity overnight without prior notification and written approval by the Service, unless the animal is in need of emergency medical assistance. Medical assistance will be provided to injured animals by a certified wildlife veterinarian familiar with amphibian care.

5. Only biological monitors specifically authorized by the Service to handle covered species will be allowed to handle, transport, and relocate individuals of these species. When transporting individuals, precautions will be taken to ensure that the animals are not over-stressed and are maintained in safety. Such measures include: keeping animals in a cool, dark, and safe location, providing adequate hydration, maintaining a stable cool temperature to avoid over-heating, and ensuring holding tanks are kept clean to prevent the spread of disease.

6. Biological monitors will check for any covered species under vehicles and equipment that are parked for more than 30 minutes.

7. To maintain safety and limit the chance of take or habitat disturbance, communication systems consisting of a simple system of hand signals or handheld radios will be utilized to ensure proper communication between the monitors, truck drivers, equipment operators, and field personnel to use during habitat enhancement and related activities.

8. The Service will be notified immediately if any of the covered species are injured or killed during the course of any project related activity. All other incidental observations will be reported in the daily field monitoring forms or notes.

9. Refueling of equipment will be conducted using heavy-gauge tarps made of chemically resistant polypropylene or other impervious material with vertical sides for spill containment.

These containment tarps will be set up under the equipment prior to servicing or refueling. Once the work is completed, the tarp and its contents must be immediately removed from the property and all contaminants properly disposed of off site. Standard operating procedures will be implemented immediately in case of fuel spillage.

10. Prior to conducting plant removal or treatments, the permittee will make every reasonable attempt to ensure that covered species are not hidden within the plant or the residual plant matter to be treated.

11. Pond or upland enhancement activities will be described in the annual work plan and will specify the areas where work will be performed, the dates during which the work will be performed, and a description of the work to be performed.

12. Pond and upland enhancement activities could include: vegetation removal, basin deepening or recontouring, sediment removal, berm repair and strengthening, and planting vegetation, all of which may be performed manually or using heavy machinery Draining of ponds to perform the authorized work should only occur during part of the year when the larval life stage has been completed and before the subsequent breeding season. Within 2 days of the start of work on a pond, that pond will be sampled by a qualified biologist to ensure that all covered species from that pond are in the post metamorphic stage and will be minimally affected by draining of the pond.

California Tiger Salamander. As a precaution for the very unlikely event that a CTS is observed prior to or during project activities, the following avoidance and minimization measures, consistent with Statewide Programmatic Biological and Conference Opinion (FWS References: 2022-0005149-S7), will be implemented for the California Tiger Salamander to ensure there is no take of the species as a result of construction activities.

1. Project activities will be limited to between July 1 and October 31. Work may occur before July 1 if the wetland has been dry for a minimum of 30 days before initiating work.

2. Prior to the start of work, an educational program regarding the sensitivity of the covered species, and their habitat will be conducted for all personnel. The educational program will include visual materials on species identification, procedures to follow when encountering any covered species in the work area, penalties for take, and all work restrictions within the project area.

3. A chain of command for field crews and other on-site personnel will be established prior to commencement of all activities. This program will establish the biological monitors and the persons in charge of, and responsible for, all facets of project implementation. The specific chain-of-command will be defined at the pre-activity meeting to be held immediately prior to the initiation of work.

4. Biological monitors will have the full responsibility and authority of stopping work activities, if any crews or personnel are not complying with the provisions outlined in this document and/or conditions.

5. To maintain safety and limit the chance of take or habitat disturbance, communication systems consisting of a simple system of hand signals or handheld radios will be utilized to ensure proper communication between the monitors, truck drivers, equipment operators, and field personnel to use during habitat enhancement and related activities.

6. Aquatic sampling will occur a minimum of 2 times in spring prior to the onset of construction activities. The exact timing will be determined by the qualified biologist based on the timing of rainfall and dispersal of CTS to and from other known breeding locations. If CTS are encountered during aquatic sampling, CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

7. eDNA sampling will occur in conjunction with aquatic sampling. eDNA samples will be collected and analyzed consistent with the established protocol (Ralson, 2023). If CTS eDNA is detected, CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

8. If there is still water in the pond, the qualified biologist will sample the pond within 2 days of dewatering to ensure that there are no CTS in the pond. If CTS are encountered during aquatic sampling, CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

9. If there is still water in the pond and dewatering is required, intakes will be completely screened, consistent with CDFW (2001) screening guidelines or latest updates to those guidelines to avoid entrainment or impingement of larval amphibians. The intake will be placed in a perforated bucket or another method to attenuate suction, to prevent amphibians from entering the pump system.

10. The qualified biologist will be present to monitor all dewatering activities. If CTS are observed, all work will halt. CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

11. The qualified biologist will be present to monitor all ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities). If CTS are observed, a 50-ft avoidance buffer will be put in place. The CTS will be allowed to leave the area of its own volition. If the CTS doesn't leave on its own, all work will halt. CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

12. All maintenance activities will be conducted in accordance with the amphibian best management practices and protection measures included in the Maintenance and Management Plan, including:

    a. Maintenance or repair activities within the pond are limited to September 1 to October 15 when water levels are lowest or the pond is dry.

b. If water is still present in the pond, a qualified biologist shall observe pond dry down, relocating any animals as necessary and consistent with the necessary permits.

c) **Special-status and MBTA Protected Birds**. Nesting birds (protected by the MBTA) may occur within the pond or adjacent shrub habitat. Removal of vegetation has the potential to injure or kill roosting or nesting birds. If active nests fail due to construction activities, this would be in violation of the MBTA and CDFW regulations. Therefore, the following measures will be implemented.

1. Perform pre-construction nesting bird surveys within one week before the scheduled start of the project. The nesting survey should be performed by a qualified biologist and cover the entire project area and a buffer area of at least 300 feet. In the event active nests are observed, the nest site shall be flagged and a buffer shall be established, in an effort to prevent nest failure. The buffer widths shall be determined by the qualified biologist, based on species, site conditions and anticipated construction activities. Active nests should be monitored at a frequency determined by the monitoring biologist, but at a minimum of once per week, until the nestlings have fledged. In the event that construction activities appear to be interfering with nest maintenance (e.g., feedings and incubation), then the buffers should be enlarged or construction activities postponed, until the young have fledged, as determined by the qualified biologist. The project will not interfere with the movement of any native resident or migratory fish or wildlife species, interfere with established native resident or migratory wildlife corridors.

d) **Sensitive Habitats:** The project area does not support any riparian habitat, drainages or creeks subject to California Department of Fish and Wildlife jurisdiction. No regulated habitats would be affected by the proposed project. However, the project would remove approximately 0.144 acres of coyote brush scrub habitat, an imperiled habitat as defined by CDFW. Although this vegetation type was created several years ago by the landowner, removal of a sensitive vegetation type is considered a significant impact under the CEQA Guidelines and County policy.

The project area does not include any water or wetland features subject to the California Regional Water Quality Control Board. Discussions are on-going with US Amy Corps of Engineers regarding jurisdiction.

The proposed project area supports 27 stands of tufted hairgrass (0.522 acres) (including stands that also intermix with coyote brush), a sensitive vegetation type. A total of 0.144 acres will be impacted by project activities. The proposed grading plan, when superimposed on the map of tufted hairgrass stands, shows removal of 12 stands; this is shown on Figure 4 and Appendix A. Of the stands to be removed, the majority (8 stands, 66%) are small in size (10x10 feet to 20x20 feet) and have less than 40% cover of the hairgrass. Four of the stands are larger and/or support a denser growth of the hairgrass (occurrences 9, 14, 16, and17). The project will retain 13 stands, including the largest stands and 6 stands with high hairgrass density. The project will also retain several stands of coyote brush scrub.

Recommendation: To mitigate for the impact to 6,272 sq ft (0.144 ac) of tufted hairgrass/ coyote brush habitat as a result of construction activities, the applicant shall develop and implement a tufted hairgrass salvage and re-planting plan. Salvaged plants shall be re-planted on-site, within the 32,200 sq ft planting zone (Figure 6). This designated area is anticipated to be inundated for less than 6 weeks per year, creating optimum habitat conditions for tufted hairgrass. It is anticipated that replanting activities will achieve a similar density to the cover of tufted hairgrass currently present in 4-5 years. t. The applicant may also choose to collect seed from existing tufted hairgrass plants, and broadcast seed onto temporarily impacted areas to increase site coverage by this species. Given the applicants apparent success in previously establishing the stands of tufted hairgrass on the site, this mitigation strategy of site salvage and/or seeding are considered to be viable mitigation methods. Refer to Appendix A for an explanation of why salvage is anticipated to be successful on this project site.

In addition to the measure described above, within the retained and undisturbed coyote brush - tufted hairgrass areas, the applicant shall seasonally implement measures to control and reduce the cover of invasive, non-native plant species, which are primarily Italian thistle and poison hemlock. Due to the ability of coyote brush to naturally colonize areas (through natural seed dispersal) as well as the presence of numerous young plants within the retained scrub, replanting of coyote brush shrubs is not necessary. Successful implementation of these actions will reduce the impact to sensitive resources to a less-than-significant level.

e) **Water Quality:** Construction activities may temporarily alter water quality. Impacts could include increases in downstream turbidity and sedimentation levels and accidental spills of hazardous materials during construction activities. However, dewatering prior to the onset of construction activities and implementation of other avoidance and minimization measures described below, will minimize these effects to downstream habitat. Short-term increases in turbidity during post-construction re-watering and subsequent higher flow events during the first winter storms post-construction may also occur, but the levels and duration of sedimentation and turbidity increases associated with the activities are expected to be comparable to background winter storm event conditions and are not expected to rise to the levels that would cause harm to aquatic species.

In addition, the following measures to protect wildlife and water quality will be employed:

1. All disturbance during construction will be kept to a minimum to avoid additional impacts to sensitive habitats.

2. All inactive areas (defined as a five-day period) will have all necessary soil stabilization practices in place two days after identification of inactivity and/or before a rain event, whichever comes first.

3. Erosion control and sediment detention devices have been incorporated into the project design and will be in place prior to October 1 and the onset of rains for the purposes of minimizing fine sediment and sediment/water slurry input to flowing water, and of detaining water to retain

Packard Ranch
Stormwater Detention Pond for Agricultural Runoff
Figure 6. Salvaged Deschampsia Revegetion Area

4. sediment on-site. These devices will be placed at all locations where the likelihood of sediment input exists. Sediment collected in these devices will be disposed of away from the collection site and outside riparian areas and flood hazard areas.

5. Spoils and grubbed material will be disposed of on-site, in a location greater than 100 ft from drainage areas and will avoid sensitive upland, wetland and riparian habitats. The material will be stabilized with straw wattles or other materials,

6. The use and/or storage of petroleum-powered equipment (if applicable) will be accomplished in a manner to prevent the potential release of petroleum materials into US Waters and Waters of the State. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

7. All excavation and grading activities will be scheduled for, and will occur during, dry weather periods.

8. A contained area will be designated for equipment storage, short-term maintenance, and refueling and will be located at least 100-feet from all water bodies.

9. Vehicles will be inspected for leaks and repaired immediately.

10. Leaks, drips and other will must be cleaned up immediately to avoid soil, surface water or groundwater contamination.

11. Major vehicle maintenance and washing will be done in a manner that protects the environment (at a minimum on a paved surface where all wash water, drippings, runoff, etc. is collected and properly disposed, and preferably offsite).

12. All spent fluids (including motor oil, radiator coolant, and/or other fluids) and used vehicle batteries will be collected, stored, and recycled as hazardous waste off site.

13. All questionable motor oil, coolant, transmission fluid, and hydraulic fluid hoses, fittings, and/or seals on construction equipment will be replaced. All mechanical equipment will be inspected on a daily basis to ensure there are no motor oil, transmission fluid, hydraulic fluid, and/or coolant leaks. All leaks will be repaired in the equipment staging area or other suitable location (away from watercourses) prior to resumption of construction activity.

14. All exposed/disturbed areas and access roads left barren of vegetation as a result of the construction activities shall be restored by seeding with a blend of native erosion control grass seed. Seeded areas will be mulched.

15. Project activities will be restricted to dry weather. Project activities shall be timed with awareness of precipitation forecasts according to the National Weather Service (NWS) 72-hr forecast for the Project area. Project activities will cease when the National Weather Service (NWS) 24-hour weather forecast indicates a 40 percent chance or higher of precipitation of at least 0.25-inch of precipitation. All necessary erosion control measures shall be implemented prior to the onset of precipitation. Any construction equipment and materials shall be removed if inundation is likely. Project activities halted due to precipitation may resume after a dry out period of 24-hours after the above referenced wet weather.

In addition, the following mitigation measures will be adhered to per the county permit(s):

1. Mitigation Measure Action No. 1a: Prior to issuance of grading and/or building permits from Building Services, the applicant/owner shall submit to HCD- Planning for review and approval a copy of a contract with a qualified biologist to prepare the BEPE and to provide the required training.

2. Mitigation Measure Action No. 1b: Prior to issuance of grading and/or building permits from Building Services, applicant/owner shall submit to HCD-Planning for review and approval a fact sheet and/or other supporting materials prepared by the project biologist for distribution to all onsite employees.

3. Mitigation Measure Action No. 1c: Prior to project-related ground disturbance, the project biologist shall conduct a worker training session for all project staff and upon completion of the training session, applicant/owner shall provide to HCD-Planning a copy of the form signed by all training attendees.

4. Mitigation Measure Action No. 1d: Prior to final inspection from Building Services, applicant/owner shall submit to HCD-Planning a brief report prepared by the project biologist as to incidents regarding species covered during the training session.

5. Mitigation Measure No. 2: Project Biologist (Monitoring and Mitigation Implementation): The project proponent shall retain a qualified biologist ("Project Biologist") to monitor all ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) and ensure that Mitigation Measures No. 1, 2, and 4 and their respective actions are implemented.

6. Mitigation Measure No. 4: Review and installation of protective fencing around the retained Coyote brush scrub, and monitoring of the site at least once per week until construction is complete to ensure that the protective fencing remains intact.

7. Mitigation Measure No. 4: Final report submitted to HCD-Planning for review and approval that is sufficient in detail to explain how protection objectives have been met and any impacts incurred outside those previously analyzed including, but not limited to, deviation from measures, modifications required in the field, occurrences of halting construction and/or any other issues identified.

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Appendix A

Biotic Resources Group
Biotic Assessments ◆ Resource Management ◆ Permitting

December 6, 2023

Kelli Camara
Resource Conservation District of Santa Cruz County
820 Bay Avenue, Suite 136
Capitola, CA 95010

RE: Packard Ranch Stormwater Detention Basin Project: Review of Native Grasses and Coyote Brush Scrub, Updated Review

Dear Ms. Camara,

The Biotic Resources Group has conducted a review of botanical resources within the area of the proposed stormwater detention basin on the Packard Ranch, as per your request. The review was focused on evaluating sensitive botanical resources in areas subject to disturbance from the detention basin project, specifically impacts to coyote brush scrub and stands of the native grass, tufted hair grass (*Deschampsia cespitosa)*. The results of this review, including additional information based on comments/questions from Monterey County, are presented in this updated letter report.

Project Description

The project site is located inland from State Highway 1 in the greater Moss Landing area of northern Monterey County. The project site is accessed from a private road at 1957 Highway 1. The site is located on lands within the former Elkhorn Native Plant Nursery and the site was subject to native grass plantings during the period of the nursery's operation.

The proposed project is the enlargement of an existing pond to create a stormwater detention basin. The basin is intended to capture runoff from the adjacent agricultural operations and improve water quality within the Elkhorn Slough watershed. All areas outward of the detention basin that are temporarily disturbed by construction will be revegetated with native herbaceous species, including salvage and transplant of the perennial tufted hair grass.

Methods

A site survey was conducted on June 7, 2023. The survey was conducted to document the existing vegetation, including the extent of coyote brush scrub and tufted hair grass. Walking transects were used to evaluate plant species composition, plant cover, and overall site characteristics. As occurrences of coyote brush (*Baccharis pilularis)* were widespread, an aerial photo was used to determine distribution (Google aerial). Stands of tufted hair grass were recorded using GPS (Gaia software), with size and cover values recorded. Stands were mapped where cover by tufted hair grass was 10% or greater. The GPS data was used to generate a map of the distribution of tufted hair grass stands in the project area.

Existing Conditions

The project site supports a mosaic of vegetation types. As documented in the Biotic Report (Resource Conservation District of Santa Cruz County, 2020), the site was observed to support coyote brush scrub and hardstem and California bulrush marsh. In addition, a portion of the existing pond supports a willow thicket.

The coyote brush scrub is the dominate vegetation type; it is comprised of scattered coyote brush shrubs intermixed with native and non-native grasses and forbs. At the June 2023 site visit, tufted hair grass, non-native wild oat (*Avena sp.)*, non-native soft chess (*Bromus hordeaceus)*, and non-native Italian thistle (*Carduus pycnocephalus)* provided the most cover. Other plant species include red fescue (*Festuca rubra)*, Italian ryegrass (*Lolium [Festuca] multiflorum)*, spring vetch (*Vicia sativa)*, poison hemlock (*Conium maculatus)*, and bull thistle (*Cirsium vulgare)*. There were scattered occurrences of blue wild rye (*Elymus glaucus)* and purple needlegrass (*Stipa pulchra)*. Shrubs of lizard tail (*Eriophyllum staechadifolium)* and blue elderberry (*Sambucus nigra)*, were observed near the access road. The stands of native grasses (primarily tufted hair grass) range in their percent cover. Some stands exhibited dense cover of hairgrass (i.e., 80% cover); however, most stands were in the 40-50% cover range, with non-native wild oat, soft chess, and Italian thistle being the other species. The character of a dense stand of tufted hair grass (80% cover) is depicted in **Figure 1**.

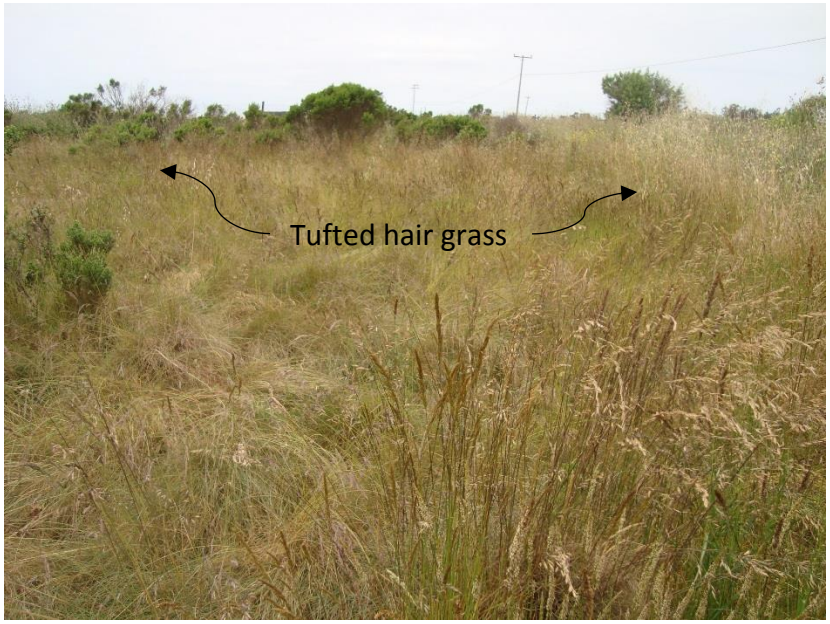


Figure 1. View westerly of dense stand of tufted hairgrass (occurrence #12), June 2023

Twenty-seven stands of tufted hairgrass were documented on site. Eleven of these stands had cover values of over 50%. The distribution of these occurrences is depicted on **Figure 2**.

Sensitive Habitats

Sensitive habitats are defined by local, State, or Federal agencies as those habitats that support special-status species, provide important habitat values for wildlife, represent areas of unusual or regionally restricted habitat types, and/or provide high biological diversity. The project area is located within an unincorporated area of Monterey County subject to regulations in the North County Coastal Land Use Plan (NCCLUP). Within the coastal zone, environmentally sensitive habitats areas (ESHA) are areas in which plant or animal life or their habitats are rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. These include Areas of Special Biological Significance as identified by the State Water Resources Control Board; rare and endangered species habitat, all coastal wetlands and lagoons, all marine wildlife, and kelp beds; and indigenous dune plant habitats. The County has adopted several policies pertaining to ESHA's.

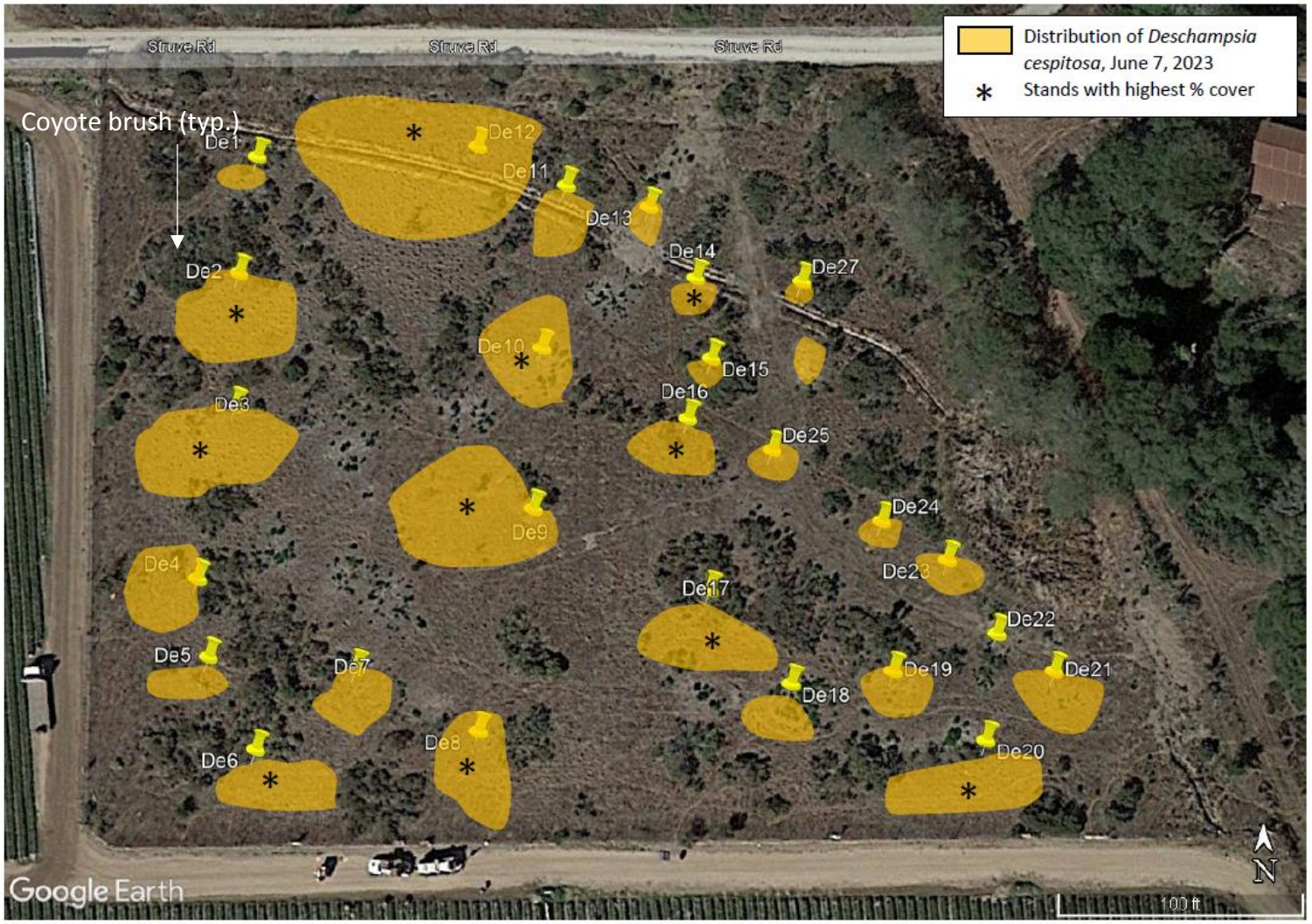


Figure 2. Distribution of *Deschampsia cespitosa*, June 2023

The California Department of Fish and Wildlife (CDFW) recognizes several vegetation types as sensitive (CDFW California Natural Community List, 2022). CDFW's Cal Veg system identifies 23 alliances of the Oatgrass - Tufted Hairgrass - Camas wet meadow vegetation type, of which 19 are considered sensitive. For the subject project, the tufted hairgrass alliance CaCode 41.220.08 *Deschampsia cespitosa* is identified as sensitive. In addition, CDFW's Cal Veg system identifies 17 alliances of the coyote brush scrub vegetation types, 9 of which are considered sensitive due to an accompanying co-dominant species. In several areas on the project site, the coyote brush scrub is co-dominant with tufted hairgrass; therefore, where these features co-occur the habitat is considered to be CaCode 32.060.02 *Baccharis pilularis / Deschampsia cespitosa*, a sensitive vegetation type. As depicted on **Figure 2**, stands of coyote brush are located within and adjacent to the mapped tufted hairgrass occurrences and at these locations, the vegetation alliance of *Baccharis pilularis / Deschampsia cespitosa* was deemed present.

Summary of Potential Project Effects on Sensitive Botanical Resources

The proposed project area supports 27 stands of tufted hairgrass (including stands that also intermix with coyote brush), a sensitive vegetation type. Although this vegetation type was created several years ago by the landowner, removal of a sensitive vegetation type is considered a significant impact under the CEQA Guidelines and County policy. The proposed grading plan, when superimposed on the map of tufted hairgrass stands, shows removal of 12 stands; this is shown on **Figure 3**. Of the stands to be removed, the majority (8 stands, 66%) are small in size (10x10 feet to 20x20 feet) and have less than 40% cover of the hairgrass. Four of the stands are larger and/or support a denser growth of the hairgrass (occurrences 9, 14, 16, and17). The project will retain 13 stands, including the largest stands and 6 stands with high hairgrass density. The project will also retain several stands of coyote brush scrub.

> ***Recommendation:*** *The applicant shall implement a tufted hairgrass salvage and re-planting plan. Plants shall be salvaged from the impact area and re-planted on-site outward of the new detention basin in areas temporarily impacted by construction, or other areas, if need*ed. *Each salvaged plant shall have a minimum root/soil thickness of four inches. The transplants shall be kept moist and cool; the salvage and transplant are recommended in 1 day; however, if plants need to be held over, plants shall be covered with wet burlap or equivalent until they are installed.*
>
> *The applicant may also choose to collect seed from existing tufted hairgrass plants, and broadcast seed onto temporarily impacted areas to increase site coverage by this species. In addition, within the retained and undisturbed coyote brush -tufted hairgrass areas, the applicant shall seasonally implement measures to control and reduce the cover of invasive, non-native plant species, which are primarily Italian thistle and poison hemlock. Due to the ability of coyote brush to naturally colonize areas (through natural seed dispersal) as well as the presence of numerous young plants within the retained scrub, replanting of coyote brush shrubs is not necessary. Successful implementation of these actions will reduce the impact to sensitive resources to a less-than-significant level.*

Rational for Expecting Success

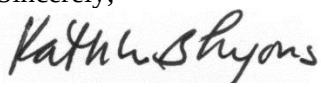
The above recommendation for implementing salvage and re-planting of tufted hairgrass as well as supplemental seeding is considered a viable mitigation strategy for several reasons. Firstly, the project site was previously seeded with tufted hair grass and this seeding was successful, as evidenced by the extensive stands of the species that currently inhabit the site. The success of that seeding suggests soil, soil moisture and other conditions are conducive to species establishment. The ability of the species to re-establish on site is also consistent with information provided by

the US Department of Agriculture (USDA) which indicates the species can quickly establish on disturbed sites. [1] Lastly, other projects in the greater project area have demonstrated success in transplanting. For example, nursery plugs of tufted hair grass were planted at UCSC and Arana Gulch. The recent planting at Arana Gulch yielded 80% survival in Year 1, within no supplemental irrigation. A separate study found a 98% success of transplanted tufted hair grass.[2] The USDA Plant Data Base and Plant Fact Sheet documents that 45% of root mass is in upper four inches; suggesting there is enough root mass for successful salvage and transplanting, assuming each plant salvage excavates a minimum of four inches deep. Measures are also needed to keep transplants moist and cool. Ideally, salvage and transplant should occur in 1 day; however, if holding plants is required, they should be covered with wet burlap or equivalent. [3]

Site conditions are deemed to be suitable for the tufted hairgrass, as evidenced by the species current presence on site, but, also within newly created areas along the edge of the new detention basin. The species is classified as facultative-wet and is a wetland indicator species. Although the literature indicates the species has good drought tolerance, it has an excellent tolerance of very wet winter conditions, that would occur in moist to seasonally wet meadows and freshwater wetlands. It can tolerant saturated habitats along the edges of marshes and bogs. A study of flooding with native grasses found that tufted hair grass showed no mortality after 6 weeks of flooding (followed by 2 weeks of not being inundated), but did lose some biomass. This indicates that biomass production slowed during flooding but commenced soon thereafter. Wet meadow plants, which are continuously confronted with high soil moisture and temporary shallow soil flooding, probably possess traits that enable them to cope with oxygen limitation in the root zone and with unfavorable biogeochemical reduction processes[4]. This suggests that the plants along the edge of the new detention basin could be inundated for up to six weeks, without significant mortality or loss of biomass. Given this information, the recommended mitigation strategy of site salvage and/or seeding is considered to be viable mitigation method for this site.

Please call me if you have any questions on this review.

Sincerely,



Kathleen Lyons
Plant Ecologist

Attached: **Figure 3**

[1] USDA Report. Native grass seeding and forb planting establishment (2006) *Deschampsia caespitosa*, a long-lived, densely tufted, and tall (culms, 60 to 120 cm [24 to 47 in]) perennial grass, prefers open, moist meadows, can quickly establish in disturbed areas (Walsh 1995).
[2] Success of Transplanted Plants, Journal of Applied Ecology: 98% success of transplanted *Deschampsia* in Colorado.
[3] USDA Plant Data Base and Plant Fact Sheet, USDA website, 2023
[4] Differences in flooding tolerance between species from two wetland habitats with contrasting hydrology: implications for vegetation development in future floodwater retention areas. Katarzyna Banach, Artur M. Banach, Leon P. M. Lamers, Hans De Kroon, Riccardo P. Bennicelli, Antoine J. M. Smits, Eric J. W. Visser *Annals of Botany*, Volume 103, Issue 2, January 2009, Pages 341–351, https://doi.org/10.1093/aob/mcn183

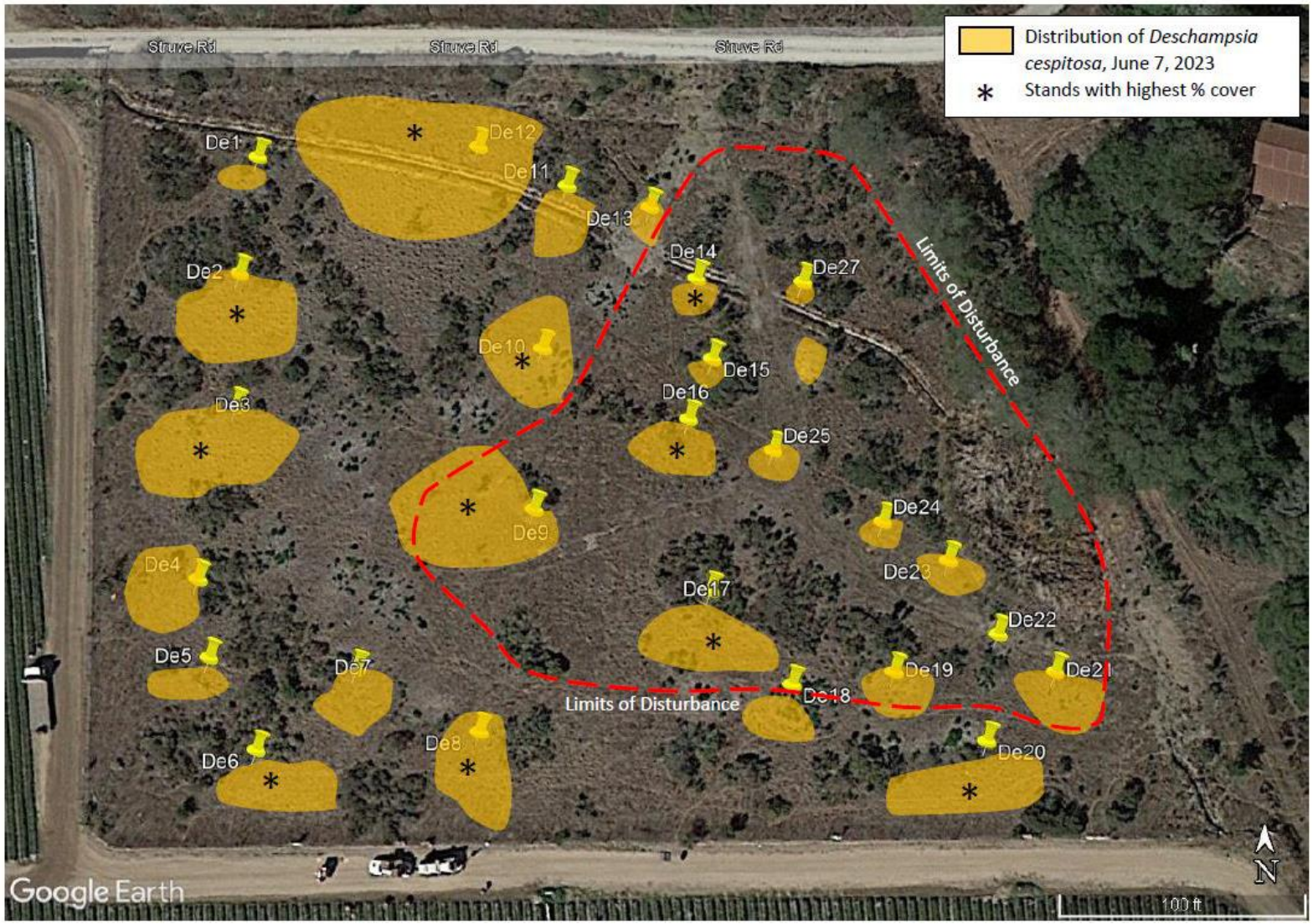


Figure 3. Limit of Disturbance Line and distribution of *Deschampsia cespitosa*, June 2023

Appendix B

Kelli Camara

From: Mitcham, Chad J <chad_mitcham@fws.gov>
Sent: Tuesday, June 27, 2023 1:28 PM
To: Kelli Camara
Subject: Re: [EXTERNAL] Packard Ranch Project

Hi Kelli, thanks for your coordination on this project. In my opinion the likelihood that SCLTS inhabit any ponds or terrestrial habitat within Packard Ranch is extremely low. My opinion is based on the absence of historical observations of the species within dispersal distance of the project site despite focused CRLF surveys by Elkhorn Slough Reserve staff within the ranch ponds, as well as no observations by a local SCLTS expert (Bryan Mori) despite several years of bullfrog management at the ranch. Contributing to my opinion is the low amount of suitable upland habitat for the species at the ranch, which primarily occurs east of the project site.

As you know Ive been in contact with the Packard Ranch land manager and have provided recommendations that are intended to increase habitat values specifically for the purpose of enhancing conditions to facilitate future SCLTS translocation to the ranch. You are also aware that the ranch manager has expressed his support of this effort. It is my goal to continue to work with the ranch manager in this regard. Successful implementation of your project would be productive not only in terms of assisting Packard Ranch in their habitat enhancement goals (contain additional water onsite/reduce erosion into Elkhorn Slough), but would increase trust thereby ultimately helping facilitate SCLTS occupancy of the ranch via translocation.

Please let me know if you have any questions.

Chad Mitcham
Fish and Wildlife Biologist
Ventura Fish and Wildlife Office
U.S. Fish and Wildlife Service

email is the best way to contact me

Chad Mitcham
Fish and Wildlife Biologist
Ventura Fish and Wildlife Office
U.S. Fish and Wildlife Service

email is the best way to contact me

From: Kelli Camara <kcamara@rcdsantacruz.org>
Sent: Friday, June 23, 2023 10:53 AM
To: Mitcham, Chad J <chad_mitcham@fws.gov>
Subject: [EXTERNAL] Packard Ranch Project

Hi Chad,
During the CEQA review process, CA Department of Fish and Wildlife has expressed some concerns about take of state list species (particularly SCLTS) during implementation of the Packard Ranch project.

During an IWRP TAC meeting on September 9, 2019, you participated in both a call with additional TAC members, including Renee Robinson (CDFW), and the site visit to look at the project. Staff from the Monterey County RCD, landowner, and farmer provided an overview of the goals and objectives of the project and reviewed the concept design (Meeting Minutes attached). According to the meeting minutes, you expressed support for the project as a managed pond to support breeding habitat for California Red-legged frog (CRLF), as the hydroperiod of the pond would be managed to control bullfrogs, unlike the numerous other ponds on the property.
In addition, in response to CDFW's questions about historic surveys of CESA-listed species, you noted that the Service would only consider CRLF to be on-site. However, if needed, the recovery permit could be used for CTS and SCLTS.

While I recognize that nearly 4 years has passed since this meeting, you have visited the property a number of times since then, have been kept apprised of the RCD's on-going efforts to implement this project, and have been instrumental in recent aquatic sampling, upland surveys, and eDNA efforts for amphibian species endemic to this region. I wanted to check in with you to clarify that the Service is still in support of this project (final designs attached) and to get your feedback on the potential for SCLTS to be impacted by construction activities associated with the proposed project.

Please let me know if you have any questions.
Sincerely,
Kelli

Kelli Camara

From: Mitcham, Chad J <chad_mitcham@fws.gov>
Sent: Tuesday, December 5, 2023 4:58 PM
To: Kelli Camara
Subject: Re: [EXTERNAL] RE: Stormwater Detention Pond for Agricultural Runoff project at Packard Ranch

Hi Kelli, thanks for your continued coordination on this project. In my opinion there is a low likelihood of CTS utilizing the subject pond for breeding, or immediately adjacent terrestrial habitat as upland habitat. As you know one CTS adult (and concurrent eDNA hit) was recorded in 2021 at South Midway pond. Subsequent surveys at several other ponds (eight I believe) on the Ranch in 2021 resulted in no CTS detections (traditional surveys or eDNA). Based on many years of bullfrog management at the Ranch ponds as well as focused surveys for CRLF, the CTS occurrence was a fantastic surprise, but is concerning in that the CTS breeding population must be very low. Midway Pond is located approximately 900 meters from the project site with agricultural fields between the two. The presumed low breeding population, absence of CTS observations prior to 2021, distance and ag fields between South Midway and the subject pond, are all basis for my opinion.

I also believe that the conservation measures are robust and would reduce/eliminate the chances of take in the unlikely event that CTS utilize or attempt to utilize the subject pond for breeding. As a side, I would appreciate being present for one or more of the spring aquatic surveys so please extend an invite when the time comes.

I hope this answers your questions, please let me know if you want to discuss.

Chad Mitcham
Fish and Wildlife Biologist
Ventura Fish and Wildlife Office
U.S. Fish and Wildlife Service

email is the best way to contact me

From: Kelli Camara <kcamara@rcdsantacruz.org>
Sent: Tuesday, December 5, 2023 3:06 PM
To: Mitcham, Chad J <chad_mitcham@fws.gov>
Subject: [EXTERNAL] RE: Stormwater Detention Pond for Agricultural Runoff project at Packard Ranch

Hi Chad,
Given your familiarity with the Stormwater Detention Pond for Agricultural Runoff project and the Packard Ranch property, can you provide your opinion of the potential for California Tiger Salamander (CTS) to be present during construction activities and provide guidance as to whether the avoidance and minimization measures provided below look adequate to protect CTS.

The following avoidance and minimization measures, consistent with Statewide Programmatic Biological and Conference Opinion (FWS References: 2022-0005149-S7), will be implemented for the California Tiger Salamander to ensure there is no take of the species as a result of construction activities.

1. Project activities will be limited to between July 1 and October 31. Work may occur before July 1 if the wetland has been dry for a minimum of 30 days before initiating work.

2. Prior to the start of work, an educational program regarding the sensitivity of the covered species, and their habitat will be conducted for all personnel. The educational program will include visual materials on species identification, procedures to follow when encountering any covered species in the work area, penalties for take, and all work restrictions within the project area.

3. A chain of command for field crews and other on-site personnel will be established prior to commencement of all activities. This program will establish the biological monitors and the persons in charge of, and responsible for, all facets of project implementation. The specific chain-of-command will be defined at the pre-activity meeting to be held immediately prior to the initiation of work.

4. Biological monitors will have the full responsibility and authority of stopping work activities, if any crews or personnel are not complying with the provisions outlined in this document and/or conditions.

5. To maintain safety and limit the chance of take or habitat disturbance, communication systems consisting of a simple system of hand signals or handheld radios will be utilized to ensure proper communication between the monitors, truck drivers, equipment operators, and field personnel to use during habitat enhancement and related activities.

6. Aquatic sampling will occur a minimum of 2 times in spring prior to the onset of construction activities. The exact timing will be determined by the qualified biologist based on the timing of rainfall and dispersal of CTS to and from other known breeding locations. If CTS are encountered during aquatic sampling, CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

7. eDNA sampling will occur in conjunction with aquatic sampling. eDNA samples will be collected and analyzed consistent with the established protocol (Ralson, 2023). If CTS eDNA is detected, CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

8. If there is still water in the pond, the qualified biologist will sample the pond within 2 days of dewatering to ensure that there are no CTS in the pond. If CTS are encountered during aquatic sampling, CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

9. If there is still water in the pond and dewatering is required, intakes will be completely screened, consistent with CDFW (2001) screening guidelines or latest updates to those guidelines to avoid entrainment or impingement of larval amphibians. The intake will be placed in a perforated bucket or another method to attenuate suction, to prevent amphibians from entering the pump system.

10. The qualified biologist will be present to monitor all dewatering activities. If CTS are observed, all work will halt. CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

11. The qualified biologist will be present to monitor all ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities). If CTS are observed, a 50-ft avoidance

buffer will be put in place. The CTS will be allowed to leave the area of its own volition. If the CTS doesn't leave on its own, all work will halt. CDFW and the Service will be notified, and no project activities will occur until authorization has been obtained.

Thank you so much.
K

BRYAN MORI BIOLOGICAL CONSULTING SERVICES
1016 Brewington Avenue, Watsonville, CA 95076
831.728.1043 (O) 310.408.6690
moris4wildlife@earthlink.net

May 19, 2023

Kelli Camara
Resource Conservation District of Santa Cruz County
820 Bay Avenue, Suite 136
Capitola, CA 95010

RE: Status of Santa Cruz Long-toed Salamander at Packard Ranch

Dear Kelli:

This letter is in response to your request for my professional opinion regarding the likelihood of Packard Ranch supporting a Santa Cruz long-toed salamander (SCLTS) (*Ambystoma macrodactylum croceum*) population.

First, a brief background on my qualifications regarding SCLTS and Packard Ranch. Since 1993, I have had on-going California Department of Fish and Wildlife SCLTS MOUs associated with my state scientific collection permit (S-200160021-20028-001) and U.S. Fish and Wildlife Service Recovery Permits (ES-778668-10) covering SCLTS. Over the years, I have been involved in numerous SCLTS assessments, surveys and monitoring studies as a primary consultant and as part of a team assisting other SCLTS specialists. As far as my experience with Packard Ranch, I have been implementing a bullfrog (*Lithobates catesbeiana*) control program on the ranch over the past 6 years and currently carrying out year 7. Thus, I am familiar with the biology of the ranch through personal experience, as well as review of past and concurrent studies (other than bullfrog control) performed by other biologists.

Based on my experience and knowledge of SCLTS natural history and patterns of their local distribution and occurrence, it is my opinion that the likelihood the Packard Ranch supports a SCLTS population is very low for the following reasons:

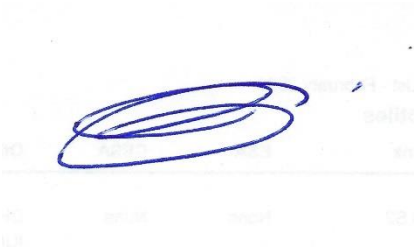
- Most of the ranch lacks suitable upland habitat, such as moist, dense live oak woodlands, coastal scrub and willow thickets, and where present, they occur in small, scattered, disjunct patches.
- The only known extant SCLTS population in the vicinity of the ranch occurs at McClusky Slough, which is located west of Hwy 1. The population at McClusky is very small and the agricultural fields surrounding the breeding site, as well as Hwy 1, likely are significant impediments to SCLTS dispersal from McClusky to Packard Ranch.
- Struve-Bennet Slough, which is in the vicinity of Pack Ranch, once supported a SCLTS population but is thought to be extirpated, due to salt water intrusion. Salt water intrusion was identified as a serious problem back in the late 1980s and has only become worse.
- Packard Ranch is isolated from known SCLTS populations to the east by Elkhorn Slough.
- Recent eDNA studies at several ponds on Packard Ranch resulted in negative findings for SCLTS.

- Nina Akhavan (formerly D'Amore) performed aquatic sampling at numerous ponds on Packard Ranch from 2004 – 2007 to collect data on California red-legged frog (*Rana draytoni*) biology, as well as to remove bullfrogs, for her PhD thesis. SCLTS were not found during her study.

Based on the best available data, the evidence suggests that Packard Ranch does not support a SCLTS population. I'm sure you are aware of the information presented, above, through your work with the RCD, and my opinion comes as no surprise.

If you have any questions or if I can help in other ways, please feel free to contact me anytime.

Sincerely,



Bryan Mori
Consulting biologist

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December 19, 2023

Kelli Camara
Resource Conservation District of Santa Cruz County
820 Bay Avenue, Suite 136
Capitola, CA 95010

RE: Status of California Tiger Salamander at Packard Ranch

Dear Kelli:

This letter is in response to your request for my professional opinion regarding the status of California tiger salamander (CTS) (*Ambystoma californiense*) on Packard Ranch in light of the concerns of the California Department of Fish and Wildlife (CDFW) regarding the potential impacts to CTS from proposed habitat enhancement measures at Barn Reservoir on Packard Ranch.

Qualifications

Since 1993, I have had on-going California Department of Fish and Wildlife SCLTS MOUs associated with my state scientific collection permit (S-200160021-20028-001) and U.S. Fish and Wildlife Service Recovery Permits (ES-778668-10) covering CTS. Over the years, I have been involved in numerous CTS assessments, protocol surveys (upland pitfall trapping and aquatic sampling) and monitoring studies as a primary consultant and as part of a team assisting other CTS specialists. Some of these projects have been performed at Packard Ranch and the surrounding landscape of northern Monterey County. As far as my experience with Packard Ranch, we have just completed seven years of an American bullfrog (*Lithobates catesbeiana*) control program on the ranch. Thus, I am familiar with the biology of the ranch through personal experience, as well as review of past and concurrent studies (other than bullfrog control) performed by other biologists.

Preliminary Assessment

Based on my experience and knowledge of CTS natural history and patterns of their local distribution and occurrence, it is my opinion that the CTS population on Packard Ranch is likely to be small and localized on the ranch. The reasons for this conclusion are as follows:

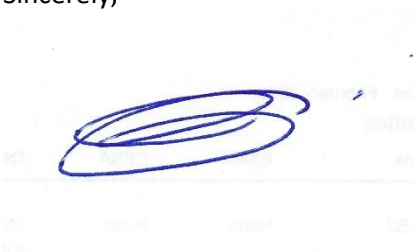
- Recent eDNA and aquatic sampling surveys performed by US Fish and Wildlife Service (FWS) Elkhorn Slough Foundation biologists at several ponds on Packard Ranch in 2021 resulted in only one confirmed CTS breeding pond, with only one larva captured while seining rather than the hundreds to thousands typically found at productive breeding ponds.
- Nina Akhavan (formerly D'Amore) performed aquatic sampling at numerous ponds on Packard Ranch from 2004 – 2007 to collect data on California red-legged frog (*Rana draytoni*) biology, as well as to remove bullfrogs, for her PhD thesis. No CTS were found during her study.

- CTS have not been documented west of Hwy 1 at McCluskey Slough, despite pitfall trapping performed at the slough in the early 2000s and pitfall trapping, aquatic sampling and eDNA studies in 2020-21.
- Struve-Bennet Slough, which is southwest of Packard Ranch, once supported a CTS population into the 1970s but is thought to be extirpated, due to salt water intrusion which was identified as a serious problem back in the late 1980s and has only become worse. Struve Slough was sampled by FWS staff in 2022 with negative results.
- Except for the historic Struve Slough documentation, above, the only other known CTS record west and north of Elkhorn Slough comes from Jensen Pond, which is located ~1.70 miles to the northwest in a highly disturbed landscape dominated by row crop agriculture and is likely outside of CTS dispersal distance from the ranch. At Jensen Pond, a non-breeding adult (based on personal review of a photograph) CTS was observed in the 2000s in a trench during water service maintenance activities. If a breeding population is present, it is likely small due to the paucity of suitable upland habitat. Additionally, Hwy 1 likely is significant impediment to CTS dispersal towards Packard Ranch.
- Two agricultural ponds are present to the northwest within 1.25 miles of the subject pond, the nearest of which is ~0.8 mile from the subject pond. Although these ponds could be regarded as 'potential' CTS breeding ponds, similar to Jensen Pond, they are likely marginal in quality due to intensive row crop agriculture in the surrounding landscape and, if present, the CTS population would likely be small.
- Packard Ranch is isolated from known CTS occurrences to the south and east by the Elkhorn Slough channel. Regardless, the CTS population to the south is thought to be near extirpation based upland pitfall trapping results where only two CTS adults were captured during a two-year study performed in the early 2000s on a parcel east and adjacent to the Moss Landing Power Plant (MLPP); no CTS were captured during a two-year study performed in 2010-11 on a parcel adjacent and north of MLPP; and only one adult was captured in 2016-17 during a study adjacent to Moonglow Dairy.

Based on the best available data, the evidence suggests that Packard Ranch does not support a robust CTS population and their presence at any given pond is likely to be small. As such, the mitigation/protection measures proposed for implementation as part of the pond habitat enhancement project, such as aquatic and eDNA sampling prior to enhancement activities, project timing and presence of biological monitors throughout the course of the project seem adequate to protect CTS.

If you have any questions or if I can help in other ways, please feel free to contact me anytime.

Sincerely,



Bryan Mori
Consulting biologist

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